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May 05, 2015

Mary Jo White
Chair, Securities and Exchange Commission

Keith Higgins
Director, Corporate Finance Division, Securities and Exchange Commission

Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549
Re: Disclosure Effectiveness Review

Dear Chair White and Director Higgins:

Thank you for the opportunity to provide input on improving disclosures by U.S. public companies. I am writing to you on behalf the Union of Concerned Scientists (UCS). UCS is a leading science based non-profit working to integrate science into public decision making.

In particular, I write to urge the Securities and Exchange Commission to proceed with rulemaking on two issues, as a means of improving disclosure for investors and the public: 1) require companies to report annually whether climate change impacts pose risks to their business and to clearly specify any such risks, and 2) require publicly traded companies to disclose both their direct and indirect political activities. These actions would provide important information to investors and the public about the risks companies face and how companies are influencing important policy discussions.

Disclosing Risks Posed by Climate Change

The SEC recognized the financial impacts of climate change when it issued Interpretive Guidance on climate disclosure in February 2010, responding to more than 100 institutional investors representing $7 trillion who are seeking regular reporting from companies on these risks[1].

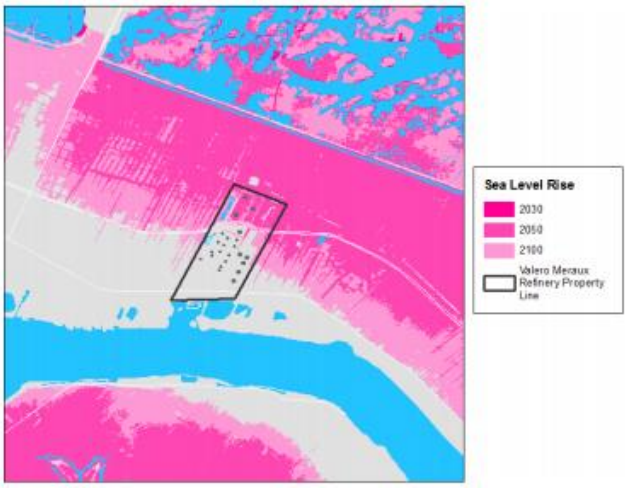
The Guidance outlines expectations for companies reporting on material regulatory, physical, and indirect risks, as well as opportunities related to climate change including:

> "Significant physical effects of climate change, such as effects on the severity of weather (for example, floods or hurricanes), sea levels, the arability of farmland, and water availability and quality, have the potential to affect a registrant's operations and results.

[1] http://www.sec.gov/rules/petitions/2007/petn4-547.pdf

> For example, severe weather can cause catastrophic harm to physical plants and facilities and can disrupt manufacturing and distribution processes.
>
> . . .
>
> Possible consequences of severe weather could include:
>
> For registrants with operations concentrated on coastlines, property damage and disruptions to operations, including manufacturing operations or the transport of manufactured products;
>
> . . .
>
> Registrants whose businesses may be vulnerable to severe weather or climate related events should consider disclosing material risks of, or consequences from, such events in their publicly filed disclosure documents"[2].

Despite this guidance, in a recently released UCS report, *Stormy Seas, Rising Risks: What Investors Should Know About Climate Change Impacts at Oil Refineries* (attached below) we found that many companies still do not adequately disclose the risks they face from the physical impacts of climate change[3]. The report models sea level rise and storm surge at five refineries on the Gulf and East coasts and finds that the top five U.S. refining companies, which own these facilities, have not fully disclosed these risks to their shareholders despite SEC guidance, apparent risk from climate impacts, and past financial impacts from damaging storms.



Valero's Meraux Louisiana refinery and surrounding areas could be underwater by 2050, given intermediate sea level rise estimates.[4]

For example, when Hurricane Katrina made landfall in 2005, a refinery in Meraux, Louisiana flooded. Damaged tanks spilled 25,000 barrels of oil, covering over a square mile of neighborhood and contaminating 1,700 homes[5]. Then refinery-owner Murphy Oil paid $330 million to settle 6,200 claims, buy contaminated property, and perform cleanups[6]. Following the incident, Murphy Oil disclosed to its investors that the refinery faced climate-related risks: "The physical impacts of climate change present potential risks for severe weather

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[2] http://www.sec.gov/rules/interp/2010/33-9106.pdf
[3] www.ucsusa.org/risingrisks
[4] http://www.ucsusa.org/sites/default/files/attach/2015/03/stormy-seas-appendix-a-ucs-2015.pdf
[5] http://www.oe.netl.doe.gov/docs/HurricaneComp0508r2.pdf
[6] http://www.nbcnews.com/id/15004868/ns/us_news-environment/t/million-settlement-deal-katrina-oil-spill/#.VUfh9aPD_oo

(floods, hurricanes, tornadoes, etc.) at our Meraux…refinery," the company wrote to the SEC[7]. But Valero Energy Corporation acquired the refinery from Murphy Oil in 2011, and Valero has yet to disclose any risks from the physical impacts of climate change to the Meraux facility.

The Meraux facility is not alone. More than 100 oil and gas facilities in the U.S. are within 10-feet of the local high tide line, areas at great risk from climate change impacts such as sea level rise and storm surge associated with more intense storms[8].

Based on the scientific evidence we detailed, the UCS report recommends that:

> "The Securities and Exchange Commission should push companies to follow its guidelines for disclosing climate change risks, while also educating them about how to comply and on what full disclosure looks like. Further, the SEC should go beyond guidance and issue a rule that requires companies to report annually whether climate change impacts—including sea level rise and enhanced storm surges—pose risks to their business and to list any such risks specifically"[9]

Such specificity demonstrates to investors that companies are carefully considering the risks that climate change poses to all of their assets, and helps them make informed decisions about the risks companies face.

Disclosing Political Activities

It is clear that the broad and complex issue of climate change—both the policies aimed at addressing drivers of climate change and the physical impacts of a warmer planet—has significant implications for the business community. And trade and business associations have been deeply engaged in climate change policy discussions. A 2013 study found that Global 500 companies, when asked how they influence policy on climate change, reported that they do so through their trade groups more than any other policy engagement mechanism, including direct lobbying and the funding of research[10]. In the United States, some trade and business associations have promoted policies to help constructively address climate change, but many more have worked to block meaningful climate action—and some even publicly misrepresent climate science.

Since the Supreme Court's 2010 ruling in Citizens United v. Federal Election Commission and other significant court rulings removed restrictions on political spending, there has been a drastic increase in political spending by companies, largely through outside groups such as trade associations and "social welfare" organizations[11]. This indirect funding allows for anonymity on the companies' part, as trade associations and other politically active organizations are not required to disclose their donors to the public. Corporations can thereby influence political debates without accountability.

The Supreme Court's decision in Citizens United relied on the assumption of "prompt disclosure of expenditures," which would allow shareholders to hold companies

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[7] http://www.sec.gov/Archives/edgar/data/717423/000119312511049276/d10k.htm
[8] http://slr.s3.amazonaws.com/SLR-Threats-to-Energy-Infrastructure.pdf
[9] http://www.ucsusa.org/risingrisks
[10] https://www.unglobalcompact.org/docs/issues_doc/Environment/climate/Guide_Responsible_Corporate_Engagement_Climate_Policy.pdf
[11] https://www.opensecrets.org/outsidespending/nonprof_rank.php?cycle=2012&type=All

accountable[12]. In the absence of an SEC rule, however, such disclosure is nonexistent, given that companies can legally remain nameless donors to trade groups and other outside organizations that are politically active.

In a 2014 UCS report, *Tricks of the Trade: How Companies Anonymously Influence Climate Policy Through Their Business and Trade Associations* (attached below) we analyzed voluntary company disclosures of political influence through trade associations[13]. Specifically we investigated whether or not companies agreed with the climate change positions of trade groups of which they were board members. Our results show that many companies are not yet willing to be transparent about their political activity through voluntary measures.

Accordingly, the report recommends that:

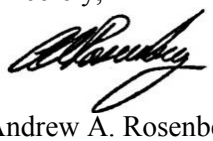
> "The Securities and Exchange Commission should issue a rule that requires publicly traded companies to disclose both their direct and indirect political activities" [14].

More transparency in corporate political activities is needed. Investors deserve to know how their money is being spent. For example, investors have a right to know if a company is a member of organizations that actively obstruct climate policy solutions while at the same time the company is facing risks from the physical impacts of climate change. Furthermore, the public deserves to know who is influencing decisions on policy issues that will affect their health and safety.

This has already been shown to be a popular idea. In 2011, a group of 10 high-profile law professors filed a petition on such a rule; the petition now has over 1million signatures—more than the agency has ever received on a rule[15]. The drumbeat for disclosure has continued, underscored by the letter submitted under this same Disclosure Effectiveness Review process by 62 institutional investors, representing over $1.9 trillion in assets under management. These investors are particularly, concerned that oil and gas companies are not disclosing sufficient information about carbon asset risks in SEC filings[16].

Investors will continue to bear unknown risks until the Commission enacts robust rules for reporting physical risks associated with climate change and there are clear requirements for disclosure of corporate political spending. Thank you for considering our comments. We would be happy to further discuss any of the points raised in this letter, or provide any additional information that may be helpful to the Commission.

Sincerely,



Andrew A. Rosenberg, Ph.D.
Director, Center for Science and Democracy
Union of Concerned Scientists

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[12] http://www.nytimes.com/2013/12/04/opinion/keeping-shareholders-in-the-dark.html
[13] http://www.ucsusa.org/tricksofthetrade
[14] Ibid.
[15] http://www.sec.gov/rules/petitions/2011/petn4-637.pdf
[16] http://www.ceres.org/press/press-releases/investors-push-sec-to-require-stronger-climate-risk-disclosure-by-fossil-fuel-companies

Stormy Seas, Rising Risks

What Investors Should Know About Climate Change Impacts at Oil Refineries

{CSD Center for Science and Democracy at the Union of Concerned Scientists

Stormy Seas, Rising Risks

What Investors Should Know About Climate Change Impacts at Oil Refineries

Christina Carlson
Gretchen Goldman
Kristina Dahl

February 2015

{cSD Center for Science and Democracy at the Union of Concerned Scientists

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The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with citizens across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

The Center for Science and Democracy at UCS works to strengthen American democracy by advancing the essential role of science, evidence-based decision making, and constructive debate as a means to improve the health, security, and prosperity of all people. More information about UCS and the Center for Science and Democracy is available on the UCS website: *www.ucsusa.org*.

This report is available online (in PDF format) at *www.ucsusa.org/risingrisks*.

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[INTRODUCTION]

Fossil fuel energy companies face tremendous risks from the impacts of climate change. Sea level rise and enhanced storm surge can damage or destroy coastal energy facilities, curtail production (or stop it altogether), and inundate nearby communities.

Oil refineries are especially vulnerable, as they often sit on low-lying land. Yet many companies—ironically, including those whose operations have contributed to the emissions that *cause* climate change— fail to disclose such vulnerabilities, even though the U.S. Securities and Exchange Commission (SEC) asks all publicly traded companies to consider the climate-related risks they face and to disclose those that are material. When companies neglect to disclose and prepare for these risks, they face greater potential for spills and other damages caused or made worse by climate impacts. Investors, taxpayers, and communities should not have to bear the burden of this failure. They should instead take action, pressuring companies to fully consider and disclose their climate change risks. For its part, the SEC should educate companies about these climate impacts and ensure they are reported. Greater transparency about the risks associated with our fossil fuel energy infrastructure allows us to make more informed decisions about our energy choices.

Coastal Impacts of Climate Change

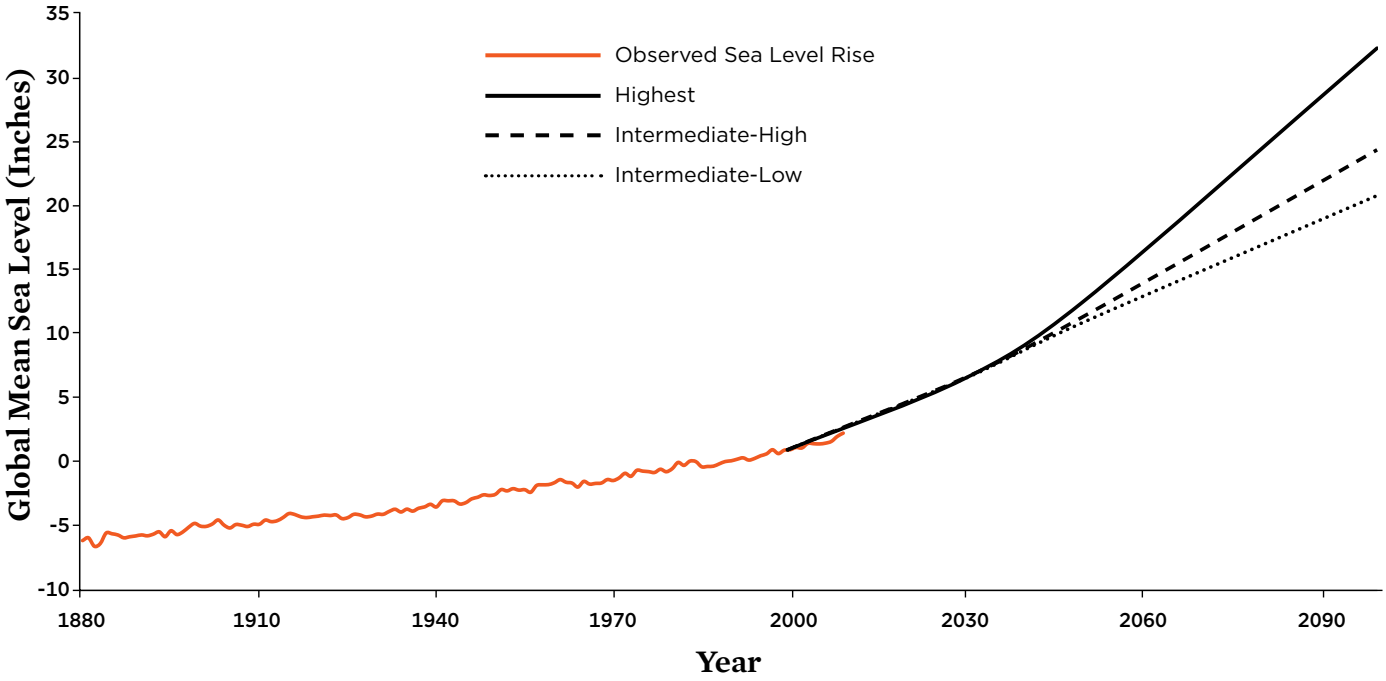
Oil and gas companies often have large refining operations at or near the coastline. Many of these facilities are on land less than 10 feet above the high tide line (Strauss and Ziemlinski 2012). Climate change impacts, including sea level rise and changes in storm intensity, add to the risks that these coastal facilities face now and in the future. (See Figure 1, p. 2 and Figure 2, p. 3.)

Around the world, sea level is rising in response to global warming (Dutton and Lambeck 2012). The planet has warmed by about 1.5°F (0.8°C) since 1880 as a result of human activities—primarily the burning of fossil fuels, and the accumulation of heat-trapping gases in the atmosphere (Hartmann et. al. 2013; Hansen et al. 2010). Global sea levels rose roughly eight inches from 1880 to 2009, with global warming the main driver (Church and White 2011; Church et al. 2011). And as air temperature increases, so does the temperature of the oceans, which have absorbed more than 90 percent of human-caused warming since 1955 (Levitus et al. 2012).

As seawater warms, it expands. This expansion, together with the shrinkage of mountain glaciers and polar ice sheets due to melting, are the primary reasons why global sea level is rising (Cazenave and Llovel 2010; Lombard et al. 2005). And the rate of this rise has nearly doubled in recent years. In the 15-year period from 1993 to 2008, the global rate of sea level rise was more than two-thirds higher than the 20th-century average (Church and White 2011; Ablain et al. 2009; Leuliette, Nerem, and Mitchum 2004).

In the United States, the East and Gulf Coasts have the fastest rates of local sea level rise, due in part to local subsidence—the sinking of land—and changes in ocean currents (NOAA 2014a; Ezer et al. 2013; Sallenger, Doran, and Howd 2012). (See Box 1, p. 5.) Galveston, TX, for example, has experienced more than a foot of sea level rise in the past 50 years, compared with the global average of about four inches (NOAA 2014b; Church and White 2011). Recently published

FIGURE 1. Historical and Projected Sea Level Rise



Sea levels are expected to rise faster in the next century, with some parts of the world, such as the U.S. East and Gulf Coasts, expected to see higher rates than others. Shown here are recently published sea level rise projections that used different IPCC RCP scenarios, which make several different assumptions about how oceans and land-based ice could respond to future warming. The intermediate-high scenario was used for the UCS analysis.

SOURCE: KOPP ET AL. 2014

projections suggest that, under a mid-range scenario of future warming, the Gulf of Mexico may experience three to four feet of sea level rise by the end of this century, while many locations along the Mid-Atlantic and Northeast Coasts are projected to experience two to three feet (Kopp et al. 2014). (Figure 1.)

With sea level rise to date, storm surge—abnormal rise of water above the normally predicted tide line, primarily as a result of strong winds—from hurricanes in recent years has been as high as 28 feet above normal tide levels, resulting in devastation to coastal areas (NHC 2014). Strong winds can also make waves larger, and with storm surge bringing these pounding waves farther inland, more structures are exposed to the destructive battering power of the ocean. During Hurricane Ike in 2008, the storm surge traveled up to 30 miles inland in parts of Texas and Louisiana (NHC 2015).

In addition, climate change may affect the strength of the coastal storms themselves. Recent studies have shown a substantial increase in the proportion of more intense hurricanes (i.e., Category 4 and 5) in the North Atlantic basin since 1975 (Holland and Bruyere 2014; IPCC 2013a). (See Figure 2, p. 3.) And as the climate continues to warm, it is likely that the most intense categories of hurricanes will occur more often (IPCC 2012). Moreover, as sea levels rise, the storm surge associated with hurricanes is riding on the back of an increased baseline, making even lower-intensity storms more damaging. It is also likely that global warming will cause hurricanes to have higher rainfall rates by the end of the 21st century, further increasing flood risks (GFDL 2013; Knutson and Tuleya 2008; Knutson and Tuleya 2004).

On the U.S. East Coast nor'easters, storms that are slower moving but much larger in area than hurricanes, can do just as much damage, depending on their intensity, path, duration, and frequency. When combined with elevated seas, they can inundate large areas, causing extensive flooding and beach erosion, especially at high tides (NOAA 2013a).

Why Focus on Refineries?

Refineries are critical components of the U.S. energy system, and their operations affect all Americans. Refineries take crude oil and turn it into transportation fuel and other widely used products. For example, a barrel (42 U.S. gallons) of crude

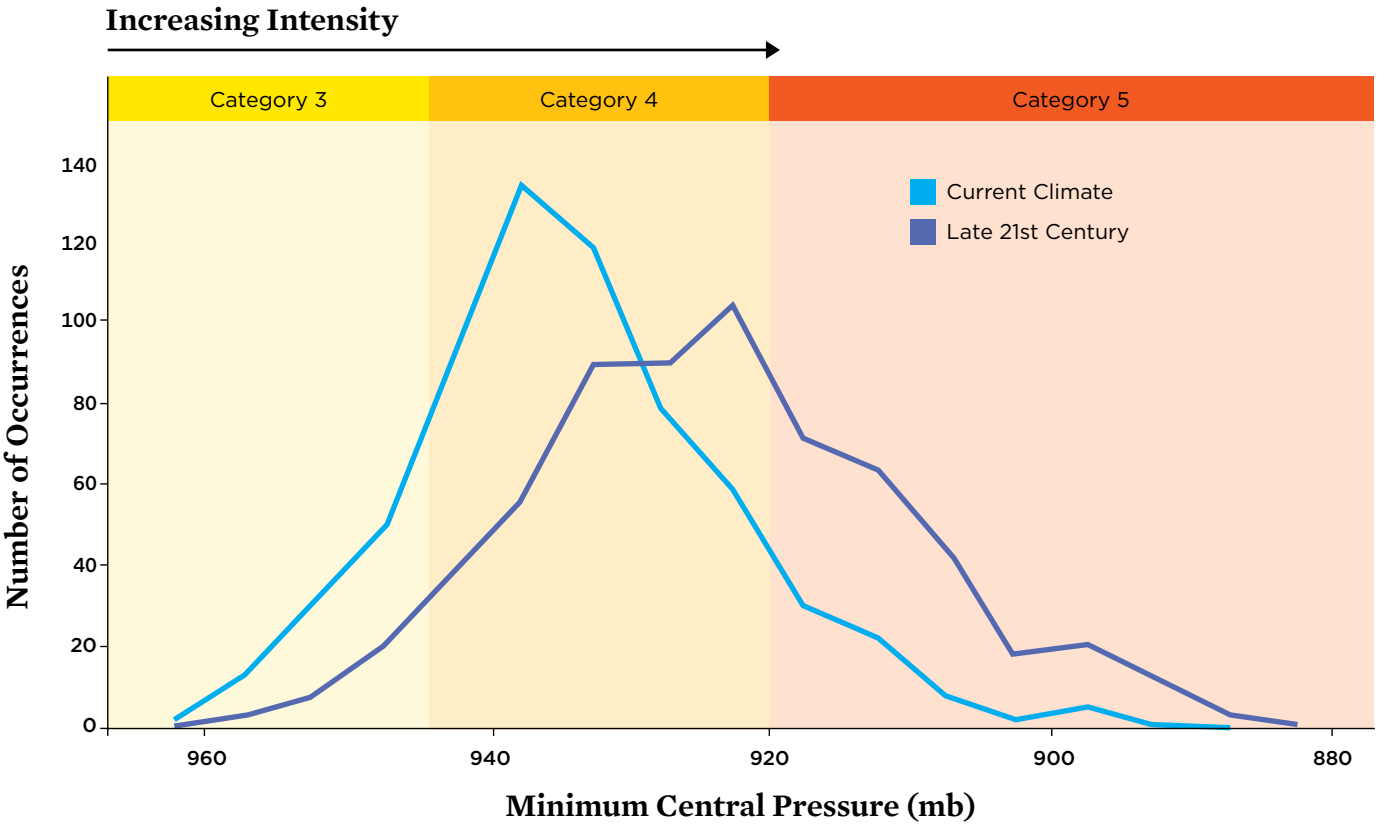
oil that goes to a refinery yields about 19 gallons of gasoline and 12 gallons of diesel (EIA 2014a).

Refineries have long operating lives, so companies typically invest in updates and expansions, or sell facilities to other parties, rather than abandon old facilities or construct new ones. Since 1993, only three refineries have been built in the United States (EIA 2014b). Yet as of January 1, 2014, there were 139 operating U.S. refineries (EIA 2014c).

Though refineries are vital, most oil industry profits come from crude oil extraction; refineries do not have high profit margins even though they operate almost continuously (EIA 2014d; UCS 2014). Thus any disruption in refining operations could have a material impact on related cash flows. Disruptions include diminished refining utilization rates, maintenance downtime, changes in supply chains or distribution centers, power outages, or plant closures (Davis and Clemmer 2014). Closures can occur because of damage to the facility or danger to employees, nearby communities, or the public. These facilities are already vulnerable to such disruptions, with a history of spills, explosions, and other industrial accidents at many sites, as well as indirect effects from disruptions to oil drilling. And with 120 oil and gas facilities situated within 10 feet of the local high tide line, U.S. refineries are especially vulnerable to storm and climate-related impacts (Strauss and Ziemlinski 2012). (See Box 1, p 5.)

Past weather- and climate-related refining outages have had significant impacts on gasoline prices and in turn have affected the U.S. economy as a whole. In 2005, for example, Hurricanes Katrina and Rita devastated the Gulf coast, shutting down 23 percent of the U.S. refining capacity, causing a significant drop in gasoline production and resulting in a 50 percent jump in the weekly average spot price of conventional gasoline (Kirgiz, Burtis, and Lunin 2009; Reuters 2005).

FIGURE 2. Climate Change Impacts on Atlantic Hurricane Frequency and Intensity



Research shows that climate change will lead to an increase in Atlantic hurricane intensities over the next century. There will likely be fewer Atlantic hurricanes overall, but the ones that do form could be more damaging. This is because hurricanes are expected to achieve higher wind speeds and involve more rainfall as sea surface temperatures rise.

SOURCE: MICHON 2010

To reduce the vulnerabilities of companies' refining operations, they will need both to mitigate and adapt to climate-related risks. A 2013 report by IPICEA, an oil and gas industry association affiliated with the United Nations, highlights the importance of the oil and gas industry incorporating climate-related risks including physical risks into risk management and adaptation processes (IPICEA 2013). Our energy choices will play a vital role in both mitigating these risks and reducing global warming emissions. Beyond adapting to changing conditions, the companies producing and refining oil also need to cut their carbon emissions dramatically. Unless we reduce carbon emissions and avoid the worst effects of climate change, the need for costly adaptation, emergency-response, and clean-up measures will only grow. But companies' limited efforts in this area to date, and in many cases, their outright opposition to emissions reductions, means that climate change has continued unabated, along with serious risks to the public and to the companies' own operations (See Box 2, p. 6).

As a result of these growing risks and companies' failure to disclose or prepare for climate impacts, investors and the public have had to bear the costs of disasters at refineries. Investors see the hit in their financial returns, and members of the public suffer when they pay at the pump and in their tax dollars—which are used when governments perform emergency responses and cleanup efforts as well as issue federal loans. This is not a sustainable or economically efficient system. Thus it is imperative that companies actively consider, report, and act to prevent or minimize climate-related risks to their refineries.

The SEC and Investors Demand Disclosure of Climate Change Risks

In 2007, Andrew Cuomo, then attorney general of the State of New York, investigated five companies interested in building new coal-fired power plants in the state. As noted in a 2012 UCS report, Cuomo issued subpoenas to the companies on the grounds that the proposed plants carried substantial business risks related to climate change—particularly from potential legislation to restrict carbon emissions—and that these risks had not been adequately disclosed, thereby misleading investors (Grifo et al. 2012). Four of the companies reached agreements with the attorney general to disclose in their SEC Form 10-K filings the business risks they faced, physical and legislative alike, that were associated with climate change (Confessore 2008).

This unprecedented case sent a strong and convincing message, as it came during a time of broader demand by institutional investors that publicly traded companies give greater consideration to climate change risk (Sheehan 2008).

Shareholder resolutions are one way that investors can encourage public companies to act differently. Company shareholders, individually or through institutional investors,

Storm surge, like in Houston, TX after Hurricane Ike shown here, can reach far inland, flooding communities and transportation infrastructure and thereby disrupting supply chains, distribution centers, and workers' ability to get to their jobs.

BOX 1.

The Gulf Coast: Sinking Coast, Rising Seas, and Gathering Storms

As noted in a 2014 Union of Concerned Scientists (UCS) report, the Gulf Coast faces rates of sea level rise that are among the highest in the world—in some places more than three times the global average—partly because segments of the region, large swaths of the coast from Mississippi to Texas, are subsiding (Spanger-Siegfried, Fitzpatrick, and Dahl 2014; NOAA 2013b; Milliken, Anderson, and Rodriguez 2008). Louisiana, for example, has lost 1,900 square miles of land since the 1930s. Parts of the Houston area have sunk by more than seven feet in 100 years (Climate.gov 2013; Kasmarek, Gabrysch, and Johnson 2009). Subsidence rates vary widely along the Gulf Coast because local sediment types vary widely and groundwater, oil, and gas are being extracted to different extents along the coast (Kolker, Allison, and Hameed 2011).

The Gulf Coast's location, low-lying topography, and large population render it highly vulnerable to storm surge during hurricanes and tropical storms. Hurricane Katrina alone took nearly 2,000 lives, forced about a quarter of New Orleans residents to leave the city permanently, and caused roughly $125 billion in damage (Plyer 2013). More than a quarter of the major roads in the Gulf Coast region are on land less than four feet in elevation, which places critical transportation infrastructure well within striking range of sea level rise, storm surge, and tidal flooding (USCCSP 2008). Wetlands and barrier islands that line the Gulf Coast have historically provided a natural line of defense against storms and coastal floods. However, these fragile systems are themselves subject to the forces of nature—including subsidence, storms, erosion, and sea level rise—and human development. As these natural defenses change, so does their ability to protect the coastline from some floods (Moser et al. 2014; NRC 2012).

can file resolutions with the SEC that request company action on a particular issue. Often shareholders have direct discussions with the companies before or after filing resolutions, which increasingly focus on social and environmental issues, including climate change (As You Sow 2014).

While shareholder resolutions on corporate climate change strategies first appeared as early as 1989, in 2004 investors began asking the SEC to help improve companies' climate risk disclosures in their financial filings (ICCR 2015; Ceres 2004). Beginning in 2007, more than 100 institutional investors, representing $7 trillion, petitioned the SEC seeking regular reporting from companies on these risks or supported the petitions (CalPERS et al. 2007). In 2010, the SEC issued guidance to companies for considering and discussing such risks in their annual Form 10-K reports (SEC 2010).[1]

The 2010 SEC guidance document explicitly stated that "significant physical effects of climate change ... have the potential to have a material effect on ... business and operations. These effects can impact ... personnel, physical assets, supply chain, and distribution chain. They can include the impact of changes in weather patterns, such as increases in storm intensity, [and of] sea-level rise."

This guidance added to growing demands from shareholders for companies to fully consider and report physical risks from climate change. Such disclosures are intended to give investors a sense of companies' exposure to climate risks across the entire value chain (Ceres 2012). The SEC discourages "boilerplate" discussion of generalized risk or obvious

Shareholder resolutions requesting company action on a particular issue are one way that investors can encourage public companies to act differently.

1 *All publicly traded companies have long been legally mandated to discuss material risks (of diverse kinds) in their Form 10-K, which they submit annually to the SEC (SEC 2009). The 2010 SEC guidance specifically detailed the ways in which companies should consider climate change risks, and disclose those found to be material, in their Form 10-K (SEC 2010). Though, because it is not an SEC rule, this limits the enforceability of such disclosure.*

BOX 2.

Spillover Effects of Refineries on Neighboring Communities

Many of the risks that energy companies and their investors face are shared by communities located near petroleum refineries. About 18.5 million people live in the vulnerability zones around refining facilities (Strauss and Ziemlinski 2012). A recent report from Coming Clean found that 134 million Americans live in the vicinity of 3,400 facilities—including petroleum refineries—that use or store hazardous chemicals (Orum et al. 2014). At least one in three children in this country goes to school within areas described by industry as "vulnerable" (CEG 2014). While these risks are wide reaching, the families that live in the most vulnerable zones are disproportionately poor, African American, or Latino (Orum et al. 2014).

For example, Chevron's Richmond, California, refinery faced criticism in a 2014 report for exposing communities of color to past and potential chemical catastrophes. Some 80 percent of the population living within a mile of the refinery were people of color and a quarter were below the poverty line (Orum et al 2014). The facility experienced several recent safety problems, with significant fires at the plant both in 2012 and 2014 (Chemical Safety Board 2014; Chaudhuri, Samanta, and Seba 2014). In the 2012 fire, 15,000 residents near the refinery sought treatment for respiratory problems.

In addition to the health risks that communities face from their proximity to refineries, they are vulnerable to the same climate risks as companies. When oil and gas facilities are damaged in floods or have resulting spills, surrounding communities can be contaminated as well. After Hurricane Katrina, the Meraux refinery (then owned by Murphy Oil, now Valero-owned) spilled 25,000 barrels of oil from damaged tanks. City canals, over a square mile of neighborhood, and approximately 1,700 homes were contaminated with oil (EPA 2006). Damages to the community cost Murphy Oil $330 million to settle 6,200 claims, buy contaminated property, and perform cleanups (MNS 2006; FEMA 2005).

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Smoke from a huge fire at Chevron's Richmond, CA refinery billows into surrounding communities. The 2,900 acre petroleum refinery is located in Contra Costa County on San Francisco Bay, an area plagued by industrial accidents. Some 80 percent of the population living within a mile of the refinery are people of color and a quarter are below the poverty line.

conditions; rather, its guidance suggests that good disclosure identifies past and potentially future events or conditions and analyzes company-specific consequences in a narrative form (Ceres 2012; SEC 2010; SEC 2003).

In response to such demands from shareholders and the SEC, some companies have chosen to carefully analyze and publicly disclose their climate risks. The Hess Corporation, an oil and gas company with refining operations, has performed better than many other oil and gas companies in this regard. In its voluntary climate reporting to CDP (formerly the Carbon Disclosure Project), Hess described how climate-induced changes in storm severity could disrupt its operations and result in substantial costs:

> "Increased storm severity could materially affect our operations in the Gulf of Mexico. The financial impact of recent storms is an indicator of potential future implications. In 2013 Tropical Storm Karen hit the Gulf of Mexico, requiring Hess to shut-in its Baldpate Production Platform. Total gross lost production was approximately 130 thousand barrels of oil equivalent, with a market value of about $9 million" (CDP 2014).

To date, the five companies featured in this report have not disclosed careful analysis of their climate risk in their reporting to the SEC. In their Form 10-K filings, these companies have provided little to no disclosure of physical risk from climate change for any of their facilities. Shareholders have taken note of this, however, and they continue to file resolutions requesting greater disclosure of physical climate risks (See Box 8, p. 18).

Methodology

This report focuses on the top five U.S. energy companies with respect to their total crude-refining capacity: Valero, Phillips 66, Exxon Mobil, Marathon Petroleum, and Chevron (Brelsford, True, and Koottungal 2013). One coastal refining facility for each of the five companies was chosen for analysis based on perceived risk, which was determined by vulnerability of location and historical storm damage. (See the table, and Figure 3, p. 8).

The capacity information for each petroleum refinery is reported by the U.S. Energy Information Administration (EIA) as of January 1, 2014 (EIA 2014e). Capacity was listed in barrels per calendar day (b/cd), which is a measure of the amount of input that a distillation unit can process in a 24-hour period under usual operating conditions; this measure takes into account both planned and unplanned maintenance (EIA 2014c).

Refinery property lines were determined by county-level parcel-ownership data, when available. Digital Elevation Model (DEM) data were obtained from the U.S. Geological Survey National Map.

The extent to which each company disclosed—i.e., how thoroughly it considered the physical impacts of climate change itself—was assessed using (a) the SEC's EDGAR database; (b) targeted keyword searches in the Ceres/CookESG

Facility Statistics and Company Disclosure for Refineries Analyzed

U.S. Refining Rank of Company by Crude Capacity	Global Refining Rank of Company by Crude Capacity	Company	Site Location	Crude Capacity at Facility Analyzed (Barrels per Calendar Day)	Company Disclosure of Physical Climate Risk
1	6	Valero	Meraux, LA	125,000 b/cd	None
2	10	Phillips 66	Linden, NJ	238,000 b/cd	Poor
3	1	Exxon Mobil	Baytown, TX	560,500 b/cd	None
4	13	Marathon Petroleum	Texas City, TX	84,000 b/cd	None
5	9	Chevron	Pascagoula, MS	330,000 b/cd	None

Refineries from the top five U.S.-based refiners were chosen to assess risks the companies face from climate change impacts. Global rankings and crude capacities were based on 2013 SEC filings (Brelsford, True, and Koottungal 2013) and company disclosure assessments were characterized using tools developed by Ceres (2012).

These companies have provided little disclosure of climate change risk for their coastal refinery locations.

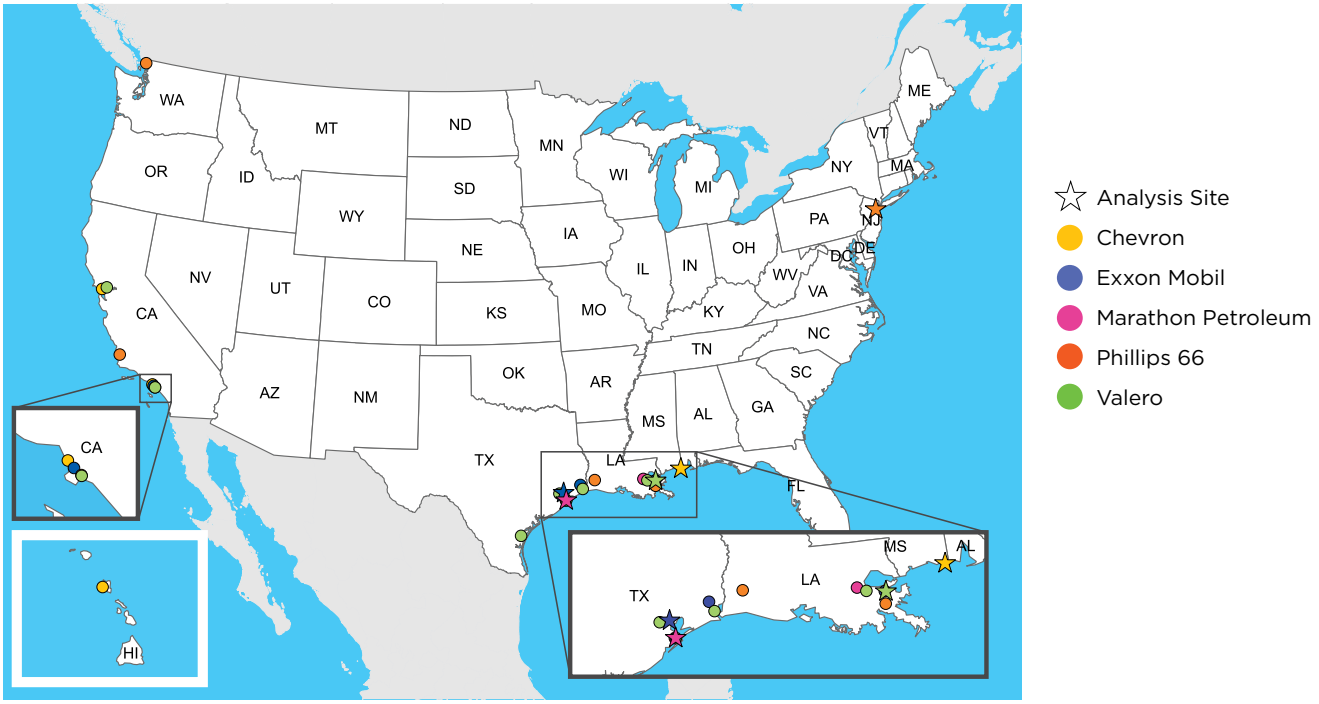
SEC Climate Disclosure Search Tool; and (c) 2013 SEC Form 10-K filings, which note all of the companies' disclosed material risks (for the most recent year for which data were available) (Ceres CookESG 2014; SEC 2014). Specifically, each company was assigned a disclosure score for its reporting on physical risk to the SEC (in its 2013 Form 10-K filings), based on methodology established in the Ceres 2012 report referenced below. Ceres—a nonprofit that mobilizes investors, companies, and public interest groups around sustainable business practices—defines good disclosure of physical risks from climate change this way:

> "Provides a detailed analysis of the physical climate risks the company faces (including in its supply chain), the operational segments and/or specific company facilities that might be impacted, the magnitude and timeframes of the anticipated impacts (quantified, when feasible), and how the company plans to respond. Includes an assessment of whether these physical risks 'will have, or are reasonably likely to have, a material impact on the company's liquidity, capital resources, or results of operations' (SEC 2003) and the basis for the company's conclusions. Discusses past physical impacts, if material" (Ceres 2012).

Note that the 2012 Ceres report and this report focus on disclosure, rather than assessing how well companies are actually managing and preparing for these risks, given that transparency provides incentives for companies to improve performance and reduce risks (Ceres 2012).

Methods used in this report draw from the best practices established by the NOAA Coastal Services Center and laid out in the "Mapping Coastal Inundation Primer" (NOAA 2012). The extent of future sea level rise was mapped for the years 2030, 2050, and 2100 using recently published, localized sea level rise projections (Kopp et al. 2014). Maps featured in this

FIGURE 3. Map of U.S. Coastal Refineries of the Five Companies Analyzed



The five companies analyzed have refineries along the Gulf, East, and West Coasts, as well as in Hawaii. Some of these facilities face risks, now and in the future, from sea level rise and storm surge. The oil and gas infrastructure in the Gulf of Mexico is especially vulnerable because of rising seas, sinking land, and frequent tropical storm systems.

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St. Bernard Parish, just outside of New Orleans, was contaminated with oil when the then Murphy Oil-owned Meraux refinery was severely damaged by storm surge during Hurricane Katrina. After the incident, Murphy Oil disclosed that the facility faced climate-related risks, but Valero has yet to disclose the same since it acquired the Meraux facility in 2011.

report show the Representative Concentration Pathway (RCP) 4.5 scenario from the Intergovernmental Panel on Climate Change Fifth Assessment report (IPCC 2013b). The RCP 4.5 can be viewed as a moderate mitigation policy scenario that has emissions peaking around 2040 and then declining (Kopp et al. 2014; IPCC 2013b).

Inundation from storm surge was estimated using the National Weather Service Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model's maximum of maximums (MOMs) at Gulf and East Coast sites. The storm surge maps produced from SLOSH MOMs show worst-case-scenario flooding given all possible storm paths for a hurricane of a particular strength. It is unlikely that any singular storm could produce all of the flooding shown in these storm surge inundation maps for a particular category; rather, the maps demonstrate the areas at risk for damage from storm surge at refineries, now and in the future, from Category 1–5 hurricanes.

SLOSH MOMs are often used for emergency management and coastal planning (NYC OEM 2009). During the key days preceding landfall of a major storm, the uncertainty associated with the final storm path is high. Thus it is essential for communities and emergency managers not only to know and plan for the worst-case scenario but also to prepare for multiple possibilities of where damage might occur.

To examine specific effects sea level rise might have on storm surge, a SLOSH MOM model of a hurricane category that already affects each facility was selected in order to compare how risk today changes with estimated sea level rise in 2030, 2050, and 2100.

For a more detailed description of the methodology for this report, see Appendix A.

The next five sections address in turn the five companies analyzed in this report. Each section identifies the company's place in the industry, specifies the coastal refinery examined, gives a brief synopsis of the company's history of weather and climate-related damages, summarizes how well the company publicly discloses climate change risks to all its coastal refineries, and provides a sense of shareholder actions pressing the company to recognize that need.

Results

Valero Energy Corporation

Valero Energy Corporation is the sixth-largest refining company in the world, and its nine refineries on U.S. coasts help make it the largest refiner in the United States. Several of these facilities sit in low-lying areas on the coast of the Gulf of Mexico and thus face significant risks from sea level rise and storm surge.

After Hurricane Katrina in 2005, the then Murphy Oil-owned Meraux refinery (modeled in Figure 4), which sits below sea level in southern Louisiana, spilled 25,000 barrels of oil and was shut down for several months (DOE 2009; EPA 2006). Meraux city canals and more than a square mile of neighborhood were contaminated with oil, resulting in a $330 million settlement for Murphy Oil (EPA 2006; MNS 2006). The Meraux facility again saw damages from the 2008 hurricane season and was shut down for many days (DOE 2009). Following these adverse events, Murphy Oil disclosed in its 2010 SEC Form 10-K that "the physical impacts of climate change present potential risks for severe weather (floods, hurricanes, tornadoes, etc.) at our Meraux ... refinery in southern Louisiana and our offshore platforms in the Gulf of Mexico" (Murphy Oil 2011).

Yet Valero has not disclosed such climate risks since it acquired the Meraux facility from Murphy Oil on October 1, 2011. Valero's 2013 SEC filing noted only that there could be "weather conditions that disrupt the supply of and demand for refined products," mentioning Hurricane Sandy as an example. Direct discussion of climate change concerns was limited to the impacts of climate-related regulations. Valero wrote, "Compliance with and changes in environmental laws, including proposed climate change laws and regulations, could adversely affect our performance" (Valero Energy 2014).

After Hurricane Katrina, the Meraux refinery spilled 25,000 barrels of oil. Meraux city canals and more than a square mile of neighborhood were contaminated.

BOX 3.

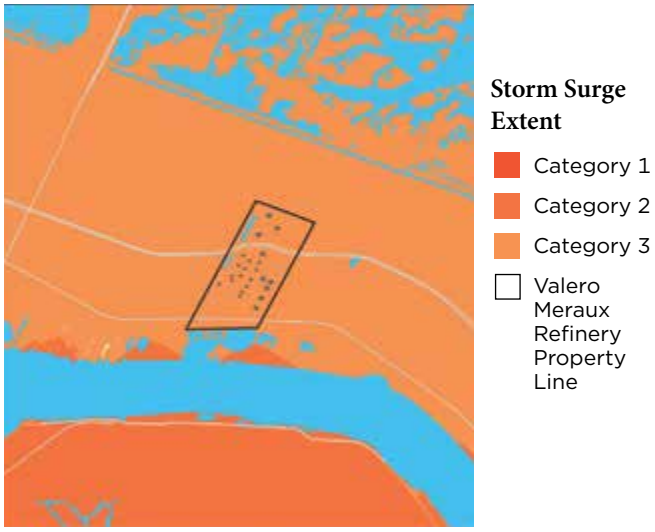
Valero Refining Statistics

Physical climate risk disclosure to SEC: No disclosure
Total U.S. crude refining capacity: 2,096,500 b/cd
Near-coast facilities in the U.S.: Meraux, LA (125,000 b/cd); St. Charles, LA (205,000 b/cd);* Corpus Christi, TX (200,000 b/cd); Houston, TX (88,000 b/cd); Texas City, TX (225,000 b/cd); Benicia, CA (132,000 b/cd); Wilmington, CA (78,000 b/cd)
* Valero Refining New Orleans LLC

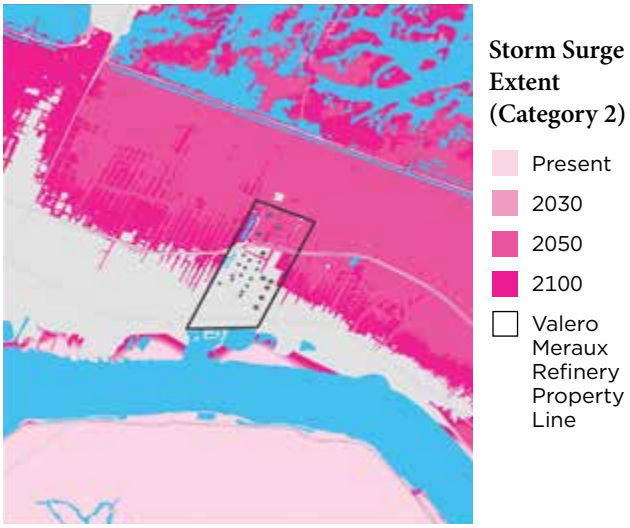
FIGURE 4. Valero 's Meraux, LA Refinery

a. Aerial Image Showing Refinery Property Line

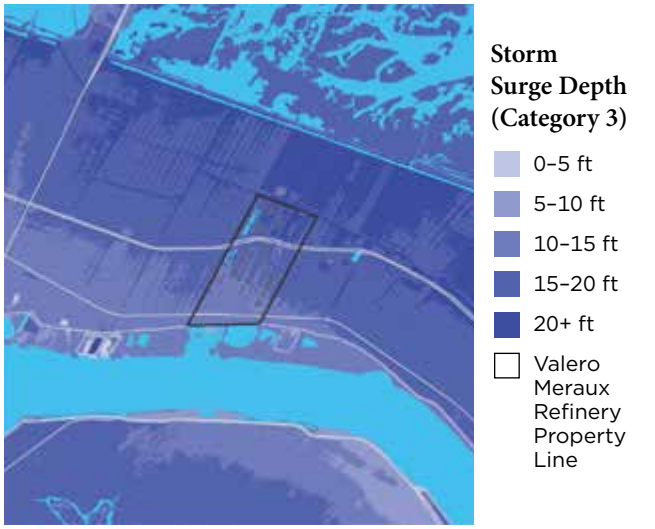
b. Extent of Storm Surge Flooding Today from Category 1–3 Hurricanes



c. Projections for Storm Surge Extent from a Category 2 Hurricane Today and with Sea Level Rise by 2030, 2050, and 2100



d. Depth of Storm Surge Flooding Today from a Category 3 Hurricane



Valero's Meraux, LA, refinery (125,000 b/cd) sits 10 miles east of New Orleans and has risks both from sea level rise and storm surge. SLOSH MOM modeling shows that by 2050, sea level rise will make the facility vulnerable to Category 2 hurricanes (Figure 4c), which are not currently projected to flood the facility at all (Figure 4b). With sea level rise to date, a Category 3 storm could put parts of the facility under 10 feet of water (Figures 4d).

Phillips 66

Phillips 66, formed in 2012 when ConocoPhillips spun off its refining, marketing, chemical, and transportation operations, is the 10th-largest refiner in the world. The company has 15 refineries worldwide—11 in the United States, with three of them on coasts. Phillips 66 has only limited disclosure of climate-related risks, including sea level rise and storm surge. After Superstorm Sandy hit in 2012, some 7,800 gallons of oil spilled at its Bayway refinery in Linden, NJ (modeled in Figure 5). The refinery was shut down for three weeks because of flood damage and power outages from the storm (Reuters 2012). But despite the obvious vulnerability of this and other facilities, the company has not fully reported its physical risks from climate impacts.

Phillips 66 SEC filings contain only minimal consideration of such risks, as exemplified by the following: "To the extent there are significant changes in the Earth's climate, such as more severe or frequent weather conditions in the markets we serve or the areas where our assets reside, we could incur increased expenses, our operations could be materially impacted, and demand for our products could fall" (Phillips 66 2014). The company has made no reference to the vulnerability of its coastal facilities to climate-related sea level rise and storm surge, nor has it provided any significant discussion on how, or if, it is preparing for those risks.

Meanwhile, investors are taking notice. For the 2015 shareholder season, Phillips 66 shareholders, led by Calvert Investment Management, have filed a resolution asking the company for better disclosure of risk from the physical impacts of climate change. The resolution states, "Diminished refining utilization rates, potential downtime or closure of facilities due to direct damage to facilities, danger to employees, disruption in supply chains, and power supply [outages] due to storm surges or sea level rise could have a material impact on the company's production and related cash flows. This was made evident when the company's Bayway refinery lost power after Superstorm Sandy, was shut down for several weeks due to flood damage from the storm, and incurred significant maintenance and repair expenses" (Calvert Investment Management 2014).

BOX 4.

Phillips 66 Refining Statistics

Physical climate risk disclosure to SEC: Poor disclosure
Total U.S. crude refining capacity: 2,060,200 b/cd
Near-coast facilities in the U.S.: Linden, NJ (238,000 b/cd); Belle Chasse, LA (247,000 b/cd); West Lake, LA (239,400 b/cd); San Francisco, CA (120,000 b/cd); Los Angeles, CA (139,000 b/cd)

Phillips 66 shareholders, led by Calvert Investment Management, have filed a resolution asking the company for better disclosure of risk from the physical impacts of climate change.

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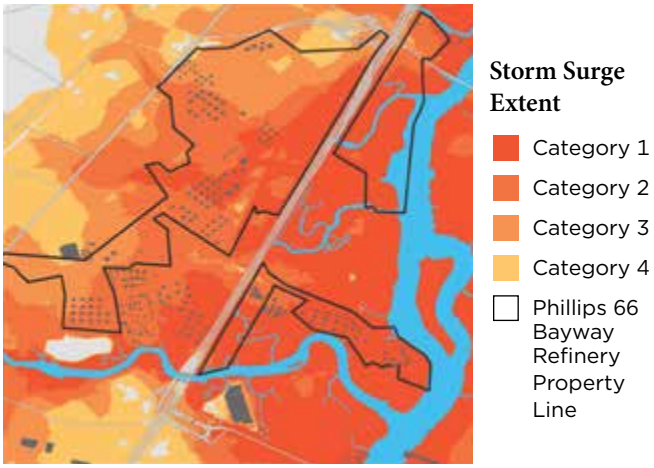
Phillips 66's Bayway refinery in Linden, New Jersey, is part of the "Chemical Coast" of industrial facilities situated on Arthur Kill—the waterway between New Jersey and New York's Staten Island. The geography of the New York bight puts the region at greater risk from storm surge associated with storms affecting the greater New York City area.

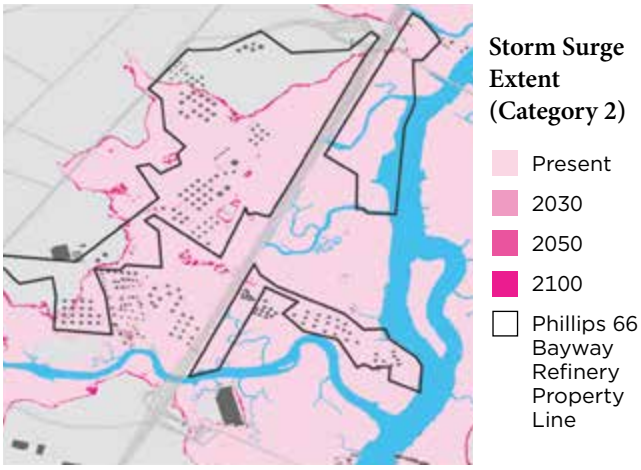
FIGURE 5. Phillips 66's Linden, NJ Refinery

a. Aerial Image Showing Refinery Property Line

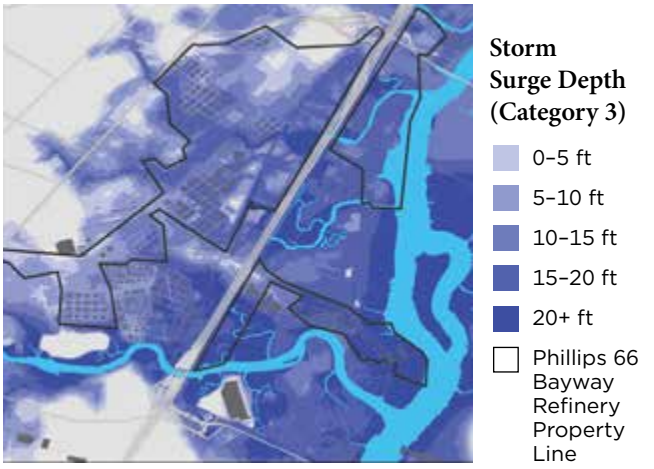
b. Extent of Storm Surge Flooding Today from Category 1–4 Hurricanes



c. Projections for Storm Surge Extent from a Category 2 Hurricane Today and with Sea Level Rise by 2030, 2050, and 2100



d. Depth of Storm Surge Flooding Today from a Category 3 Hurricane



Phillips 66's Bayway refinery (238,000 b/cd) in Linden, NJ, sits within the New York metropolitan area and faces risks from climate change. SLOSH MOM modeling shows that with sea level rise to date, a Category 1 hurricane could put parts of the facility under water (Figure 5b). If a Category 3 storm hit, the facility could be inundated, with potential for parts of the refinery to be under 10 feet of water (Figure 5d). Sea level rise, along with changes in hurricane intensity, could worsen storm impacts in the future (Figure 5c). The refinery could also be vulnerable from storm surge as a result of nor'easter storms occurring at high tide.

Exxon Mobil Corporation

Boasting more than 5 million b/cd in crude-refining capacity, Exxon Mobil Corporation is the largest refiner in the world. With three major refining facilities (Baytown, Chalmette, and Beaumont) along the Gulf of Mexico, the company has undisclosed risks from climate change impacts, including sea level rise and storm surge. Its Baytown complex (modeled in Figure 6) is the largest petroleum and petrochemical complex in the United States (Exxon Mobil Corporation 2014a). In 2005, Hurricane Rita caused both the Baytown and Beaumont facilities to shut down (Reuters 2005). Hurricane Katrina also caused major damage to the Chalmette refinery, causing it to shut down for many months (DOE 2009; EIA 2005). With continued sea level rise as well as potential increases in storm intensity as the climate warms, future shutdowns are likely.

Despite the vulnerable placement of these facilities, Exxon Mobil has not reported physical risks from climate change impacts to the SEC. Though the company's 2013 SEC filing noted that "hurricanes may damage our offshore production facilities or coastal refining and petrochemical plants in vulnerable areas," the only direct reference to climate-related risks discussed how climate regulation could affect the company's finances. The company wrote, "greenhouse gas restrictions could make our products more expensive, lengthen project implementation times, and reduce demand for hydrocarbons, as well as shift hydrocarbon demand toward relatively lower-carbon sources..." (Exxon Mobil Corporation 2014c).

BOX 5.

Exxon Mobil Refining Statistics

Physical climate risk disclosure to SEC: No disclosure
Total U.S. crude refining capacity: 2,043,500 b/cd
Near-coast facilities in the U.S.: Baytown, TX (560,500 b/cd); Chalmette, LA* (192,500 b/cd), Beaumont, TX (344,600 b/cd); Torrance, CA (149,500 b/cd)
*Joint venture with Petróleos de Venezuela; Exxon is the operating partner

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As climate change continues, it is likely that more intense hurricanes will occur more often in the North Atlantic basin. Wind speeds in Category 4 hurricanes reach up to 156 miles per hour, snapping trees and ripping off roofs and walls, like these in Baytown after Hurricane Ike.

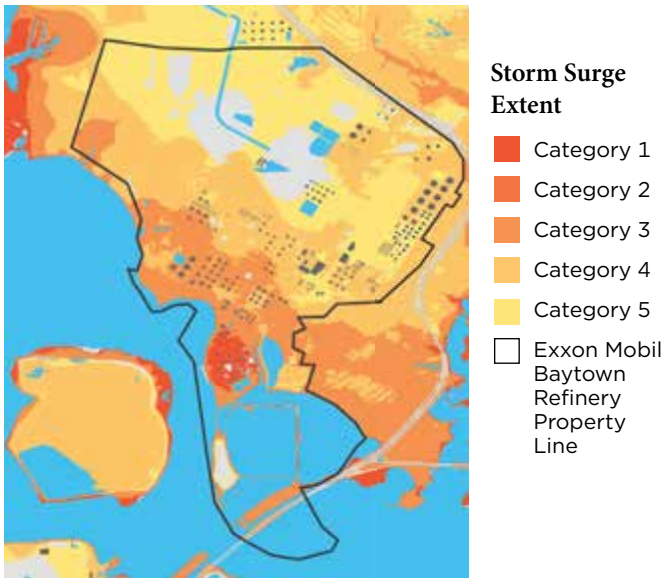
> ***Exxon Mobil has undisclosed risks from climate change impacts, including sea level rise and storm surge.***

But Exxon Mobil shareholders are concerned about these risks. In 2013, a shareholder resolution was filed by the Christopher Reynolds Foundation, requesting that the company "review the exposure and vulnerability of [its] facilities and operations to climate risk and issue a report that ... estimates the costs of the disaster risk management and adaptation steps the company is taking, and plans to take, to reduce exposure and vulnerability to climate change and to increase resilience to the potential adverse impacts of climate extremes" (Christopher Reynolds Foundation 2013a). In response to other shareholder demands, Exxon Mobil produced a report on energy and climate in 2014. The report noted that the company's risks from climate impacts, such as sea level rise and Gulf Coast hurricanes, "are carefully assessed and considered;" however, Exxon Mobil has not yet disclosed details of this assessment in this report or to the SEC (Exxon Mobil Corporation 2014b).

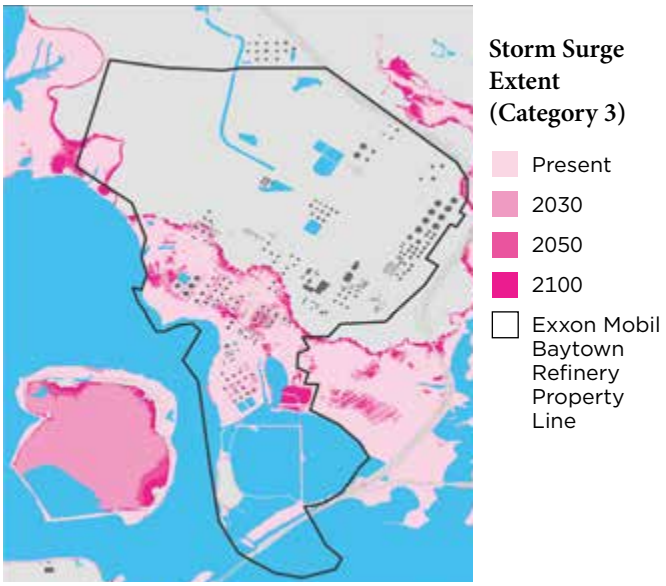
FIGURE 6. Exxon Mobil's Baytown, TX Refinery

a. Aerial Image Showing Refinery Property Line

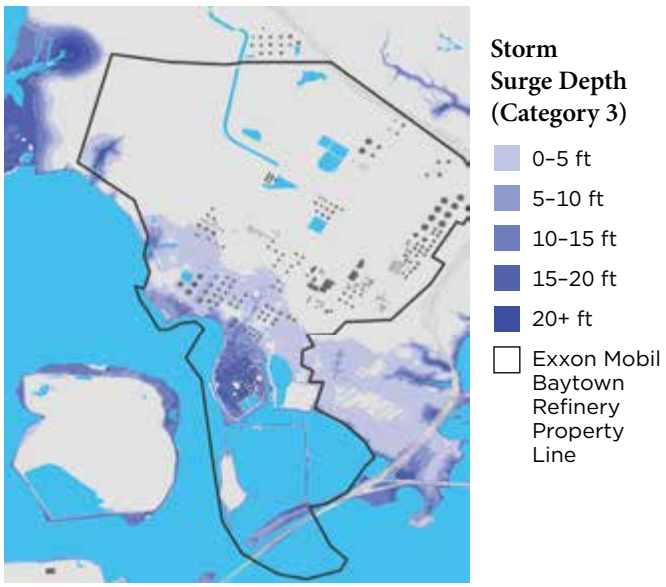
b. Extent of Storm Surge Flooding Today from Category 1–5 Hurricanes



c. Projections for Storm Surge Extent from a Category 3 Hurricane Today and with Sea Level Rise by 2030, 2050, and 2100



d. Depth of Storm Surge Flooding Today from a Category 3 Hurricane



Exxon Mobil's Baytown, TX, refinery (560,500 b/cd) sits at the north end of Galveston Bay, 25 miles east of Houston. SLOSH MOM modeling shows that with sea level rise to date, the facility faces risks from storm surge associated with stronger storms (Figure 6b). A Category 3 hurricane, for example, could inundate parts of the property (Figure 6b) and has the potential to leave some structures under 15 feet of water (Figure 6d). Sea level rise and increases in the proportion of more intense storms could make such storms more damaging to this facility in the future (Figure 6c).

Marathon Petroleum Corporation

In 2011, Marathon Oil spun off its refining, pipeline, and other downstream operations, thereby creating Marathon Petroleum. With seven refineries in the United States and a 1.7 billion b/cd U.S. capacity, Marathon Petroleum now stands as the fifth-largest refiner in the world. The company's three coastal U.S. refineries face climate-related risks from sea level rise and storm surge; indeed, they have suffered storm damages in the Gulf of Mexico in the past.

In the wake of Hurricane Isaac in 2012, Marathon Petroleum's Garyville, LA, refinery—one of the world's largest—experienced a significant reduction in operating capacity. The company took a loan of one million barrels of crude oil from the federal government's emergency reserves to support its refining operations after the storm (Gardner and Schneyer 2012).

Despite such incidences, Marathon Petroleum has not disclosed any risks at its facilities from climate change impacts, including sea level rise and storm surge. The company does note in its 2013 SEC filing the potential for severe "local weather conditions" and "natural disasters such as hurricanes and tornadoes"; however, its only direct discussion of climate change impacts is from regulation. The company states, "We believe the issue of climate change will likely continue to receive scientific and political attention, with the potential for further laws and regulations that could affect our operations" (Marathon Petroleum 2014).

BOX 6.

Marathon Petroleum Refining Statistics

Physical climate risk disclosure to SEC: No disclosure
Total U.S. crude refining capacity: 1,714,000 b/cd
Near-coast facilities in the U.S.: Texas City, TX (84,000 b/cd); Galveston Bay, TX (451,000 b/cd); Garyville, LA (522,000 b/cd)

As sea levels rise, hurricanes will be riding on the back of elevated water levels, increasing their inland reach and putting more people and infrastructure at risk from tropical storm systems.

FIGURE 7. Marathon Petroleum's Texas City, TX Refinery

a. Aerial Image Showing Refinery Property Line

b. Extent of Storm Surge Flooding Today from Category 1–5 Hurricanes

Storm Surge Extent

- Category 1
- Category 2
- Category 3
- Category 4
- Category 5
- Marathon Petroleum Texas City Refinery Property Line

c. Projections for Storm Surge Extent from a Category 3 Hurricane Today and with Sea Level Rise by 2030, 2050, and 2100

Storm Surge Extent (Category 3)

- Present
- 2030
- 2050
- 2100
- Marathon Petroleum Texas City Refinery Property

d. Depth of Storm Surge Flooding Today from a Category 3 Hurricane

Storm Surge Depth (Category 3)

- 0–5 ft
- 5–10 ft
- 10–15 ft
- 15–20 ft
- 20+ ft
- Marathon Petroleum Texas City Refinery Property

Marathon Petroleum's Texas City refinery (84,000 b/cd) sits adjacent to its Galveston refinery to the west and Valero's Texas City refinery to the south. SLOSH MOM modeling shows that with sea level rise to date, the Marathon Petroleum Texas City refinery and those around it could see storm surge impacts from a Category 3 storm or higher (Figure 7b), with operations closest to the coast being inundated (Figure 7d). In the future, sea level rise and changes in storm intensity could put the facility at greater risk for storm damages (Figure 7c). The close proximity of refineries in this area means that damage at one facility could also affect operations at others.

Chevron Corporation

With 14 refineries worldwide and a crude capacity of 2,540,000 b/cd, Chevron is the eighth-largest actor in the global refining industry. As the maps in Figure 8 demonstrate, Chevron's Pascagoula refinery is at risk for current storm damage and future impacts both of sea level rise and storm surge. Of note, this facility has already seen costs associated with storm damage; Hurricane Katrina caused major problems and an extended shutdown of the facility (Reuters 2005).

Despite the vulnerable locations of such facilities, Chevron fails to publicly report their physical risk from climate change. In the company's SEC filings, it makes no disclosures of this kind, though it does note the possibility of "disruptions at refineries or chemical plants resulting from unplanned outages due to severe weather." However, Chevron does not consider these risks in the context of climate change. The only direct discussion of climate change in Chevron's risk reporting surrounds the political implications of climate-related regulations. The company states, "Continued political attention to issues concerning climate change, the role of human activity in it, and potential mitigation through regulation could have a material impact on the company's operations and financial results" (Chevron Corporation 2014).

BOX 7.

Chevron Refining Statistics

Physical climate risk disclosure to SEC: No disclosure
Total U.S. crude refining capacity: 955,000 b/cd
Near-coast facilities in the U.S.: Pascagoula, MS (330,000 b/cd); El Segundo, CA (269,000 b/cd); Richmond, CA (245,271 b/cd); Kapolei, Hawaii (54,000 b/cd)

As a result, Chevron shareholders are raising concerns about the company's climate-related risks. A 2013 shareholder resolution filed by the Christopher Reynolds Foundation asked Chevron to "review the exposure and vulnerability of our company's facilities and operations to climate risk and issue a report ... that estimates the costs of the disaster risk management and adaptation steps the company is taking, and plans to take, to reduce exposure and vulnerability to climate change and to increase resilience to the potential adverse impacts of climate extremes" (Christopher Reynolds Foundation 2013b).

BOX 8.

An Investor Perspective on Climate-related Risk

By Paul Bugala, senior sustainability analyst, Extractive Industries, Calvert Investment Management, Inc.
December 8, 2014

In January 2010, the Securities and Exchange Commission (SEC) said that public companies should warn investors of any serious risks that climate change might pose to their businesses. Public companies must disclose any material consideration about their businesses anyway. So, the SEC's recognition that climate change is worthy of special attention was significant. This sort of thing doesn't happen every day.

What we do see every day are increasing signs of the impact of climate change on our lives and economy. Unfortunately, company disclosures of climate change risks are not where they should be. In fact, only 62 percent of S&P 500 companies and only half of Russell 3000 SEC filers said anything about climate change in their 2014 annual reports, according to Ceres (2014). And too often these comments did not include specifics on how companies are working to mitigate the causes and adapt to the effects of global warming.

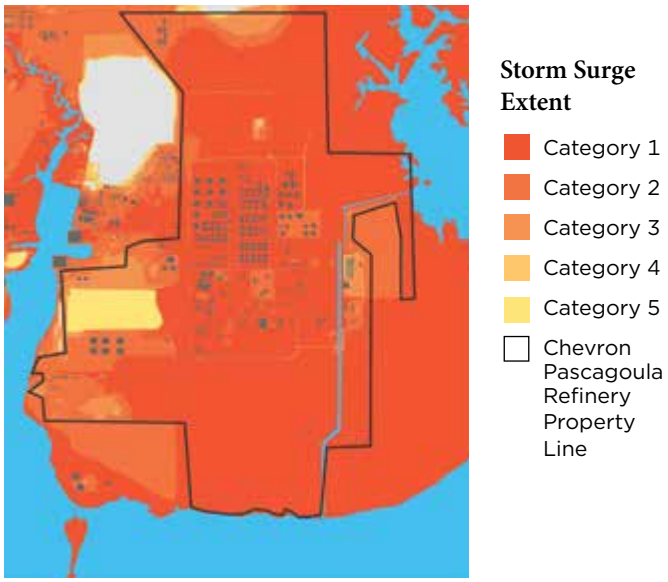
In its 2010 disclosure guidance, the SEC called out physical impacts such as sea level rise and storm surges as climate change threats worthy of particular company and investor attention. The impacts of sea level rise and storm surges are particularly challenging in industries such as oil and gas refining, which have large facilities close to coasts. So, the Union of Concerned Scientist's effort to disclose risks related to these topics, represented by this report, is quite welcome and, perhaps, overdue.

Calvert Investment Management has been filing shareholder resolutions and engaging in other advocacy on climate-related issues with companies in our portfolios since 2002. However, 2014 is the first year we have filed a shareholder proposal seeking disclosure of risks related to sea level rise and storm surge. Drawing on the information in this report, we filed a resolution with Phillips 66 asking for greater disclosure of its climate risks (Calvert Investment Management 2014). We hope this report draws more investor attention to these specific climate risks and results in corporate and public policies that better reflect the immediate and material threat of climate change.

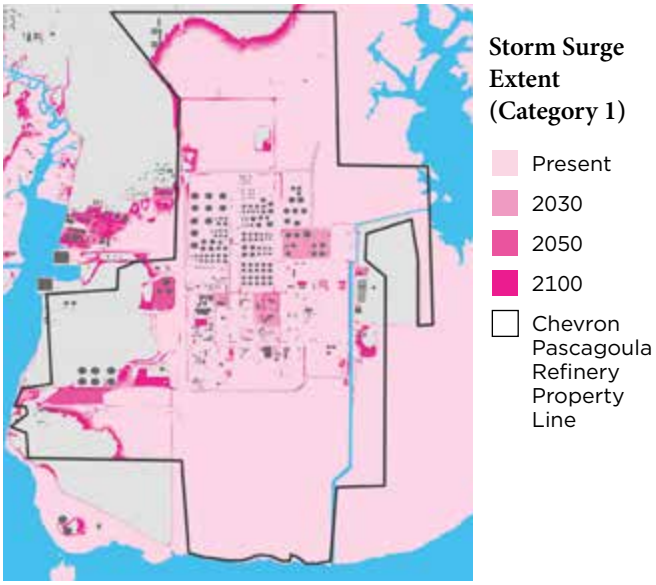
FIGURE 8. Chevron 's Pascagoula, MS refinery

a. Aerial Image Showing Refinery Property Line

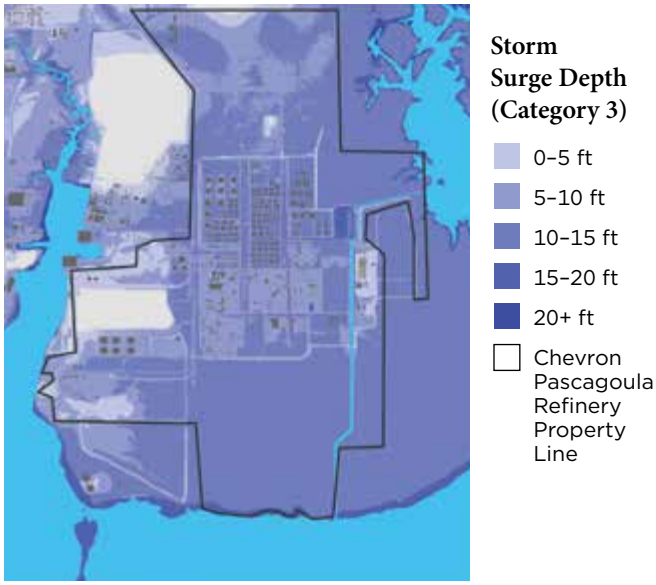
b. Extent of Storm Surge Flooding Today from Category 1–5 Hurricanes



c. Projections for Storm Surge Extent from a Category 1 Hurricane Today and with Sea Level Rise by 2030, 2050, and 2100



d. Depth of Storm Surge Flooding Today from a Category 3 Hurricane



Chevron's refinery (330,000 b/cd) in Pascagoula, MS, is vulnerable to storm surge impacts. SLOSH MOM modeling shows that given its location in the Gulf of Mexico, even a Category 1 hurricane could penetrate the facility (Figure 8b) and a Category 3 storm could leave parts of the facility under 10 feet of water (Figure 8d). Such storm impacts are likely to be worse in the future, as sea levels encroach upon the property (Figure 8c), subsidence in the Gulf continues, and storms become more intense.

[CHAPTER 3]

Conclusion

Recommendations

In this report, five refineries—one from each of five major oil and gas companies—were found to face climate-related physical risks from sea level rise and enhanced storm surges. And these five sites are not unique. Many other U.S. oil refineries face similar climate change threats, which expose their investors to undue financial risks, expose the public to additional burdens at the pump and in its taxes, and expose nearby populations to potential harm from damage at these facilities.

Yet most fossil fuel energy companies are failing to report their physical risks from climate change, despite the real dangers involved and despite guidance from the SEC and demands from shareholders. Investors, community groups, and the public, which have a right to know about companies' climate-related risks, can help hold them accountable for recognizing and preparing for these climate impacts.[2]

- **Companies** should be more transparent about their risks from—and contributions to— climate change. They should fully accept climate science and integrate it into their business plans, including their plans for emissions reduction and risk mitigation. Such plans should not only reflect climate change's physical impacts but also include the necessary measures—remedial and preventive alike—for protecting facilities, employees, shareholders, and communities against damages.

- **The Securities and Exchange Commission** should push companies to follow its guidelines for disclosing climate change risks, while also educating them about how to comply and on what full disclosure looks like. Further, the SEC should go beyond guidance and issue a rule that requires companies to report annually whether climate change impacts—including sea level rise and enhanced storm surges—pose risks to their business and to list any such risks specifically.

- **Investors** who have previously pressed companies to seriously consider any business risks posed by the physical impacts of climate change should continue to do so, and also ask companies to document these risks in their SEC Form 10-K, as part of their responsibility to investors and

Investors, community groups, and the public, which have a right to know about companies' climate-related risks, can help hold them accountable for recognizing and preparing for these climate impacts.

2 *For letters sent to companies from the Union of Concerned Scientists regarding these issues and related shareholder resolutions, see Appendix B.*

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Hurricane force winds make waves larger and storm surge brings these pounding waves further inland, exposing structures to the destructive battering power of the ocean (water weighs approximately 1,700 pounds per cubic yard). As a result, it is essential that companies, communities, and governments fully consider and prepare for the impacts of climate change.

to the rest of society. Investors new to these issues should (a) focus squarely on the financial effects that climate change could have on companies, and (b) press companies and the SEC to improve their responses to these risks and sharpen their recognition of attendant opportunities.

- **Refineries**, in order to minimize the damage that climate change impacts could have on coastal facilities and surrounding communities, should:
  - conduct facility specific risk assessments and adapt their facilities to withstand climate impacts or consider alternative investments;
  - reduce the global warming emissions of their operations by, for example, improving energy efficiency, implementing combined heat and power, and using lower carbon fuels;
  - use safer inputs and processes, including safer chemical alternatives, whenever possible;
  - be prepared to adequately respond to accidents when they occur;
  - and be transparent about the chemicals and processes used, safety records, and any preventive measures in place. Public access to information is key to enabling communities to hold facility owners and operators accountable for reducing risks as much as possible, and for emergency responders to have unfettered access to information during crises.

- **States** should enact laws to enhance safety, transparency, and preparedness for climate impacts at refineries.

- **The public** should demand that companies not only consider physical risks associated with climate change but also take appropriate steps to ensure that communities surrounding facilities are adequately protected from potential climate-related risks and accidents.

[REFERENCES]

Ablain, M., A. Cazanave, G. Valladeau, and S. Guinehut. 2009. A new assessment of the error budget of global mean sea level rate estimated by satellite altimetry over 1993–2008. *Ocean Science* 5:193–201.

Brelsford, R., W.R. True, and L. Koottungal. 2013. Western Europe leads global refining contraction. *Oil and Gas Journal*, December 2. *www.ogj.com/articles/print/volume-111/issue-12/special-report-worldwide-report/western-europe-leads-global-refining-contraction.html*, accessed on December 12, 2014.

California Public Employees' Retirement System (CalPERS) et al 2007. Petition [to the SEC] for interpretive guidance on climate risk disclosure. Online at *www.sec.gov/rules/petitions/2007/petn4-547.pdf*, accessed on January 2, 2015.

Calvert Investment Management. 2014. Phillips 66 physical climate impacts 2015 (Phillips 66 shareholder resolution). Online at *www.ceres.org/investor-network/resolutions/phillips-66-physical-climate-impacts-2015*, accessed on January 2, 2015.

Cazenave, A., and W. Llovel. 2010. Contemporary sea level rise. *Annual Review of Marine Science* 2:145–173.

CDP. 2014. Climate disclosure leadership index. 2014. Response from Hess Corporation. Online at *www.cdp.net/sites/2014/74/8274/Investor CDP 2014/Pages/DisclosureView.aspx* (login required), accessed on January 14, 2015.

Center for Effective Government (CEG). 2014. Kids in danger zones. Online at *www.foreffectivegov.org/files/kids-in-danger-zones-report.pdf*, accessed on January 2, 2015.

Ceres & CookESG Research. 2014. SEC climate disclosure search. Online at *www.ceres.org/resources/tools/sec-climate-disclosure/*, accessed on January 2, 2015.

Ceres. 2012. Sustainable extraction? An analysis of SEC disclosure by major oil & gas companies on climate risk and deepwater drilling risk. Online at www.ceres.org/resources/reports/sustainable-extraction-an-analysis-of-sec-disclosure-by-major-oil-gas-companies-on-climate-risk-and-deepwater-drilling-risk/view, accessed on January 2, 2015.

Ceres. 2004. Thirteen pension leaders call on SEC chairman to require global warming risks in corporate disclosure. Press releaase, April 15. Online at *www.ceres.org/press/press-releases/thirteen-pension-leaders-call-on-sec-chairman-to-require-global-warming-risks-in-corporate-disclosure*, accessed on January 2, 2015.

Chaudhuri, R.R., K. Samanta, and E. Seba. 2014. Chevron puts out fire at Richmond, California refinery. *Reuters*, July 17. Online at *www.reuters.com/article/2014/07/18/us-refinery-operations-chevron-richmond-idUSKBN0FN04220140718*, accessed on January 2, 2015.

Chemical Safety Board. 2012. Chevron refinery fire. Online at *www.csb.gov/chevron-refinery-fire/*, accessed on January 2, 2015.

Chevron Corporation. 2014. 2013 SEC Form 10-K filing. Online at *www.sec.gov/Archives/edgar/data/93410/000009341014000011/cvx-123113x10kdoc.htm*, accessed on January 2, 2015.

Christopher Reynolds Foundation. 2013a. Exxon Mobil shareholder resolution: ExxonMobil climate risk report 2013. Online at *www.ceres.org/investor-network/resolutions/exxonmobil-climate-risk-report-2013*, accessed on January 2, 2015.

Christopher Reynolds Foundation. 2013b. Chevron shareholder resolution: Chevron climate risk 2013. Online at *www.ceres.org/investor-network/resolutions/chevron-climate-risk-2013*, accessed on January 2, 2015.

Church, J.A., and N.J. White. 2011. Sea-level rise from the late 19th to early 21st century. *Surveys in Geophysics* 32:585–602.

Church, J.A., N.J. White, L.F. Konikow, C.M. Domingues, J.G. Cogley, E. Rignot, J.M. Gregory, M.R. van den Broeke, A.J. Monaghan, and I. Vilocogna. 2011. Revisiting the earth's sea-level and energy budgets from 1961 to 2008. *Geophysical Research Letters* 38, L18601, doi:10.1029/2011GL048794.

Climate Change Science Program (USCCSP) and the Subcommittee on Global Change Research. 2008. *Impacts of climate change and variability on transportation systems and infrastructure: Gulf Coast study, phase I*, edited by M.J. Savonis, V.R. Burkett, and J.R. Potter. Washington, DC.

Climate.gov. 2013. Underwater: Land loss in coastal Louisiana since 1932. ClimateWatch, April 4. Washington, DC: National Oceanic and Atmospheric Administration. Online at *www.climate.gov/news-features/featured-images/underwater-land-loss-coastal-louisiana-1932*, accessed on January 8, 2015.

Confessore, N. 2008. Xcel to disclose global warming risks. *New York Times*, August 27. Online at *www.nytimes.com/2008/08/28/business/28energy.html?ref=xcelenergyinc*, accessed on January 14, 2015.

Davis, M., S. Clemmer. 2014. *Power Failure: How Climate Change Puts Our Electricity at Risk—and What We Can Do*. Cambridge, MA: Union of Concerned Scientists. Online at *http://www.ucsusa.org/sites/default/files/legacy/assets/documents/Power-Failure-How-Climate-Change-Puts-Our-Electricity-at-Risk-and-What-We-Can-Do.pdf*, accessed on January 20, 2015.

Christopher Reynolds Foundation. 2013a. Exxon Mobil shareholder resolution: ExxonMobil climate risk report 2013. Online at *www.ceres.org/investor-network/resolutions/exxonmobil-climate-risk-report-2013*, accessed on January 2, 2015.

Department of Energy (DOE). 2009. Comparing the impacts of the 2005 and 2008 hurricanes on U.S. energy infrastructure. Online at *www.oe.netl.doe.gov/docs/HurricaneComp0508r2.pdf*, accessed on January 5, 2015.

Dutton, A., and K. Lambeck. 2012. Ice volume and sea level during the last interglacial. *Science* 337:216–219.

Energy Information Administration (EIA). 2014a. Refining crude oil. Online at *www.eia.gov/energyexplained/index.cfm?page=oil_refining*, accessed on January 2, 2015.

Energy Information Administration (EIA). 2014b. Frequently asked questions: When was the last refinery built in the United States? Online at *www.eia.gov/tools/faqs/faq.cfm?id=29&t=6*, accessed on January 2, 2015.

Energy Information Administration (EIA). 2014c. Today in Energy: 2014 U.S. petroleum refinery update: Capacity edges up, ownership shifts. Online at *www.eia.gov/todayinenergy/detail.cfm?id=16911*, accessed on January 2, 2015.

Energy Information Administration (EIA). 2014d. Frequently asked questions: What do I pay for in a gallon of gasoline and diesel fuel? Online at *www.eia.gov/tools/faqs/faq.cfm?id=22&t=10*, accessed on January 2, 2015.

Energy Information Administration (EIA). 2014e. Table 3. Capacity of operable petroleum refineries by state as of January 1, 2014. Online at *www.eia.gov/petroleum/refinerycapacity/table3.pdf*, accessed on January 2, 2015.

Energy Information Administration (EIA). 2005. Hurricane Katrina's impact on the U.S. oil and natural gas markets. Online at *www.eia.gov/oog/special/eia1_katrina_091505.html*, accessed on December 12, 2014.

Environmental Protection Agency (EPA). 2006. Murphy Oil USA refinery spill: Chalmette and Meraux, LA. Region 6 Oil Response Team U.S. EPA. Archive document: Presentation. Online at *www.epa.gov/oem/docs/oil/fss/fss06/franklin_2.pdf,* accessed on December 12, 2014.

Exxon Mobil Corporation. 2014a. About our facilities: Baytown area operations. Online at *corporate.exxonmobil.com/en/company/worldwide-operations/locations/united-states/baytown/about?parentId=da547204-0aaa-4776-850a-83fd38e3fc21*, accessed on December 12, 2014.

Exxon Mobil Corporation. 2014b. Report: Climate and Energy. Online at *cdn.exxonmobil.com/~/media/Files/Other/2014/Report%20-%20Energy%20and%20Climate.pdf*, accessed on January 29, 2015.

Exxon Mobil Corporation. 2014c. 2013 SEC Form 10-K filing. Online at *www.sec.gov/Archives/edgar/data/34088/ 000003408814000012/xom10k2013.htm*, accessed on January 2, 2015.

Ezer, T., L.P. Atkinson, W.B. Corlett, and J.L. Blanco. 2013. Gulf stream's induced sea level rise and variability along the U.S. mid-Atlantic coast. *Journal of Geophysical Research: Oceans* 118:1–13.

Federal Emergency Management Agency (FEMA). 2005. Draft environmental assessment. Online at *www.fema.gov/media-library-data/20130726-1555-20490-1749/dea_meraux.txt*, accessed on December 12, 2014.

Gardner, T., and J. Schneyer. 2012. U.S. loans emergency oil to refiner after Isaac. *Reuters*, September 1. Online at *in.reuters.com/article/2012/08/31/us-doe-reserve-marathon-idINBRE87U10Q20120831*, accessed on January 4, 2015.

Geophysical Fluid Dynamics Laboratory/NOAA (GFDL). 2013. Global warming and hurricanes: An overview of recent research results. Online at *www.gfdl.noaa.gov/global-warming-and-hurricanes*, accessed on January 2, 2015.

Grifo, F., G. Goldman, B. Gutman, J. Freeman, P. Rogerson, and D. Veysey. 2012. A climate of corporate control: How corporations have influenced the U.S. dialogue on climate science and policy. Cambridge, MA: Union of Concerned Scientists. Online at *www.ucsusa.org/sites/default/files/legacy/assets/documents/scientific_integrity/a-climate-of-corporate-control-report.pdf*, accessed on January 2, 2015.

Hansen, J., R. Ruedy, M. Sato, and K. Lo. 2010. Global surface temperature change. *Reviews of Geophysics* 48:1–29.

Hartmann, D.L., A.M.G. Klein Tank, M. Rusticucci, L.V. Alexander, S. Brönnimann, Y. Charabi, F.J. Dentener, E.J. Dlugokencky, D.R. Easterling, A. Kaplan, B.J. Soden, P.W. Thorne, M. Wild, and P.M. Zhai. 2013. Observations: Atmosphere and surface. In Climate change 2013: The physical science basis. Contribution of Working Group I to the fifth assessment report of the Intergovernmental Panel on Climate Change, edited by T.F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia,V. Bex, and P.M. Midgley. Cambridge, UK, and New York, NY: Cambridge University Press.

Holland, G. and C. Bruyere. 2014. Recent intense hurricane response to global climate change. *Climate Dynamics* 42(3–4):617–627. Online at *link.springer.com/article/10.1007/s00382-013-1713-0/fulltext.html*, accessed on December 12, 2014.

Interfaith Center on Corporate Responsibility (ICCR). 2015. 40 years of environmental stewardship. *The Corporate Examiner*. Online at *http://www.iccr.org/sites/default/files/40YearsOfICCREnviroStewardship.pdf*, accessed on January 11, 2015.

Intergovernmental Panel on Climate Change (IPCC). 2013a. Climate phenomena and their relevance for future regional climate change. In *Climate change 2013: The physical science basis. Contribution of Working Group I to the fifth assessment report of the Intergovernmental Panel on Climate Change*, edited by T.F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, and P.M. Midgley. 2013. New York: Cambridge University Press.

Intergovernmental Panel on Climate Change (IPCC). 2013b. Long-term climate change: Projections, commitments, and irreversibility. In *Climate change 2013: The physical science basis. Contribution of Working Group I to the fifth assessment report of the Intergovernmental Panel on Climate Change*, edited by T.F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, and P.M. Midgley. 2013. New York: Cambridge University Press.

Intergovernmental Panel on Climate Change (IPCC). 2012. Changes in climate extremes and their impacts on the natural physical environment. In *Managing the risks of extreme events and disasters to advance climate change adaptation*, edited by C.B. Field, V. Barros, T.F. Stocker, and Q. Dahe. New York: Cambridge University Press, 109–230.

IPICEA. 2013. Addressing adaptation in the oil and gas industry. Online at *http://www.ipieca.org/publication/addressing-adaptation-oil-and-gas-industry*, accessed on February 2, 2015.

Kasmarek, M.C., R.K. Gabrysch, and M.R. Johnson. 2009. Estimated land-surface subsidence in Harris County, Texas, 1915–17 to 2001. U.S. Geological Survey. Online at pubs.usgs.gov/sim/3097/downloads/pdf/sim3097sh1.pdf, accessed on January 4, 2015.

Kirgiz, K., M. Burtis, and D. Lunin. 2009. Petroleum-refining industry business interruption losses due to Hurricane Katrina. Journal of Business Valuation and Economic Loss Analysis 4(2):3–3. Online at *https://www.cornerstone.com/GetAttachment/0e885cd0-888c-4b6b-ac0b-b38c5c92e6dc/Petroleum-Refining-Industry-Business-Interruption.pdf*, accessed on January 14, 2015.

Knutson, T. R., and R. E Tuleya. 2008: Tropical cyclones and climate change: Revisiting recent studies at GFDL. In *Climate extremes and society*, edited by H.F. Diaz and R.J. Murnane. New York: Cambridge University Press, 120–144.

Knutson, T. R., and R. E. Tuleya. 2004. Impact of CO2-induced warming on simulated hurricane intensity and precipitation: Sensitivity to the choice of climate model and convective parameterization. *Journal of Climate* 17(18):3477–3495.

Kolker, A.S., M.A. Allison, and S. Hameed. 2011. An evaluation of subsidence rates and sea-level variability in the northern Gulf of Mexico. *Geophysical Research Letters* 38:L21404. doi:10.1029/2011GL049458

Kopp, R.E., R.M. Horton, C.M. Little, J.X. Mitrovica, M. Oppenheimer, D.J. Rasmussen, B.H. Strauss, and C. Tebaldi. 2014. Probabalistic 21st and 22nd century sea-level projections at a global network of tide-gauge sites. *Earth's Future* 2:383–406.

Leuliette, E.W., R.S. Nerem, and G.T. Mitchum. 2004. Calibration of TOPEX/Poseidon and Jason altimeter data to construct a continuous record of mean sea level change. *Marine Geodesy* 27:79–94; doi:10.1080/01490410490465193.

Levitus, S., J.I. Antonov, T.P. Boyer, O.K. Baranova, H.E. Garcia, R.A. Locarnini, A.V. Mishonov, J.R. Reagan, D. Seidov, E.S. Yarosh, and M.M. Zweng. 2012. World ocean heat content and thermosteric sea level change (0–2000 m), 1955–2010. *Geophysical Research Letters* 39(10):L10603; doi:10.1029/2012GL051106.

Lombard, A., A. Cazenave, P.-Y. Le Traon, and M. Ishii. 2005. Contribution of thermal expansion to present-day sea level change revisited. *Global and Planetary Change* 47(1):1–16.

Marathon Petroleum. 2014. 2013 SEC Form 10-K filing. Online at *www.sec.gov/Archives/edgar/data/1510295/000151029514000004/mpc-20131231x10k.htm#sA5719E7262C104FE8345153A71110781*, accessed on January 2, 2015.

Michon, Scott. 2010. Will hurricanes change as the world warms? August 1. Online at *https://www.climate.gov/news-features/features/will-hurricanes-change-world-warms*, accessed on January 21, 2015.

Milliken, K.T., J.B. Anderson, and A.B. Rodriguez. 2008. A new composite Holocene sea-level curve for the northern Gulf of Mexico. *Geological Society of America Special Papers* 443:1–11.

Moser, S.C., M.A. Davidson, P. Kirshen, P. Mulvaney, J.F. Murley, J.E. Neumann, L. Petes, and D. Reed. 2014. Coastal zone development and ecosystems. In *Climate change impacts in the United States: The Third National Climate Assessment*, edited by J.M. Melillo, T.C. Richmond, and G.W. Yohe. Washington, DC: U.S. Global Change Research Program, 670–706.

Msnbc.com News Services (MNS). 2006. $330 million settlement deal in Katrina oil spill. *Msnbc.com*, September 25. Online at *www.nbcnews.com/id/15004868/ns/us_news-environment/t/million-settlement-deal-katrina-oil-spill/*, accessed on December 12, 2014.

Murphy Oil. 2011. 2010 SEC Form 10-K filing. Online at *www.sec.gov/Archives/edgar/data/717423/000119312511049276/d10k.htm*, accessed on January 2, 2015.

National Hurricane Center (NHC). 2015. Introduction to storm surge. Online at *www.nhc.noaa.gov/surge/surge_intro.pdf*, accessed on January 8, 2015.

National Hurricane Center (NHC). 2014. Storm surge overview. Online at *http://www.nhc.noaa.gov/surge/*, accessed on January 2, 2015.

National Oceanic and Atmospheric Administration (NOAA). 2014a. NOAA's state of the coast: State of the coast, beach closures indicator. Online at *stateofthecoast.noaa.gov/vulnerability/localthreat.html*, accessed on December 12, 2014.

National Oceanic and Atmospheric Administration (NOAA). 2014b. NOAA tides and currents: Mean sea level trend: 8771450 Galveston Pier 21, Texas. Online at *tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=8771450*, accessed on January 2, 2015.

National Oceanic and Atmospheric Administration (NOAA). 2013a. Know the dangers of nor'easters. Online at *http://www.noaa.gov/features/03_protecting/noreasters.html*, accessed on January 12, 2015.

National Oceanic and Atmospheric Administration (NOAA) Tides & currents. 2013b. Sea level trends. Online at *tidesandcurrents.noaa.gov/sltrends/sltrends.shtm*l, accessed on June 23, 2014.

National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center. 2012. Mapping Coastal Inundation Primer. Online at *http://coast.noaa.gov/digitalcoast/_/pdf/guidebook.pdf*, accessed on January 29, 2015.

National Research Council (NRC). 2012. Sea-level rise for the coasts of California, Oregon, and Washington: Past, present, and future. Washington, DC: National Academies Press. Online at *www.nap.edu/catalog.php?record_id=13389*, accessed on on June 23, 2014.

New York City Office of Emergency Management (NYC OEM). 2009. New York City natural hazard mitigation plan. Online at *http://www.nyc.gov/html/oem/downloads/pdf/hazard_mitigation/section_3f_coastal_storm_hazard_analysis.pdf*, accessed on January 15, 2015.

Orum, P., R. Moore, M. Roberts, and J. Sánchez. 2014. *Who's in danger?* Brattleboro, VT: Coming Clean Inc. Online at *comingcleaninc.org/whats-new/whos-in-danger-report*, accessed on December 12, 2014.

Phillips 66. 2014. 2013 SEC Form 10-K filing. Online at *www.sec.gov/Archives/edgar/data/1534701/000153470114000042/psx-20131231x10k.htm*, accessed on January 2, 2015.

Plyer, A. 2013. Facts for features: Katrina impacts. New Orleans, LA: The Data Center. Online at *www.datacenterresearch.org/data-resources/katrina/facts-for-impact/*, accessed on on June 23, 2014.

Reuters. 2012. Bayway refinery to restart in 2 to 3 weeks—Phillips 66. Online at *www.reuters.com/article/2012/11/05/storm-sandy-energy-bayway-idUSL1E8M5FSM20121105*, accessed on January 2, 2015.

Reuters. 2005. Rita and Katrina have shut 23 percent of U.S. oil refining capacity. New York Times, September 22. Online at *www.nytimes.com/2005/09/22/business/RITA-FACTBOX.html*, accessed on January 4, 2015.

Sallenger, A.H., Jr., K.S. Doran, and P.A. Howd. 2012. Hotspot of accelerated sea-level rise on the Atlantic coast of North America. *Nature Climate Change* 2:884–888. doi:10.1038/nclimate1597.

Securities and Exchange Commission (SEC). 2014. EDGAR company filings. Online at *www.sec.gov/edgar/searchedgar/companysearch.html*, accessed on January 2, 2015.

Securities and Exchange Commission (SEC). 2010. Commission guidance regarding disclosure related to climate change. Washington, DC. Online at *www.sec.gov/rules/interp/2010/33-9106.pdf,* accessed on January 2, 2015.

Securities and Exchange Commission (SEC). 2009. Form 10-K. Online at *www.sec.gov/answers/form10k.htm*, accessed on January 2, 2015.

Securities and Exchange Commission (SEC). 2003. *Commission guidance regarding management's discussion and analysis of financial condition and results of operations*, 17 CFR Parts 211, 231, and 241, Release numbers 33-8350; 34-48960; and FR-72, Part III.A. Online at *http://www.sec.gov/rules/interp/33-8350.htm*, accessed on January 15, 2015.

Sheehan, B. 2008. Owning up to risk. *Corporate Secretary*, December 1. Online at *www.corporatesecretary.com/articles/case-studies/11595/owning-risk/*, accessed on January 8, 2015.

Spanger-Siegfried, E., M. Fitzpatrick, and K. Dahl. 2014. *Encroaching tides: How sea level rise and tidal flooding threaten U.S. East and Gulf Coast communities over the next 30 years*. Cambridge, MA: Union of Concerned Scientists. Online at *www.ucsusa.org/sites/default/files/attach/2014/10/encroaching-tides-full-report.pdf*, accessed on January 2, 2015.

Strauss, B., and R. Ziemlinski. 2012. Sea level rise threats to energy infrastructure: A surging seas brief report by *Climate Central*. Climate Central, April 19. Online at *slr.s3.amazonaws.com/SLR-Threats-to-Energy-Infrastructure.pdf*, accessed on January 2, 2015.

Union of Concerned Scientists (UCS). 2014. Where your gas money goes: How oil companies profit from your pain at the pump. Cambridge, MA. Online at *www.ucsusa.org/sites/default/files/legacy/assets/documents/clean_vehicles/Where-Your-Gas-Money-Goes.pdf*, accessed on January 2, 2015.

Valero Energy. 2014. 2013 SEC Form 10-K filing. Online at *www.sec.gov/Archives/edgar/data/1035002/000103500214000008/vloform10-kx12312013.htm#sB8230C7869E4716607E73309003565 1C*, accessed on January 2, 2015.

[APPENDIX A]

Detailed Methodology

Appendix A is available online at *www.ucsusa.org/risingrisks.*

[APPENDIX B]

Letters to Companies from UCS and Recent Shareholder Resolutions regarding Climate Risk Disclosure

Appendix B is available online at *www.ucsusa.org/risingrisks.*

Stormy Seas, Rising Risks

What Investors Should Know About Climate Change Impacts at Oil Refineries

Though many large refining operations are in vulnerable coastal areas less than 10 feet above the high tide line, many companies fail to disclose risks from climate impacts such as sea level rise and storm surge.

Sea level rise and storm surge already pose great threats to our nation's coasts. As climate change continues, these risks will only grow. Coastal oil and gas refineries face tremendous risks from these climate change impacts. Yet most companies do not publicly disclose these vulnerabilities, even though the U.S. Securities and Exchange Commission (SEC) asks all publicly traded companies to consider the climate-related risks they face and to disclose those that are material. Damaged or destroyed facilities have wide-reaching financial implications and can also endanger nearby communities. Hurricanes Rita and Katrina, for example, shut down 23 percent of the nation's oil refining capacity and caused numerous spills, affecting nearby communities and taxpayers everywhere.

When companies neglect to disclose and prepare for these risks, they face greater potential for spills and other damages caused or made worse by climate impacts. Investors, taxpayers, and fence line communities should not have to bear the burden of this failure. Companies should be held accountable for fully considering and managing these risks. Shareholders, decision makers and the SEC should push companies to fully consider and prepare for climate change impacts. Greater transparency about the future of our fossil fuel energy infrastructure, and about risks associated with it, allows us to make more informed decisions on our energy choices.

Union of Concerned Scientists

FIND THIS DOCUMENT ONLINE: www.ucsusa.org/risingrisks

The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with citizens across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

The Center for Science and Democracy at UCS works to strengthen American democracy by advancing the essential role of science, evidence-based decision making, and constructive debate as a means to improve the health, security, and prosperity of all people. More information about UCS and the Center for Science and Democracy is available on the UCS website: www.ucsusa.org.

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Tricks of the Trade

How companies anonymously influence climate policy through their business and trade associations

Gretchen Goldman
Christina Carlson

January 2014

"Trade associations have come to be a permanent and increasingly important factor in the business life of this country," wrote Hugh P. Baker, executive secretary of the American Pulp and Paper Association, in 1926 (Baker 1926). Nearly a century later, these words have never been truer. Today trade and business associations are major actors not only in business but also in the policy arena. Such groups rely on the influence and political power of member companies to sway policy on diverse issues affecting their sectors.

Trade and business associations provide many advantages to member companies, including industry standards and agreements, economic services, and access to information and shared resources. Increasingly, trade groups also focus on political activities, with many now considering government relations to be their primary purpose (Boléat 2003). Trade and business associations engage in political activities in numerous ways, including political contributions to candidates, direct lobbying, issue advertising, public support of or opposition to policy proposals, and the mobilization of member companies to take political actions. By bringing together firms with similar interests, these associations allow the business community to speak to decision makers in a more unified and powerful voice.

The broad and complex issue of climate change—both the policies aimed at addressing drivers of climate change and the physical impacts of a warmer planet—has significant implications for the business community. And trade and business associations have been deeply engaged in climate change policy discussions. A 2013 study found that Global 500 companies, when asked how they influence policy on climate change, reported that they do so through their trade groups more than any other policy engagement mechanism, including direct lobbying and the funding of research (Caring for Climate 2013). In the United States, some trade and business associations have promoted policies to help constructively address climate change, but many more have worked to block meaningful climate action—and some even publicly misrepresent climate science (UCS 2013).

Because many trade and business associations do not publicly list their membership or even their board of directors—as tax-exempt organizations, they are not legally required to disclose their sources of funding—the public often does not know which companies are behind the groups that obstruct progress in addressing climate change. Moreover, given the limited corporate-disclosure laws and loopholes in our campaign finance system, U.S. companies can engage in political activities though their trade and business associations without much scrutiny from the government, their investors, or the public (UCS 2012). As a result, trade groups can use their tremendous resources to influence policy decisions without accountability for the companies and other organizations backing them.

What We Did

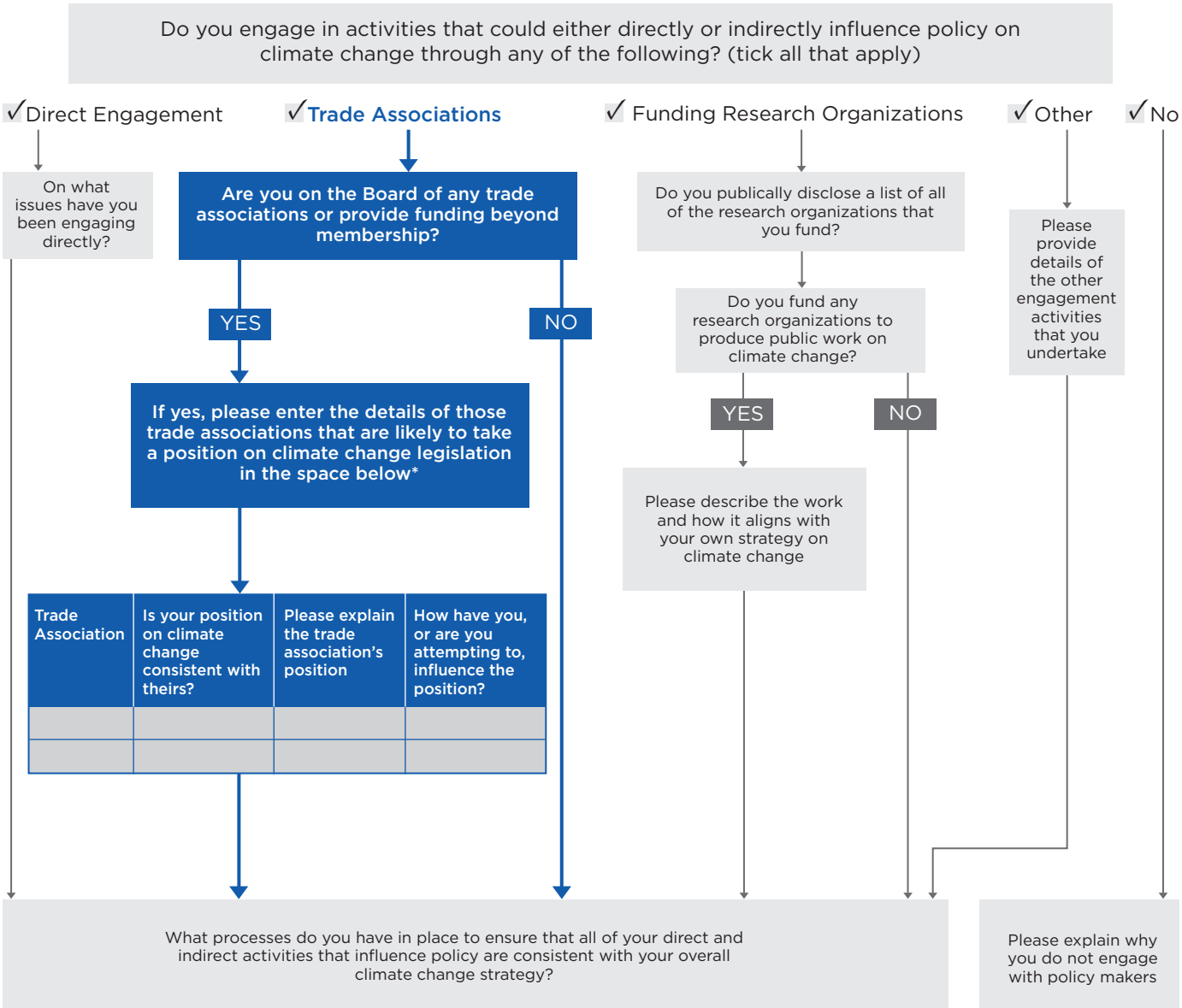
Until stronger disclosure laws are in place, voluntary disclosure programs can shed light on the relationship between companies and their trade associations regarding climate-related political activities. CDP, an international not-for-profit organization (formerly called the Carbon Disclosure Project), administers an annual climate reporting questionnaire to more than 5,000 companies worldwide; it does so at the request of 722 institutional investors representing $87 trillion in invested capital (CDP 2013a). In addition, companies can voluntarily report to CDP even if their participation has not been specifically requested.

Starting in 2013, the CDP questionnaire asked companies about their climate-related political activities. Among other questions, they were asked whether they were members of trade groups and, if so, whether they agreed with these groups' climate policy positions (Figure 1) (CDP 2013b). To inform companies on what those policy positions were, the Union of Concerned Scientists (UCS) produced a report, *Assessing Trade and Business Groups' Positions on Climate Change*, that documented the climate science and policy positions of 14 major trade groups in the United States (UCS 2013). The report was featured in CDP's questionnaire guidance document for responding companies (CDP 2013c).

In this report, UCS takes an in-depth look at the 1,824 public responses to the questionnaire in order to analyze

what companies had to say about their political influence through trade associations. Our results show that many companies are not yet willing to be transparent about their political activity. And what companies do disclose raises questions about who trade and business associations truly represent in their policy advocacy around climate change.

FIGURE 1. CDP Climate Reporting Questionnaire: Questions on Corporate Political Influence



In 2013, the annual climate reporting questionnaire administered by CDP asked companies to report their influence on climate policy. If companies reported policy influence through trade associations and stated that they sat on the board of any trade associations or provided funding beyond membership, they were then asked if their position on climate change was consistent with those of their trade groups and how they have attempted to influence their groups' positions. The text here is presented exactly as it appeared in the CDP questionnaire.

*The CDP questionnaire guidance document for companies linked to the UCS report *Assessing Trade and Business Groups' Positions on Climate Change* as a resource for companies to determine their associations' climate science and policy positions.

What We Found

MANY COMPANIES CHOOSE NOT TO REPORT

Many of the queried companies opted out of participating in the CDP questionnaire altogether, despite the fact that CDP was requesting the information with the backing of such a large number of institutional investors representing so much in invested capital.

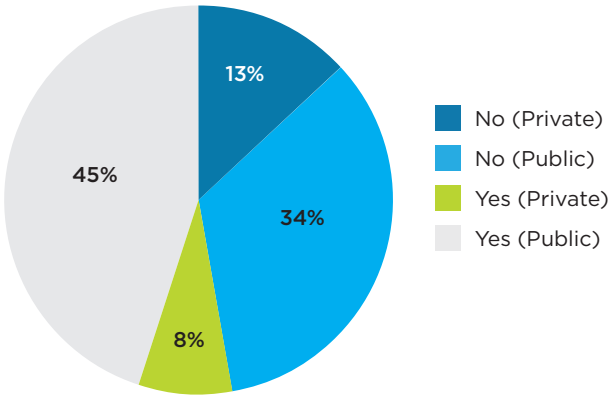
- Of the 5,557 companies that received the climate change questionnaire (through either CDP's request or their voluntary participation), 2,323 responded, and only 1,824 (33 percent) of them replied publicly.
- Ninety-seven Global 500 companies—the top 500 companies in the world by revenue—including Apple, Amazon, and Facebook, did not participate.
- In the Standard & Poor's (S&P) 500—a market value index of large U.S. companies—166 companies, including Comcast and the Southern Company, did not participate.

These results show that a significant number of companies do report to CDP, and the number of responses has grown steadily over the last decade—from 240 companies in 2003 to more than 4,500 companies responding to CDP's investor and supply chain information requests in 2013. However, many companies are still not yet willing to publicly disclose climate change reporting information, even at their investors' request. Indeed, shareholder resolutions filed with U.S. publicly traded companies in recent years have increasingly asked them for better climate-related reporting, including sustainability reports, consideration of climate-related financial risks, and accounts of political activity around climate policy (As You Sow 2013). One-third of the shareholder resolutions filed in 2013 on social and environmental issues were focused on corporate political spending (As You Sow 2013).

LIMITED REPORTING ON INVOLVEMENT WITH TRADE ASSOCIATIONS

Many, if not most, large companies in the United States belong to trade and business associations and nearly all the major groups are involved in public policy. As found in a recent UCS report, 14 major American trade and business associations including the U.S. Chamber of Commerce (COC), the National Association of Manufacturers (NAM), and the Business Roundtable participate in climate policy debates in some ways—e.g., through political contributions, lobbying, public support of or opposition to policy proposals, or the mobilization of member companies to take political action (UCS 2013). Yet many companies surveyed did not acknowledge policy influence through these groups—suggesting that many companies may be either unaware of, or unwilling to report, the climate policy influence of their trade associations.

FIGURE 2. Companies Disclosing Policy Influence through Trade Associations



Slightly more than half of all 2,322 responding companies indicated on the CDP questionnaire that they "engage in activities that could either directly or indirectly influence policy on climate change" through their trade associations. In total, 1,824 companies publicly responded, 498 companies responded privately (i.e., to CDP and their shareholders only), and 3,234 did not respond at all.

> ***One-third of the shareholder resolutions filed in 2013 on social and environmental issues were focused on corporate political spending.***

- Only 57 percent of companies responding publicly to the CDP questionnaire (1,033 companies) indicated that they influence policy on climate change through trade associations (Figure 2). However, this rate may be higher among larger firms, with 72 percent of Global 500 companies reporting policy influence through trade associations (Caring for Climate 2013).
- Seven hundred thirty-four companies (40 percent of publicly responding companies) acknowledged that they "could directly or indirectly influence policy on climate change" through board membership or funding beyond membership in a trade association (CDP 2013b).

COMPANIES FAIL TO REPORT THEIR TRADE GROUP BOARD MEMBERSHIPS

Companies were asked to report their board memberships in groups that may influence climate change policy, but a look at the boards of directors of top U.S. trade and business associations suggests that companies are not disclosing this information, even when directly asked to report it.

For companies asked to complete the CDP questionnaire, their responses (or lack thereof) were compared with publicly available board membership lists of the NAM, the COC, the American Petroleum Institute (API), and the Edison Electric Institute (EEI)—four associations that have tried to influence climate policy both at the federal and state levels (UCS 2013). A majority of publicly responding companies belonging to these four groups' boards failed to acknowledge their seats. Full company board lists can be found in the Research Methods Appendix at *www.ucsusa.org/tricksofthetrade*.

A majority of publicly responding companies belonging to the NAM, COC, API, or EEI boards failed to acknowledge their board seats.

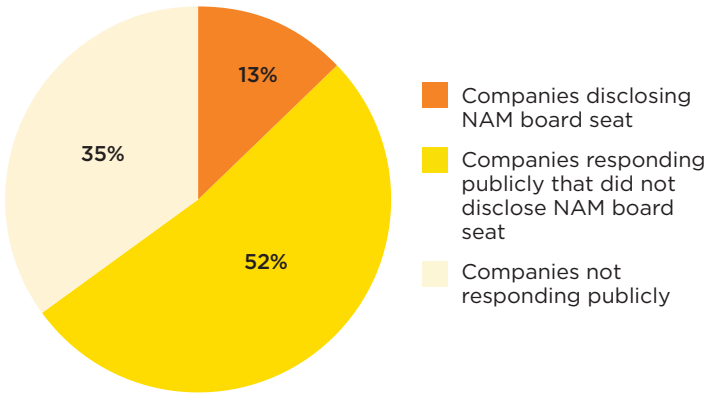
NATIONAL ASSOCIATION OF MANUFACTURERS

Even though 73 of the 206 NAM board-member companies publicly responded to the CDP questionnaire, only one in five acknowledged its NAM board seat.[1] Thirty-one companies on the NAM board did not respond to CDP's request and eight responded privately—i.e., disclosed only to CDP and company shareholders (Figure 3).

U.S. CHAMBER OF COMMERCE

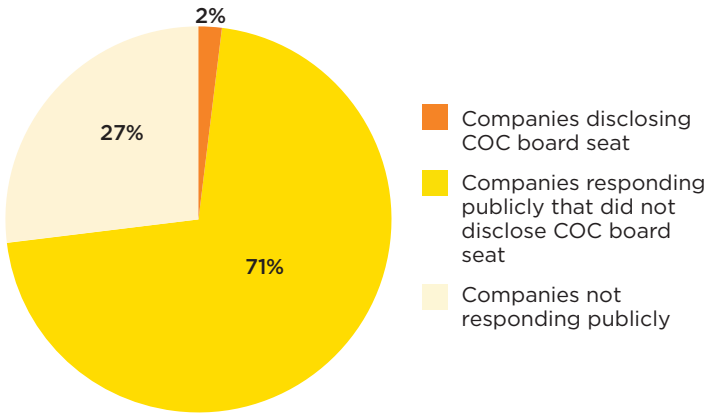
Only one of the 32 companies on the COC's board that responded publicly acknowledged its board seat, though 44 of the COC's 117 board-member companies[2] were asked to complete the questionnaire (Figure 4).

FIGURE 3. National Association of Manufacturers Board-Member Companies' Disclosure



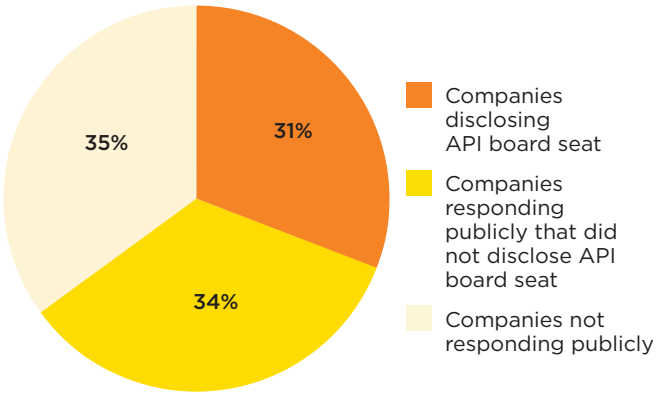
CDP requested information from 112 of the NAM's 206 board-member companies, but only 13 percent of them responded and acknowledged their board seats. A majority of the publicly responding companies did not disclose their NAM board membership.

FIGURE 4. U.S. Chamber of Commerce Board-Member Companies' Disclosure



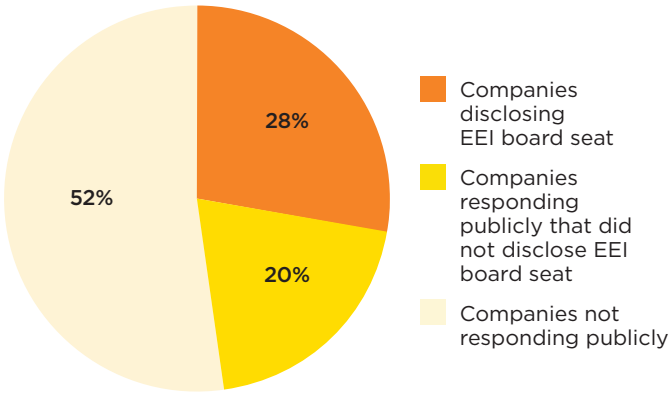
Of the 32 companies that publicly responded to the CDP questionnaire, only a single company, UPS, disclosed its board seat. The vast majority of the 44 COC board-member companies from which CDP requested information completed the questionnaire but failed to indicate their position on the board.

FIGURE 5. American Petroleum Institute Board-Member Companies' Disclosure



Two-thirds of the 26 API board-member companies from which CDP requested information responded publicly, but only eight companies acknowledged their board seats.

FIGURE 6. Edison Electric Institute Board-Member Companies' Disclosure



More than half of the 54 companies on the EEI board that were asked to complete the CDP questionnaire (28 companies) did not respond. Only 15 of the 26 responding companies acknowledged their board seats.

AMERICAN PETROLEUM INSTITUTE

Eight of the 17 API board companies that publicly responded to the questionnaire acknowledged their API board seats, even though CDP requested information from 26 of the API's 40-company board[3] (Figure 5).

EDISON ELECTRIC INSTITUTE

Among the 54 companies of the 71 on the EEI's board of directors[4] that were asked to complete the questionnaire, 26 responded publicly and only 15 acknowledged their board memberships (Figure 6).

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The U.S. Chamber of Commerce has been active in national climate policy discussions in recent years and the association publicly lists its board membership, yet many companies did not list their board seat when asked to name their board positions that may directly or indirectly influence climate policy. Only a single company, UPS, disclosed its Chamber of Commerce board membership on the 2013 CDP questionnaire.

API-sponsored advertisements in a Metro station near the U.S. Capitol promote the oil and gas industry. Of companies that did disclose their memberships on the boards of the COC, NAM, API, or EEI, the majority indicated their positions on climate change were "inconsistent" or "mixed" with that of the trade group.

INCONSISTENCY BETWEEN COMPANY AND TRADE GROUP POSITIONS ON CLIMATE CHANGE

Many companies do not agree with the climate policy positions of their trade associations. When companies responding to CDP's questionnaire did acknowledge board membership or funding beyond membership for a trade association, the questionnaire asked, "Is your position on climate change consistent with [that of the trade association]?" (CDP 2013b). In response, some companies checked "inconsistent" or "mixed" rather than "consistent."

Ninety-five companies noted that at least one of their trade groups had a climate policy position that was partially or wholly inconsistent with their own, for a total of 172 such responses across all trade groups.

The two most often-mentioned trade associations with which companies expressed mixed or inconsistent positions were the NAM (nine companies) and the EEI (eight companies).

- Nine of the 15 NAM board-member companies reporting (60 percent) stated that their positions on climate policy were mixed or inconsistent with that of the NAM. The Clorox Company, for example, stated that its position was inconsistent with the NAM and provided the following explanation:

  > *NAM maintains a neutral position on climate change. The Clorox Company, on the other hand, is on record as believing that rising GHG [greenhouse gas] emissions have a significant impact on climate change and the environment. Clorox therefore supports congressional action on comprehensive national climate change legislation aimed at reducing aggregate emissions of greenhouse gas over time without causing undue hardships for the U.S. economy. The NAM has challenged the U.S. EPA's [Environmental Protection Agency's] GHG regulation, and our position is not consistent with theirs.*

- Eight of the 15 EEI board-member companies reporting (53 percent) stated that their positions on climate change were mixed relative to the EEI's. One such company, Con Edison, noted that:

Protecting the environment and curtailing our carbon footprint are top priorities for Con Edison. On the board[s] of associations we advocate for them to recognize the importance of environmental stewardship as well as the impact on costs for customers.

Two other major U.S. trade associations with several inconsistent or mixed responses were the API (four companies) and the American Chemistry Council (ACC) (four companies). Air Products & Chemicals, Inc., explained some of the ACC's actions and their relationship to the company:

The ACC has challenged certain aspects of legislation and regulations related to climate change[.] . . . The members of ACC, like most large trade associations, have a wide range of views, and we do not always agree with all the positions [that the] ACC chooses to support.

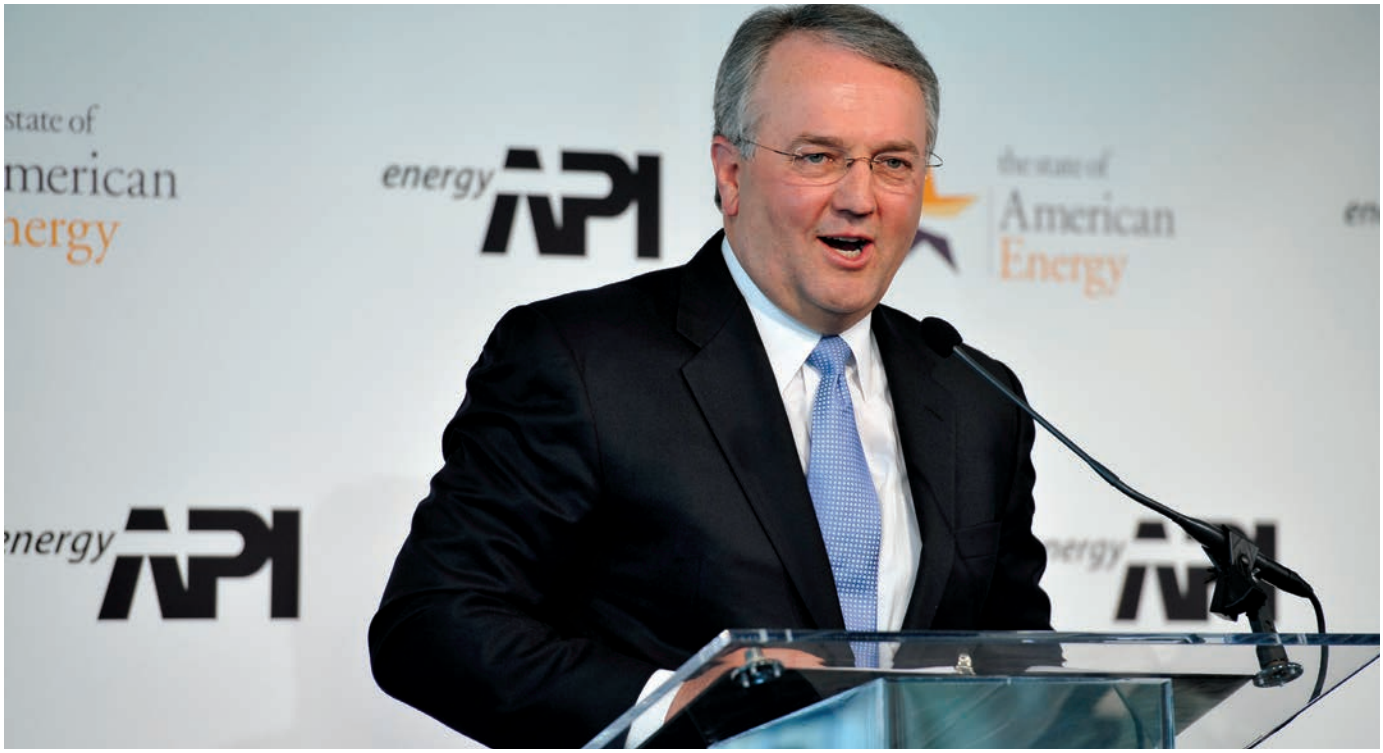
The only board-member company that publicly acknowledged COC board membership, UPS, listed its positions as "mixed" and noted:

UPS does not support all [of the] board's positions on issues. The Chamber opposes efforts to regulate greenhouse gas emissions through existing environmental statutes, including the Clean Air Act, the Clean Water Act, the Endangered Species Act, and the National Environmental Policy Act.

Despite pressures to quietly agree with one's trade groups, these and many other companies acknowledged disagreements with one or more of the associations to which they belonged. In fact, results of the CDP questionnaire suggest that when companies did choose to consider the role their trade groups play in climate policy, there was a good chance they would disagree with some the groups' positions. Thus trade associations' claims that they represent the views of their member companies may be exaggerated.

CHALLENGES IN INFLUENCING TRADE GROUPS' POSITIONS ON CLIMATE CHANGE

Many companies reported challenges in working with their trade and business associations, particularly those groups with which they don't always agree. Companies were asked on the questionnaire, "How have you, or are you attempting to, influence the position [of the trade associations]?" (CDP 2013b). The answers that some companies gave to this question suggest it may be difficult even for board members to sway or mitigate trade associations' positions on climate change.



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API President Jack Gerard addresses a crowd at an event for Energy Tomorrow, an API project focused on promoting oil and gas production. The API describes itself as "the only national trade association that represents all aspects of America's oil and natural gas industry" and the group has been very politically active in national climate change discussions.

BOX 1

The Role of the Securities and Exchange Commission in Corporate Political Disclosure

Since the Supreme Court's 2010 ruling in Citizens United v. Federal Election Commission removed restrictions on corporate political spending, there has been a drastic increase in political spending by companies, largely through outside groups such as trade associations and "social welfare" organizations (CRP 2013). This indirect funding allows for anonymity on the companies' part, as trade associations and other politically active organizations are not required to disclose their donors to the public. Corporations can thereby influence political debates without accountability.

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The U.S. Securities and Exchange Commission can use its authority to issue a rule requiring publicly traded companies to disclose their political activity. Such a rule would create more transparency and accountability for companies that use trade groups to influence climate policy.

But the demand for greater corporate disclosure on political spending has been mounting (Editorial Board 2013), and the Securities and Exchange Commission (SEC)—the federal agency responsible for protecting investors and overseeing publicly traded companies in the United States—can address this new political landscape through its rule-making process. In 2011, a group of 10 high-profile law professors filed a petition with the SEC arguing that the agency should issue a rule that would require publicly traded companies to disclose both their direct and indirect political activities (SEC 2011). By December 2013, the petition had more than 640,000 signatures—more than the agency has ever received on a rule—with most comments, about 99 percent, in favor of the measure (SEC 2013a).

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SEC Chair Mary Jo White should make corporate finance reform a priority and put the consideration of the rule on enhancing corporate political disclosure back onto the Commission's 2014 rule-making agenda.

Despite this proposed rule's overwhelming public support, many trade and business associations mobilized in opposition. A letter submitted to the SEC by 29 such groups—including the COC and NAM—urged the SEC not to consider the rule (CRP 2013b). The letter claimed that it is not "grounded in any rational policy justification" and would violate First Amendment rights. The letter further argued that because business leaders already act in the interest of investors, no disclosure is necessary (SEC 2013b).

Following this opposition by major trade and business associations, in December 2013 the SEC removed consideration of the rule from its rule-making agenda for 2014, thereby signaling that the agency did not plan to make this issue a 2014 priority.

The Supreme Court's decision in Citizens United relied on the assumption of "prompt disclosure of expenditures," which would allow shareholders to hold companies accountable (Editorial Board 2013). In the absence of an SEC rule, however, such disclosure is nonexistent, given that companies can legally remain nameless donors to trade groups and other outside organizations that are politically active.

More transparency in corporate political activities is needed. The public deserves to know who is influencing decisions on issues such as climate change policy that will affect its health and safety. Accordingly, the SEC should revise its rule-making agenda and develop a rule in response to the law professors' widely supported petition.

With respect to the API's climate positions, for example, board member Statoil stated that it is "a relatively small company in the United States and is usually not in a position to direct the API's position on climate. However, we inform [the] API when we disagree [with] positions they are taking." Similarly, Royal Dutch Shell reported that it "attempt[s] to mitigate negative [API] positions when necessary" but that the company has "little scope for major positive advocacy work on climate change legislation."

In other instances of disagreements between companies' and trade groups' positions, companies reported that influencing the groups' climate positions was not productive for them. Instead, such companies chose to remain in trade groups for their work on non-climate issues and advocate their climate policy elsewhere.

> ***The fact that many board-member companies do not agree with trade groups' climate positions raises the question of who is actually shaping their policy agenda.***

General Electric (GE), for example, noted that its position on climate change is different from that of many of its associations—including the COC, NAM, and Business Roundtable—but that "GE remains a member nonetheless because the associations . . . do represent GE's views on other issues." The company explained that it chooses to advance its climate position "through coalitions of business interests and public-interest groups or think tanks, as we believe these types of groups [are] where progress can be made on building the necessary consensus for climate policy action."

This finding based on the CDP questionnaire—that many board-member companies do not agree with trade groups' climate positions—raises the question of which actors are actually shaping the policy positions and setting the agendas of major associations. Trade associations are active in climate policy debates and claim to represent the views of their member industries, yet our analysis suggests that this may not always be the case.

Conclusion

Companies often choose not to be transparent about their political activities related to climate change. Among those serving on the boards of directors of trade and business associations that are active in climate policy debates, a significant number refuse to acknowledge their board seats. Without greater transparency on how companies support their trade and business associations, it is impossible to know who is funding the groups' political activities. As a result, companies are able to fund attacks on policy proposals that seek to address climate change—without being overtly affiliated with these practices.

When companies do choose to disclose their trade group affiliations, some disagree with the groups' climate change policy positions. Frequently, companies claim, it is difficult or unproductive to influence these policies and related political activities. Thus trade associations may be wielding enormous resources on climate policy discussions without the public support of all of their member companies.

This lack of transparency in corporate political influence has escalated in recent years. Since the U.S. Supreme Court's 2011 decision in Citizens United v. Federal Election Commission opened the floodgates for virtually unlimited corporate political spending through trade groups and other politically active tax-exempt organizations, the influence of these groups has skyrocketed. This vast and anonymous funding of political activity to influence public policy is nothing less than a threat to our nation's democracy. It prevents decision makers, investors, and the public from understanding who hinders progress toward an urgently needed national climate policy.

SOLUTIONS

More transparency in the business community's political activities is needed. Especially on issues such as climate change, the public deserves to know who is influencing policy decisions that will affect its health and safety. To bring such transparency to climate policy making, the Securities and Exchange Commission, the president, Congress, investors, and companies should take several actions.

The Securities and Exchange Commission should issue a rule that requires publicly traded companies to disclose both their direct and indirect political activities. This has already been shown to be a popular idea. In 2011, a group of 10 high-profile law professors filed a petition on such a rule; by December 2013 the petition had more than 640,000 signatures—more than the agency has ever received on a rule (SEC 2013a).

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To address the complex issue of climate change, decision makers need to focus on policies that prioritize public health and safety. Shedding light on who is influencing policy making can help hold actors accountable for blocking policy actions that address global warming. There are several steps the Securities and Exchange Commission, the president, Congress, investors, and companies should take to guide us toward more transparent and fact-based decision making around climate change.

The Obama administration should support a proposed Treasury rule to illuminate the political activities of tax-exempt "social welfare" groups; it should also develop a rule to address the increased use of trade and business associations for political activities.

Congress should approve the Democracy Is Strengthened by Casting Light on Spending in Elections (DISCLOSE) Act, or similar legislation, to enhance disclosure of indirect political contributions, such as those to trade and business associations.

Investors and their representatives should pressure companies, through letters, shareholder resolutions, and other mechanisms, to:

- Disclose all direct and indirect political spending, including trade group membership and support for outside organizations
- Disclose whether or not they agree with the climate policy positions of their trade and business associations
- Attempt to influence the policy positions of the trade groups or leave groups that do not align with the climate policy positions of the company

Companies should:

- Insist that their associations accept climate science and urge them to adopt policy positions that reflect this acceptance
- Push their associations to take stronger and more public positions in support of policies that will result in meaningful carbon emissions reductions
- In cases of differences between company and trade group positions,
  - publicly state such differences;
  - attempt to influence the group's climate position from the inside; or
  - leave the group if differences are irreconcilable (Caring for Climate 2013)

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The Center for Science and Democracy at the Union of Concerned Scientists works to strengthen American democracy by advancing the essential role of science, evidence-based decision making, and constructive debate as a means to improve the health, security, and prosperity of all people.

ENDNOTES

1 The NAM board membership list analyzed was the one reported by the NAM website on September 20, 2013 (NAM 2013).
2 Board members as reported on the COC website October 1, 2013 (COC 2013).
3 Board membership as identified in the API's 2011 Tax Form 990 (API 2011).
4 Board membership as identified in the EEI's 2011 Tax Form 990 (EEI 2011).

REFERENCES

American Petroleum Institute (API). 2011. *Internal Revenue Service Form 990*. Online at *990s.foundationcenter.org/990_pdf_archive/130/130433430/130433430_201112_990O.pdf*, accessed on December 3, 2013.

As You Sow. 2013. *2013 proxy preview*. Online at *www.proxypreview.org/wp-content/uploads/2013/03/ProxyPreview2013_0308.pdf*, accessed on December 3, 2013.

Baker, H.P. 1926. Practical problems of trade associations. *Proceedings of the Academy of Political Science in the City of New York* 11(4):77–91. New York: The Academy of Political Science. Online at *www.jstor.org/stable/1180332*, accessed on November 26, 2013.

Boléat, M. 2003. *Managing trade associations*. London, UK: Trade Association Forum. Online at *www.boleat.com/materials/managing_trade_associations_2003_1.pdf*, accessed on December 4, 2013.

Caring for Climate. 2013. Guide for responsible corporate engagement in climate policy. Online at *www.unglobalcompact.org/docs/issues_doc/Environment/climate/Guide_Responsible_Corporate_Engagement_Climate_Policy.pdf*, accessed on November 24, 2013.

CDP. 2013a. About us. London, UK. Online at *www.cdp.net/en-US/Pages/About-Us.aspx*, accessed on November 24, 2013.

CDP. 2013b. Investor CDP 2013 information request. London, UK. Online at *www.cdproject.net/CDP%20Questionaire%20Documents/Investor-CDP-2013-Information-Request.pdf*, accessed on November 24, 2013.

CDP. 2013c. Guidance for companies reporting on climate change on behalf of investors & supply chain members. 2013. London, UK. Online at *www.cdproject.net/Documents/Guidance/CDP2013ReportingGuidance.pdf*, accessed on November 24, 2013.

Center for Responsive Politics (CRP). 2013a. New filings shed light on hundreds. Online at *www.opensecrets.org/news/2013/11/new-filings-shed-light-on-hundreds.html*, accesssed on December 5, 2013.

Center for Responsive Politics (CRP). 2013b. Political nonprofit spending since 2008: Politicization rankings. Online at *www.opensecrets.org/outsidespending/nonprof_rank.php?cycle=2012&type=All*, accessed on December 5, 2013.

Edison Electric Institute (EEI). 2011. Internal Revenue Service Form 990. Online at *990s.foundationcenter.org/990_pdf_archive/130/130659550/130659550_201112_990O.pdf*, accessed on December 3, 2013.

Editorial Board. 2013. Keeping shareholders in the dark. *New York Times*, December 3. Online at *www.nytimes.com/2013/12/04/opinion/keeping-shareholders-in-the-dark.html*, accessed on December 5, 2013.

National Association of Manufacturers (NAM). 2013. Board of directors. Washington, DC. Online at *www.nam.org/About-Us/Board-of-Directors/Landing-Page.aspx*, accessed on December 3, 2013.

Securities and Exchange Commission (SEC). 2013a. Comments on rulemaking petition: Petition to require public companies to disclose to shareholders the use of corporate resources for political activities. Online at *www.sec.gov/comments/4-637/4-637.shtml*, accessed on December 3, 2013.

Securities and Exchange Commission (SEC). 2013b. Comments on rulemaking petition: Petition to require public companies to disclose to shareholders the use of corporate resources for political activities. Online at *www.sec.gov/comments/4-637/4637-1198.pdf*, accessed on December 5, 2013.

Securities and Exchange Commission (SEC). 2011. Committee on Disclosure of Corporate Political Spending: Petition for rulemaking. Online at *www.sec.gov/rules/petitions/2011/petn4-637.pdf*, accessed on December 5, 2013.

Union of Concerned Scientists (UCS). 2013. *Assessing trade and business groups' positions on climate change*. Cambridge, MA. Online at *www.ucsusa.org/tradegroups*, accessed on November 24, 2013.

Union of Concerned Scientists (UCS). 2012. *A climate of corporate control: How corporations have influenced the U.S. dialogue on climate science and policy*. Cambridge, MA. Online at *www.ucsusa.org/corporateclimate*, accessed on November 24, 2013.

U.S. Chamber of Commerce (COC). 2013. Board of directors. Washington, DC. Online at *www.uschamber.com/about/board*, accessed on December 3, 2013.

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