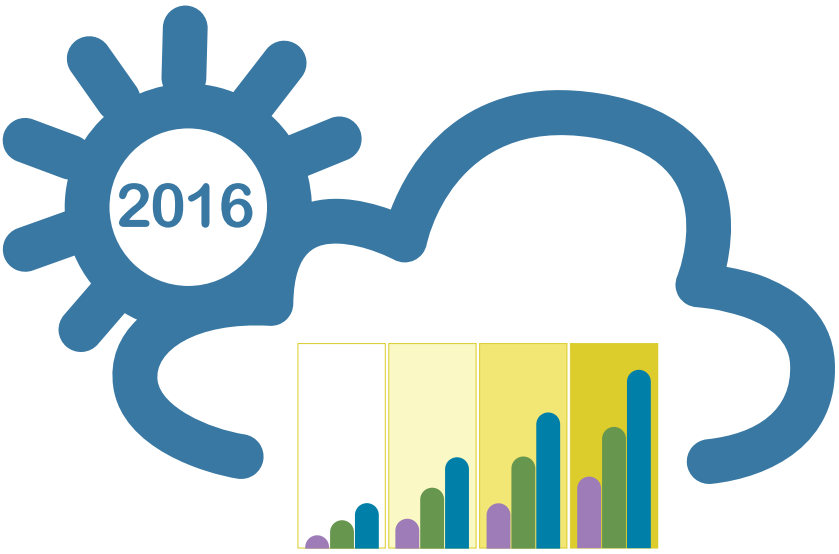
Ceres

Insurer Climate Risk Disclosure Survey Report & Scorecard:

2016 FINDINGS & RECOMMENDATIONS

October 2016 ▪ By Max Messervy



ABOUT CERES

Ceres is a nonprofit organization advocating for sustainability leadership. It mobilizes a powerful network of investors, companies and public interest groups to accelerate and expand the adoption of sustainable business practices and solutions to build a healthy global economy. Ceres also directs the Investor Network on Climate Risk (INCR), a network of over 120 institutional investors with collective assets totaling $14.5 trillion. For more information, visit www.ceres.org or follow Ceres on Twitter: @CeresNews.

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Barney Schauble, Managing Principal, Nephila Capital

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Foreword

By **Mike Kreidler,** *Washington Insurance Commissioner,* and **Dave Jones,** *California Insurance Commissioner*

The insurance industry is pivotal to our nation's economy, with $1.8 trillion in written premiums in 2014. Insurance can make a difference between financial security and devastation in people's lives.

Insurance companies rely upon historical loss records to guide their underwriting and set their prices. More and more frequently, the climate is behaving in ways that we can't predict. Weather patterns are shifting, and the severity and breadth of damage are intensifying, resulting in more costly disasters than we've ever seen. There is no basis in historical data for events like Hurricane Sandy, the Joplin, Missouri tornado, the Oso landslide in Washington state, and record-breaking landslides in Western states. In 2016 alone, 31 major disaster declarations were reported to the Federal Emergency Management Agency (FEMA) by the end of August.

Shifting weather patterns aren't the only concern facing insurers and regulators. Insurers rely on investments to help them pay claims, and many of their investment portfolios apparently rely heavily on fossil fuels. Our concern as regulators is that insurers' investment profitability may potentially be at risk. Coal prices have dropped, and fossil fuels are becoming less viable as regulatory actions set goals to reduce greenhouse gas emissions. Insurers have an opportunity to invest in burgeoning clean energy opportunities.

As state insurance regulators committed to supporting vibrant and competitive insurance markets that serve consumers and attract insurer participation, we are concerned about the impacts that climate change may have on insurers' assets and liabilities.

We are encouraged by the results of this Ceres report, which found that a record 22 insurance companies demonstrate leadership in addressing climate risk disclosure. The improvement in performance is especially notable among life insurers, who offered clear descriptions of how their senior managers and corporate boards are engaged in climate issues, as well as how they consider climate factors in their investments.

Nonetheless, according to the Report, there remains significant room for improvement. In particular, health insurers demonstrated a continued lack of awareness about the risks climate change poses to their business.

In the two years since the last Ceres disclosure report, the world has made a strong commitment to limiting climate change impacts. In December 2015, 195 countries adopted the Paris Climate Agreement in an unprecedented effort to keep global warming to "well below" 2 degrees Celsius. Concurrently, the Financial Stability Board, a global financial regulatory body, convened the industry-led Task Force on Climate-related Financial Disclosures to develop voluntary climate risk disclosure guidelines that will include the insurance sector.

As regulators, we strongly encourage insurers to consider how new climate change regulations and global warming impacts will drive the need for changes in insurers' business strategies. We also encourage companies to disclose climate risk-related information to stakeholders. The insurance industry has the opportunity to contribute positively to society's transition to a low-carbon future, and Ceres' 2016 report offers many examples of insurers' practices that could be steps in the right direction.

Mike Kreidler is Washington state's eighth insurance commissioner and is currently the longest-serving commissioner in the nation. He is currently the chair of the National Association of Insurance Commissioner's Climate Change and Global Warming Working Group and has served on the committee since 2007. In 2015, Kreidler joined the Paris Pledge for Action international climate accord and his office joined the UN Environmental Programme FI Principles for Sustainable Insurance Initiative as a supporting institution.

Dave Jones is California's Insurance Commissioner. He is the leader of a multi-state effort that administers the NAIC Climate Risk Disclosure Survey, and is the Vice-Chair of the National Association of Insurance Commissioner's Climate Change and Global Warming Working Group. Jones launched earlier this year the California Department of Insurance Climate Risk Carbon Initiative calling for coal divestment and requiring the reporting of fossil-fuel investments held by insurance companies. His Department of Insurance is the first in the U.S. to join the UN Environmental Programme FI Principles for Sustainable Insurance, and he has signed-on to the 2015 Paris Pledge for Action international Climate Accord.

Executive Summary

THE OBJECTIVE

This report evaluates and benchmarks the quality and comprehensiveness of climate risk disclosures by insurance companies in response to the National Association of Insurance Commissioners (NAIC) Climate Risk Disclosure Survey. In 2014, insurance regulators in six states—California, Connecticut, Minnesota, New Mexico, New York and Washington—required insurers writing in excess of $100 million in premiums to fill out the survey. This report analyzes responses by 148 insurance companies, collectively representing about 71 percent of the U.S. insurance market in terms of 2014 direct premiums written. A total of 375 insurance companies submitted Climate Risk Disclosure Surveys.

The aim of the analysis is to provide regulators, insurers, investors and other stakeholders with substantive information about the risks insurers face from climate change and steps insurers are taking to respond to those challenges. It effectively opens a window into the industry's response to an issue with sweeping implications. Ceres' report also offers recommendations for insurers and regulators to improve their management and disclosure on wide-ranging climate risks.

THE ANALYSIS

The report encompasses Property & Casualty (P&C) and Health insurers writing at least $1 billion in direct premiums annually, and Life & Annuity (L&A) insurers writing at least $750 million in direct premiums annually.

It assesses the quality of insurer responses across five core themes aligned with the NAIC's Climate Risk Disclosure Survey questions: 1) governance structures insurers have in place to address climate risk; 2) climate risk management programs companies have instituted across their enterprises; 3) how insurers are using catastrophe or other computer modeling tools and techniques to manage their climate risks; 4) how insurers are engaging with stakeholders on the topic of climate risk; and 5) how companies are measuring and reducing greenhouse gas (GHG) emissions. Ceres also scored companies on the overall quality and comprehensiveness of their responses to the survey questions.

Ceres assigned a point value to each question and sub-question from the NAIC survey.[1] To simplify our findings, Ceres employs a four-tier system to rate disclosure quality and comprehensiveness. Using a 100-point scale, "**High Quality**" company disclosures earned 75 points or higher, "**Medium Quality**" earned between 50 to 75 points, "**Low Quality**" earned between 25 and 50 points, and "**Minimal Quality**" earned fewer than 25 points. Company specific ratings across all six themes can be found in Appendix A.[2]

1 For a full list of questions and sub-questions see Appendix B

2 Insurer-specific scores will not be made public, but will be provided to companies and regulators upon request.

KEY FINDINGS

The report provides clear evidence of industry improvement on disclosure of climate risk management practices, especially among Property & Casualty and Life & Annuity insurers. Still, most of the 148 insurers evaluated continue to show an overall lack of focus in addressing climate risks and related opportunities.

Twenty-two insurers (including 13 based in the U.S.), or 16 percent of the total 148 companies scored by Ceres earned a High Quality rating. That is more than double the nine companies that earned a top rating in Ceres' 2014 report. However, 64 percent of the total insurers earned Low Quality or Minimal ratings. Additional key report findings include:

- The largest insurers, i.e., those writing more than $5 billion in direct premiums had the most marked improvement, especially in terms of governance practices related to climate risk management.
- Many life & annuity insurers also showed significant improvement.
- Health insurers showed a continued general lack of understanding about climate risks, despite growing scientific evidence linking climate change to increased morbidity and mortality impacts.

The following table lists the 22 insurers that earned a High Quality rating. Sixteen of the companies are P&C insurers and six are L&A. The 13 U.S.-based insurers earning a High Quality rating is a marked increase from just two companies in Ceres' 2014 report.

INSURERS EARNING A HIGH QUALITY RATING BASED ON THEIR 2014 NAIC CLIMATE RISK DISCLOSURE SURVEY		
ACE Ltd. Group	John Hancock	Sun Life
AEGON US Holding Group	Liberty Mutual Group*	Tokio Marine Holdings, Inc.
Allianz Insurance Companies	Lincoln National Group*	Travelers Group*
American International Group (AIG)*	MetLife Group*	WR Berkley*
AXA Group	Munich Re Group	XL America
Chubb Group of Insurance Companies*	Nationwide Corp*	Zurich US Insurance Group
FM Global Group*	Prudential of America*	Property & Casualty Groups
The Hartford*	Swiss Re Group	Life & Annuity Groups
		* U.S.-based Insurers

KEY FINDINGS BY INDUSTRY SEGMENT

Property & Casualty Insurers

Property & Casualty insurers and reinsurers face the most direct and tangible exposure to climate risks through the policies they write for homeowners, vehicles and businesses. Their business models revolve around assumptions of physical and liability risks, and therefore, any deviations in historical peril frequency and severity trends related to climate change would be cause for concern. As one would expect, especially as climate impacts worsen, the P&C segment is taking stronger action to manage both the risks and opportunities. Among our key findings:

- Overall, 16 of the 64 companies (25%) earned a High Quality rating and 27% earned the second-highest Medium Quality rating. While the majority of P&C insurers' disclosures are of at least moderate quality, there is still significant room for improvement.
- 14 of the 64 P&C insurers (22%) earned a High Quality rating for their **Climate Risk Governance** disclosure, with another 16 earning a Medium Quality rating. Insurers with

leading practices, including **Allianz** and **Swiss Re**, are engaging their Boards of Directors on climate issues regularly.

- **Enterprise-wide Climate Risk Management** assesses insurer climate risk responses across three aspects of the value chain: products and services, liquidity/capital management and investments. Only 14 of the 64 insurers earned High Quality ratings (22%) and 19 earned Medium Quality ratings (30%), indicating that roughly half of the insurers are taking at least moderate action to address climate risks holistically. Insurers with leading practices include **Nationwide** and **Erie**. **Munich Re** is using the company's expertise in risk assessment to evaluate climate risks and opportunities of the companies it invests in, including establishing a special sustainability investment fund.
- Over half of P&C insurers disclosed positive actions in **Climate Change Modeling & Analytics**, with 34% earning a High Quality rating and 20% earning a Medium Quality rating. **USAA** and **Liberty Mutual** described how their catastrophe modeling units use the latest climate science research to inform their physical impact models.
- Only 19% of P&C insurers earned a High Quality rating on **Stakeholder Engagement**, which explores how insurers encourage policyholders to reduce climate-related risks, and whether companies are engaging various constituencies on climate change, including elected lawmakers who could be enacting carbon-reducing laws and regulations. Overall engagement in this regard has been quite weak, with one shining light being **FM Global's** disclosure that it convened climate scientists in a workshop on observed climate impacts and published a white paper for its clients on the company's climate risk assessments.

Life & Annuity Insurers

Life & Annuity insurers face significant prospective risks from climate change, even though the segment is not as exposed to physical climate risks. L&A insurers have long duration liabilities and frequently employ "buy-and-hold" investment strategies. These longer investment time horizons expose them to wide-ranging climate-related impacts on the value of their investment portfolios. For example, life insurers generally have large holdings of real estate-linked assets, including mortgage-backed securities. Data analytics provider, CoreLogic's 2016 *Storm Surge Report* found that 6.8 million U.S. homes are at risk from hurricane-driven storm surges, with a total reconstruction value of $1.5 trillion.[3] Are insurers considering the possibility that rising sea levels and storm surges will potentially affect the value of their coastal investments?

On the underwriting side, research has increasingly identified climate-related health impacts, with major implications for life insurers' strategic outlooks. The U.S. Global Change Research Program's April 2016 report, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, outlined the impacts that global warming-driven extreme temperatures could have on the public. One model found that extreme heat could lead to 11,000 additional premature deaths in the United States by 2030 (compared to a 1990 baseline) and 27,000 deaths by 2100.[4] While such events, taken on their own, are unlikely to create financial stability risks for life insurers, companies will benefit by monitoring potential climate-driven mortality trends.

In terms of overall disclosure, Ceres noted that a number of L&A companies substantially improved their 2014 disclosure compared to the 2012 reporting year results. Nonetheless, there is still great room for improvement. Among our key findings:

3 CoreLogic, "CoreLogic Storm Surge Analysis Identifies More Than 6.8 Million US Homes at Risk of Hurricane Storm Surge Damage in 2016," June 1, 2016: http://www.corelogic.com/about-us/news/corelogic-storm-surge-analysis-identifies-more-than-6.8-million-us-homes-at-risk-of-hurricane-storm-surge-damage-in-2016.aspx.

4 The White House, "Fact Sheet: What Climate Change Means for Your Health and Family," April 4, 2016: https://www.whitehouse.gov/the-press-office/2016/04/04/fact-sheet-what-climate-change-means-your-health-and-family.

- Six of the 49 L&A companies (12%) disclosed actions taken to reduce their climate risks to earn High Quality ratings. That compares to only one of 54 L&A insurers scoring a top rating in our 2014 disclosure report. Despite such improvements, 67% of L&A companies earned Low Quality or Minimal Quality ratings.
- Only 6 companies disclosed strong **Climate Risk Governance** practices such as regular engagement with their corporate boards and senior managers on climate risk topics. **MetLife** and **Prudential** identified specific board committees that oversee corporate climate and sustainability policies.
- Nine L&A insurers had High Quality disclosure for **Investment Management** (18%), up from two in 2014. **AEGON** and **John Hancock** disclosed how their investment management policies are elevating consideration of environmental, social and governance (ESG) issues, as well as physical climate risks, when assessing investments.

Health Insurers

Health insurers face potentially significant risk exposures to some of the most alarming climate trends—impacts to human health and wellbeing. Climate scientists and public health experts have been publishing increasingly targeted research outlining current and projected health implications due to climate change. Health insurers that monitor such research and take into account the implications for health care demand and delivery costs will likely benefit in the medium to long-term.

The U.S. Global Change Research Program 2016 report, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*,[5] clearly explains that climate change is having significant public health impacts now, with worsening outcomes anticipated in the future, particularly if greenhouse gas emissions are not reduced.[6]

The report noted that air pollution and airborne pathogens will likely increase, particularly in terms of increasing ozone concentrations. The study found that, as of 2011, the ragweed pollen season is now 11 to 27 days longer than it was in 1995, affecting many of the 6.8 million children with asthma and susceptible to allergens.[7] Warmer winters and springs are expected to cause an earlier annual onset of tick-borne Lyme disease cases in the Eastern US and Upper Midwest; already between 2001 and 2014, the number and distribution of Lyme cases increased in those regions. The incidence of foodborne pathogens and toxins are also expected to increase due to temperature increases and weather extremes, requiring the enhancement of food safety practices and general vigilance.[8]

Among our key findings for this sector:

- No health insurers earned a High Quality disclosure rating, and only four insurers earned Medium Quality ratings, while 89 percent of the health insurers had poor quality disclosure.
- None of the insurers earned a High Quality rating for Climate Risk Governance and only five insurers earned Medium Quality ratings. None of the insurers disclosed robust procedures for engaging corporate directors or senior management on climate risk topics.
- 91 percent of health insurers fell in the two lowest rating categories for **Enterprise-wide Climate Risk Management**, and no insurers earned a top rating. Simply put, no health insurers' disclosures indicated that they are holistically considering climate risk across their various business lines and in investments.

5 U.S. Global Change Research Program, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, April 4, 2016: http://www.globalchange.gov/news/climate-change-growing-threat-human-health-new-usgcrp-report.

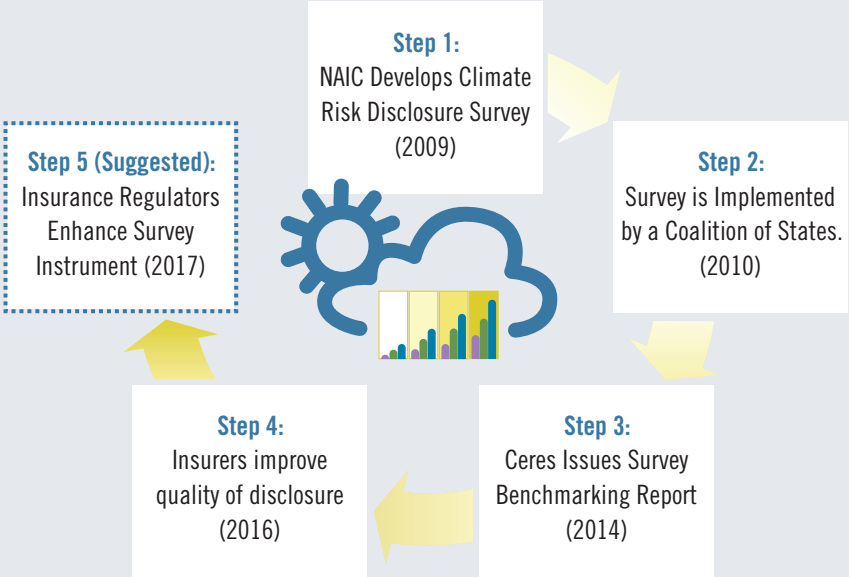
6 The White House, "Fact Sheet: What Climate Change Means for Your Health and Family," April 4, 2016: https://www.whitehouse.gov/the-press-office/2016/04/04/fact-sheet-what-climate-change-means-your-health-and-family.

7 Ibid.

8 Ibid.

- Only one insurer scored a High Quality disclosure rating for Stakeholder Engagement, via outreach to policyholders and efforts to support independent research and climate initiatives. **Kaiser Permanente** disclosed that it participates in independent research and advocacy initiatives related to climate and sustainability, including the Health Care Climate Council and the Healthier Hospitals Initiative.

Insurer Climate Risk Disclosure—Continuous Improvement



As reflected in the diagram above, the NAIC Climate Risk Disclosure Survey, the quality of insurers' survey responses as well as the corresponding depth and breadth of Ceres' reports have developed in stages since 2010. The introduction of mandatory climate risk disclosure in states where insurance commissioners adopted the survey resulted in companies disclosing some climate risk information. However, public benchmarking of company responses in 2014 has contributed to a step-change in disclosure quality. The responses analyzed in this report (which were submitted in summer 2015 and cover reporting year 2014) likely reflect insurers' awareness of stakeholders' interests in the benchmarking process, and those companies' greater efforts at offering comprehensive disclosure.

The next logical step in the cycle of continuous improvement of climate risk disclosure is to strengthen the survey instrument itself so that insurers' responses reflect their relative *performance* in addressing climate risk. The existing NAIC Climate Risk Disclosure Survey provides a very useful starting point for insurance regulators and other stakeholders to assess company performance, yet there are specific areas where the survey could be improved, such as requiring more robust responses on companies' strategic outlooks and strategies for dealing with future climate risks, thus giving stakeholders better insights on their differing strategies. (See Chapter 6 for recommendations).

KEY RECOMMENDATIONS FOR ALL U.S. INSURANCE SEGMENTS

1. **Elevate Climate Risk Leadership at the Board and C-Suite Levels**
   Re/insurance companies face near- and long-term risks from climate change, and as such, it would be a competitive advantage for corporate directors and senior management to address climate risk comprehensively. Ceres' recommendations in this regard include the following:
   - **a.** Appoint a specific board committee responsible for overseeing climate risks; ideally these responsibilities would be written into the committee's charter.
   - **b.** Identify and recruit corporate directors with expertise in climate change-related topics.
     - The entire board should also be regularly educated and updated on sustainability and climate risk issues.
   - **c.** Include climate risk management metrics and performance as key factors in executive compensation policies.
   - **d.** Appoint a senior executive to oversee the company's climate risk management program, with clearly defined responsibilities and expectations.

2. **Consider Carbon Asset Risk in Investment Portfolios**
   Institutional investors, including re/insurers, tend to have major investments in fossil fuel-related assets. Those investments face an unprecedented series of emerging risks, including those related to regulatory changes that are necessary to promote climate stabilization and that may reduce the market value of fossil fuel assets; unfavorable economics for extraction firms, particularly related to unconventional shale and tar sands oil; and innovations relating to renewable energy, energy storage, electric vehicles and others that have considerable potential to negatively affect the longer term value of carbon-based assets.[9] These challenges, collectively referred to as carbon asset risk, raise fundamental questions for investors regarding the potential stranding of fossil fuel assets and related devaluations.

   In the face of accelerating market and regulatory action toward decarbonization and more frequent and severe extreme weather impacts, insurers have a host of emerging risks they should be considering in their investment strategies. Just as many insurers stress test their liabilities against various loss scenarios, insurers can gain additional risk perspective by modeling their investment strategies against low-carbon global scenarios aimed at limiting global temperature rise to well below 2 degrees Celsius or less—the specific goal of the 2015 Paris Climate Agreement.

3. **Integrate Climate Risk into ERM Frameworks**
   Insurance companies should be integrating climate change as a risk consideration in companies' enterprise risk management (ERM) frameworks. For example, correlated climate-enhanced risks, such as a company having significant liability exposure in coastal areas while also holding mortgage-backed securities in the same region, can be effectively uncovered through ERM. Insurers can also utilize scenario analysis to evaluate the potential climate change-related impacts on their business and to inform forward-looking strategy development.

4. **Engage with Key Stakeholders on Climate Risk**
   As fundamental risk managers for society, re/insurers should be doing more to leverage their unique influence in public dialogues on climate risks and mitigating those risks. There are many effective ways that insurers can engage with stakeholders including, for example, advocating for increased public funding for climate science research, educating the public on health impacts or informing policymakers about the benefits of stronger building codes for climate resiliency and stronger measures to reduce the pollution that is causing climate change.

9 Ashim Paun et al., "Stranded assets: what next?," *HSBC Global Research*, April 16, 2015: http://www.businessgreen.com/digital_assets/8779/hsbc_Stranded_assets_what_next.pdf.

KEY RECOMMENDATION FOR PROPERTY & CASUALTY INSURERS

Utilize Climate Change Perspectives from Experts

P&C insurers have many key risk intermediaries that they work with on a regular basis, including reinsurers, brokers and catastrophe modelers. Primary insurers seeking additional expertise regarding their potential climate risk exposures can gain useful insights by engaging with these experts regarding advancements in climate science and climate risk modeling. Insurers can also form climate research partnerships with various academic and public institutions to better inform their underwriting strategies and modeling work.

KEY RECOMMENDATION FOR LIFE & ANNUITY INSURERS

Consider Sustainable Infrastructure Investment Opportunities

As long term investors, life insurers are able to invest in physical infrastructure assets. The 2015 Paris Climate Agreement sent a clear market signal that sustainable infrastructure investments, including renewable energy, long distance electricity transmission lines, grid modernization and energy efficiency are investments that can position life insurers well for the future while earning acceptable returns. Providing debt capital to fund sustainable infrastructure can also help hedge some of the investment risks posed by fossil fuel related investments as the world transitions toward a low-carbon future. While life insurer responses showed that some insurers are considering these investments and developing expertise in these areas, they would benefit from more integrated strategies regarding sustainable infrastructure and clean energy.

KEY RECOMMENDATION FOR HEALTH INSURERS

Anticipate and Advocate to Reduce Climate Change Health Impacts

A surprisingly large number of health insurers indicated a lack of understanding of and/or disregard for the materiality of climate change risks to their business interests and policyholders, especially in regard to health-related impacts. Health insurers can inform their policyholders about ways they can protect their families from worsening air quality and extreme temperatures. Furthermore, health insurers can engage with policymakers to educate them on current and anticipated health impacts due to climate change, and advocate for policies to reduce GHG emissions and and promote investments in clean energy.

KEY RECOMMENDATIONS FOR REGULATORS

1. Enhance the Climate Risk Disclosure Survey

The NAIC Climate Risk Disclosure Survey is a useful instrument as it stands, but there are many ways the survey could be improved to better capture insurers' actual climate risk management *performance*. Advancements in the understanding of how climate-related risks may manifest, for example, by way of analysis of carbon asset risk exposure associated with certain investments, or extreme weather climate attribution studies, have developed in the years since the survey was initially adopted. Updating the survey instrument will offer regulators, investors and other stakeholders more detailed and timely information about the efforts companies are, or are not making, to address climate risks across their businesses.

2. Continue to Expand Climate Risk Disclosure

Insurance regulators in six states required insurer participation in the 2014 NAIC Climate Risk Disclosure Survey. Insurance regulators in the other 45 domestic jurisdictions within NAIC could advance the interests of their jurisdictions by requiring insurers under their purviews to provide survey responses to signal the importance of climate risk management to regulators, insurers and investors. Comprehending insurers' climate risk management activities can aid regulators in assessing companies' emerging risk strategies and outlooks for the future.

CHAPTER 1

Re/Insurers Face a Shifting Climate Risk Landscape

Since the release of Ceres' *Insurer Climate Risk Disclosure Survey Report & Scorecard: 2014 Findings and Recommendations* two years ago, there have been significant advancements on the scientific, political, regulatory and financial fronts relating to climate risks and the insurance sector. The following section highlights the most important developments and how they relate to the global insurance industry.

1.1 THE PARIS AGREEMENT SETS A NEW COURSE FOR BUSINESS AND INVESTORS

In December 2015, 195 countries adopted the Paris Agreement at the conclusion of the 21st session of the Conference of the Parties, marking a profoundly important shift in global action on climate change.[10] The agreement is the first-ever universal, legally binding global climate deal, aiming to limit the increase in global average temperatures to *well below* 2 degrees Celsius (3.6 degrees Fahrenheit) above pre-industrial levels.[11] Unlike prior climate agreements, the Paris Agreement was structured as a "bottom-up" approach, with countries submitting national climate action plans that outline their strategies to peak and reduce emissions over coming decades. When aggregated, these Intended Nationally Determined Contributions (INDCs) do not reach the "below 2 degrees Celsius" target, but the agreement requires governments to meet every five years to set more ambitious, science-based targets for emissions reductions and public accountability.[12]

Of particular note, the Paris Agreement explicitly recognized the role of the private sector, along with sub-national authorities, i.e., cities, civil society and other "non-Party stakeholders" in addressing climate change through reducing emissions, increasing resilience and promoting cooperation.[13] In contrast to prior COPs, businesses and investors expressed support for a robust Paris Agreement in a number of ways leading up to COP21, including the White House-orchestrated American Business Act on Climate Pledge, which was signed by health insurer **Kaiser Permanente**.[14] In addition, the Business Backs Low-Carbon USA coalition of more than 100 companies, including property & casualty insurer **The Hartford**, ran a full-page

10 Government of France, "195 countries adopt the first universal climate agreement," December 12, 2015: http://www.cop21.gouv.fr/en/195-countries-adopt-the-first-universal-climate-agreement/.

11 European Commission, "Paris Agreement," December 2015: http://ec.europa.eu/clima/policies/international/negotiations/paris/index_en.htm.

12 Ibid.

13 Ibid.

14 The White House, "White House Announces Additional Commitments to the American Business Act on Climate Pledge," November 30, 2015: https://www.whitehouse.gov/the-press-office/2015/11/30/white-house-announces-additional-commitments-american-business-act.

advertisement in the *Wall Street Journal* calling for a strong and fair climate deal.[15] Global insurance organizations also expressed public support[16] for the Paris Agreement, although none of the major U.S. re/insurance industry associations issued public statements, a missed opportunity for engagement on a crucial topic.

The potential contributions of the re/insurance sector to enhancing global climate change mitigation and adaptation efforts were explicitly addressed as part of the Paris Agreement as well as the Sendai Framework for Disaster Risk Reduction[17] adopted by the United Nations in March 2015. As underwriters, risk data practitioners and major institutional investors, re/insurers have an opportunity to play a leading role in advancing societal climate change objectives.

With that in mind, the International Insurance Society announced the formation of the Insurance Development Forum (IDF) in April 2016, which is a new collaboration between the United Nations, the World Bank Group and the insurance industry.[18] The goal of the IDF is to "incorporate insurance industry risk measurement expertise into existing governmental disaster risk reduction and resilience frameworks and to build out a more sustainable and resilient global insurance market in a world facing growing natural disaster and climate risk."[19] Launched with the backing of UN Secretary General Ban Ki-Moon, and led by a roster of high-profile industry and governmental officials, the IDF appears to have strong momentum to facilitate the insurance sector taking a more public-facing approach to expanding insurance coverage and increasing resiliency.

In spite of the IDF's momentum, it is important to note that U.S. insurers are not well represented, with **The Hartford's** CEO Christopher Swift and brokerage firm **Marsh & McLennan's** President and CEO Daniel Glaser being the only U.S. industry CEOs on the 13-member IDF Steering Committee.[20] As we've noted in past reports, U.S. re/insurers continue to be generally appear unwilling to engage publicly on climate-related issues, with many refusing to even use the words "climate change" in public discussions about the greater frequency and intensity of extreme weather events.

1.2 SIGNIFICANT ADVANCEMENTS IN CLIMATE SCIENCE

Climate science has greatly advanced since the release of the Intergovernmental Panel on Climate Change's (IPCC) *Synthesis Report* in November 2014.[21] The *Synthesis Report* was based on the previously published reports of the three IPCC Working Groups that contributed to the Fifth Assessment Report (AR5), the definitive global climate science assessment conducted under the auspices of the United Nations. AR5 was comprised of four volumes: *Climate Change 2013: The Physical Science Basis*; *Climate Change 2014: Impacts, Adaptation and Vulnerability*; *Climate Change 2014: Mitigation of Climate Change*; and the *Synthesis Report*.[22] The *Synthesis Report* was explicitly developed to provide climate science recommendations to policymakers, and included sections on the following topics: observed changes and their causes; future climate change, risks and impacts; future pathways for adaptation, mitigation and sustainable development; adaptation and mitigation.[23]

15 Business Backs Low-Carbon USA, "Businesses Call for Paris Climate Action," December 2015: http://www.lowcarbonusa.org/.

16 Geneva Association, "(Re)Insurers Reaffirm their Commitment to Progress on Climate Resilience and Adaptation," November 19, 2015: https://www.genevaassociation.org/media/934317/geneva-association-commits-statement.pdf

17 United Nations Office for Disaster Risk Reduction, *Sendai Framework for Disaster Risk Reduction*, March 2015: http://www.unisdr.org/we/coordinate/sendai-framework.

18 International Insurance Society, "IIS Announces the Formation of the Insurance Development Forum," April 21, 2016: http://www.internationalinsurance.org/files/media/announcements/IIS_Announces_Formation_of_Insurance_Development_Forum_1.pdf.

19 Ibid.

20 Insurance Development Forum, "Re/Insurance CEOs Join Insurance Development Forum, UN & World Bank Initiative," *Insurance Journal*, May 17, 2016: http://www.insurancejournal.com/news/international/2016/05/17/408771.htm.

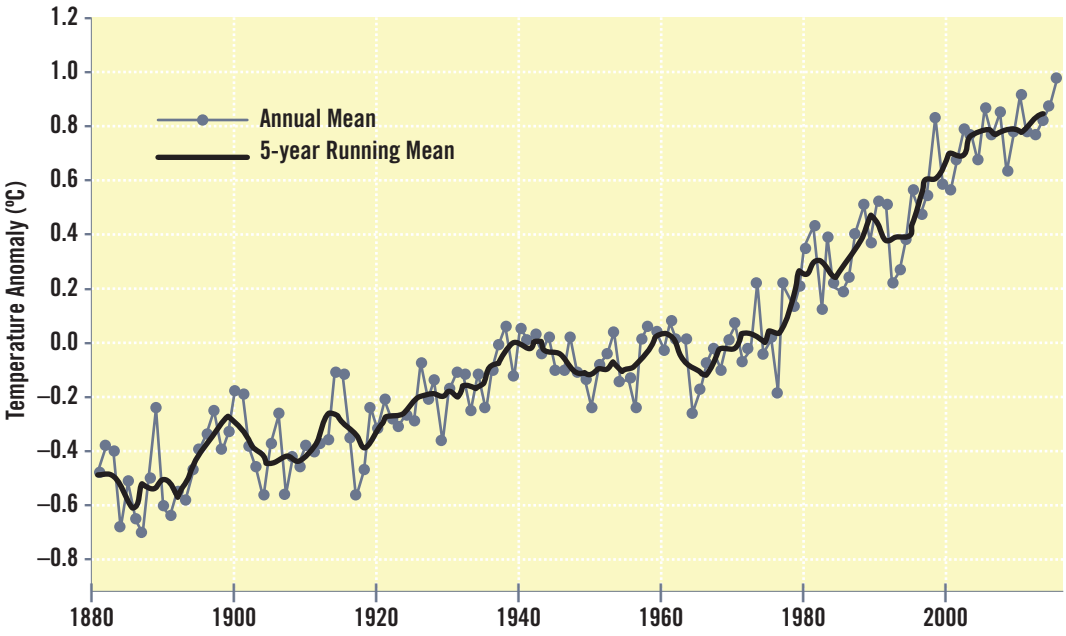
21 Intergovernmental Panel on Climate Change, "Climate Change 2014 Synthesis Report Fifth Assessment Report," 2014: http://ar5-syr.ipcc.ch/index.php.

22 Ibid

23 Intergovernmental Panel on Climate Change, "Summary for Policymakers," 2014: http://ar5-syr.ipcc.ch/topic_summary.php.

A key emerging advancement of interest to the re/insurance sector is the climate science community's efforts to develop methods for attributing climate change "fingerprints" in individual extreme weather events. The American Meteorological Society has been producing annual climate attribution reports since 2012, with the most recent version released in November 2015.[24] These reports, in which dozens of teams of scientists examine in detail some of the extreme weather events from the prior year, have found that the influence of climate change can be most confidently detected in extreme temperature events.[25] Scientists currently have less confidence in attributing extreme events that are not directly temperature-related, however the report found that in 2014 the overall probability of wildfires in California, tropical cyclones that struck Hawaii, and flooding in Alberta were all made more likely due to human induced climate change.[26]

FIGURE 1.1: GLOBAL TEMPERATURE (METEOROLOGICAL STATIONS)



Source: NASA, Global Temperature Trend (Base Period 1951-1980)[27]

In March 2016 the Committee on Extreme Weather Events and Climate Change Attribution of the National Academies of Science, Engineering and Medicine (NASEM) released a major study that summarized the current state of climate attribution science: *Attribution of Extreme Weather Events in the Context of Climate Change*.[28] This report generally agreed with the findings of the American Meteorological Society that scientists have the highest confidence in attribution analyses for specific extreme heat and cold events, medium confidence in hydrological drought and heavy precipitation events, and little to no confidence in attributing severe convective storms and extratropical cyclones.[29]

24 Bulletin of the American Meteorological Society, *Explaining Extreme Events of 2014 from a Climate Perspective*, November 2015: https://www.ametsoc.org/ams/index.cfm/publications/bulletin-of-the-american-meteorological-society-bams/explaining-extreme-events-from-a-climate-perspective/.

25 National Oceanic and Atmospheric Administration, "New report finds human-caused climate change increased the severity of many extreme events in 2014," November 5, 2015: http://www.noaanews.noaa.gov/stories2015/110515-new-report-human-caused-climate-change-increased-the-severity-of-many-extreme-events-in-2014.html.

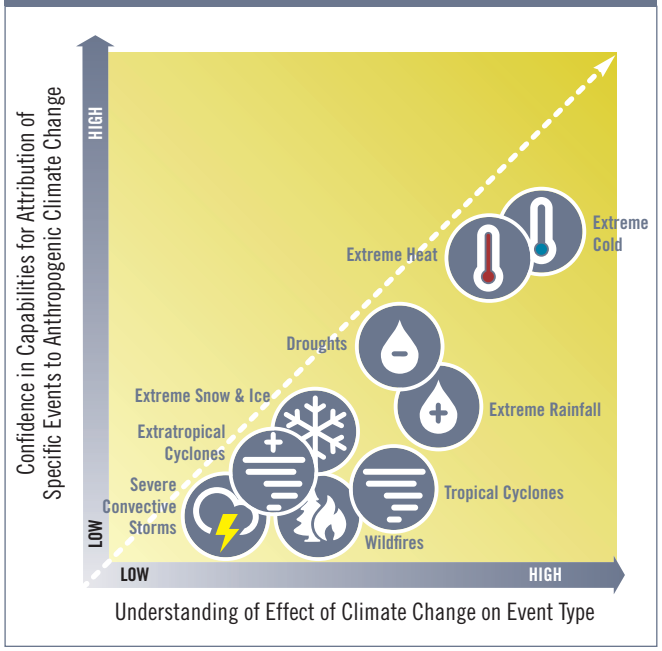
26 Ibid.

27 National Aeronautics and Space Administration, Goddard Institute for Space Studies, "Global Temperature (Meteorological stations)," 2016: http://data.giss.nasa.gov/gistemp/graphs_v3/Fig.A.gif.

28 Committee on Extreme Weather Events and Climate Change Attribution; Board on Atmospheric Sciences and Climate; Division on Earth and Life Studies; National Academies of Sciences, Engineering, and Medicine, *Attribution of Extreme Weather Events in the Context of Climate Change*, March 2016: http://www.nap.edu/catalog/21852/attribution-of-extreme-weather-events-in-the-context-of-climate-change.

29 Ibid. 9.

FIGURE 1.2: ASSESSMENT OF THE STATE OF ATTRIBUTION SCIENCE FOR DIFFERENT EVENT TYPES



Source: National Academy of Sciences, Engineering and Medicine, Assessment of the State of Attribution Science for Different Event Types.[30]

The key conclusion of these attribution studies, and their particular relevance to the insurance industry, is that scientists can now clearly identify climate change signals in certain extreme events. As the science of climate attribution advances, the information derived from attribution studies can help inform community choices, as the report notes:

> *"…in the wake of a devastating event, communities may need to make a decision about whether to rebuild or relocate. Such a decision could hinge on whether the occurrence of an event is expected to become more likely or severe in the future—and if so, by how much."*[31]

Given this context, re/insurance companies have a vested interest in whether and how communities rebuild, as it could affect the availability and affordability of insurance. Insurers have massive amounts of historical loss data to bring to bear in informing the decision-making process, and computing modeling power to envision different future scenarios (see Chapter 3.5). Finally, such climate attribution studies can begin to lay the groundwork for establishing liability in climate-related litigation. While the science of climate change attribution may be still developing, forward-looking insurers and reinsurers should keep abreast of developments to inform their underwriting and public engagement practices.

1.3 CLIMATE-RELATED DISCLOSURES GAIN NEW PROMINENCE

On September 29, 2015 Mark Carney, Governor of the Bank of England and Chair of the Financial Stability Board (FSB), addressed insurance industry dignitaries at Lloyd's of London in a groundbreaking speech on climate risk and the financial sector. Entitled "Breaking the Tragedy of the Horizon: Climate Change and Financial Stability," Carney outlined three broad "channels" through which financial stability, and more specifically, insurance companies, can be affected by climate change:

> *- First, **physical risks:** the impacts today on insurance liabilities and the value of financial assets that arise from climate- and weather-related events, such as floods and storms that damage property or disrupt trade;*
>
> *- Second, **liability risks:** the impacts that could arise tomorrow if parties who have suffered loss or damage from the effects of climate change seek compensation from those they hold responsible. Such claims could come decades in the future, but have the potential to hit carbon extractors and emitters—and, if they have liability cover, their insurers—the hardest;*
>
> *- Finally, **transition risks:** the financial risks which could result from the process of adjustment towards a lower-carbon economy. Changes in policy, technology and physical risks could prompt a reassessment of the value of a large range of assets as costs and opportunities become apparent.*[32]

30 Ibid. 7, Figure S.4.

31 Ibid. 1.

32 Mark Carney, "Breaking the tragedy of the horizon—climate change and financial stability," *Bank of England*, September 29, 2015: http://www.bankofengland.co.uk/publications/Pages/speeches/2015/844.aspx#.

While the global insurance industry is aware of the physical risks that climate change poses, and many in the industry are monitoring the emergence of climate-related liability issues, transition risks are the least well-understood and (at least at this point in time) least-addressed climate risks of the three.

Carney also catalyzed the creation of an industry-lead "climate disclosure task force" to set out a framework for firms to disclose information on their carbon footprints, climate risk management practices, and their preparations for a 2 degree world.[33] Carney argued that the goal would be to improve the availability of climate and carbon-related data for investors and financial analysts, and thereby to facilitate an efficient market reaction to addressing climate change risks. As insurance companies are both underwriters and investors, Carney claimed that such climate data could be of great use to enhancing insurers' performance on both sides of the balance sheet in the face of a changing physical and regulatory climate.[34]

In December 2015, the FSB announced the establishment of the task force, featuring former New York City Mayor Michael R. Bloomberg as Chair.[35] The Task Force on Climate-related Financial Disclosures (TCFD), as the body is known, has two phases to its work: phase one, now completed, defined the scope of inquiry and high-level objectives of the task force; phase two, which is ongoing as of this writing, is focused on delivering specific recommendations for voluntary disclosure principles and leading practices.[36] The task force aims to complete its work by the end of 2016. The membership of the TCFD is comprised of a broad mix of investors, industry, ratings agencies and others, however there is also strong representation from the re/insurance sector and affiliated companies. Representatives from **AXA, Tokio Marine, Storebrand, Swiss Re, Aviva Investors,** and **Mercer** are participating in the TCFD, primarily in their roles as "Data Users," as the task force defines them.[37]

While the final report from the TCFD will outline *voluntary* climate disclosure principles for a range of industries, the scope of the task force's inquiry and the broad support for the task force indicate that its resulting frameworks could well become new standards for climate disclosure to be adopted by regulators, ratings agencies or other actors.

Securities and Exchange Commission Climate Change Disclosure

Domestically, in 2010 the Securities and Exchange Commission (SEC) provided public companies with interpretive guidance on existing SEC requirements relating to the disclosure of business and/or legal developments related to climate change.[38] In the years since the interpretive guidance was issued, investors and analysts have been paying close attention to the SEC's enforcement of its climate disclosure guidance,[39] wherein the SEC will issue "comment letters" to companies with inadequate disclosure.

Since current SEC Chair Mary Jo White started her term in April 2013, the SEC has issued only eight comment letters referencing the term "climate change," and none since November 2014.[40] In response to public criticism of the Commission's lack of enforcement,[41] the SEC in April 2016 issued a "Concept Release on Business and Financial Disclosure Required by Regulation S-K," which solicits public comments on a range of disclosure requirements, including those related to

33 Ibid.

34 Ibid.

35 Ibid.

36 Ibid.

37 Ibid.

38 Securities and Exchange Commission, "SEC Issues Interpretive Guidance on Disclosure Related to Business or Legal Developments Regarding Climate Change," January 27, 2010: https://www.sec.gov/news/press/2010/2010-15.htm.

39 For more detail on this topic, please see Jim Coburn and Jackie Cook, *Cool Response: The SEC & Corporate Climate Change Reporting*, Ceres, February 2014: https://www.ceres.org/resources/reports/cool-response-the-sec-corporate-climate-change-reporting/.

40 Mindy S. Lubber, "While the SEC Ignores Climate Change Risks, Others Step Up," *Huffington Post*, April 11, 2016: http://www.huffingtonpost.com/mindy-s-lubber/while-the-sec-ignores-cli_b_9659086.html.

41 David Gelles, "S.E.C. Is Criticized for Lax Enforcement of Climate Risk Disclosure," *New York Times*, January 23, 2016: http://www.nytimes.com/2016/01/24/business/energy-environment/sec-is-criticized-for-lax-enforcement-of-climate-risk-disclosure.html.

climate change issues.[42] While it is unclear what, if any new climate disclosure related guidance or regulations the Commission may issue as a result of the responses it receives to the Concept Release, any new SEC climate disclosure rules or heightened scrutiny of disclosures could create a new mandatory climate reporting "baseline" that publicly listed re/insurers should monitor.

1.4 INSURER INVESTMENT PORTFOLIOS: CARBON ASSET RISK BROUGHT INTO FOCUS

Insurance company investment portfolios have come under increasing scrutiny from regulators, credit ratings agencies and other stakeholders. A specific concern is *carbon asset risk* (CAR), or the notion that a significant portion of the world's fossil fuel assets will remain unburned, and thus will be stranded.[43] HSBC Bank identified three factors that could drive the stranding of fossil fuel assets:

- **Climate change regulation:** In order to avoid breaching the carbon budget, regulations to reduce carbon dioxide emissions to curb fossil fuel use will be adopted, with effects on the market valuations of related fossil fuel assets and the firms that own the resources;
- **Economics:** The market pricing of various fossil fuels, particularly shale and tar sands oil, may fall below the costs of extraction, and therefore become uneconomic to extract and lead to losses for extraction firms;
- **Energy Innovation:** Energy efficiency and advancements in renewable energy and energy storage technologies could negatively affect the values of carbon based energy sources over the longer term through a reduction in demand.[44]

A 2015 study estimated that in order to meet the Paris Agreement target of remaining well below 2 degrees Celsius of warming, one-third of oil reserves, half of natural gas reserves, and over 80 percent of coal reserves worldwide will have to remain unused.[45] Such stark figures indicate that, if world governments follow through on the Paris Agreement, a profound shift in both the valuations and business models of fossil fuel firms will likely occur.

As institutional investors who manage trillions of dollars of premiums by investing them in many economic sectors, insurers are highly exposed to carbon asset risk. In June 2015, Mercer Investment Consulting released *Investing in a Time of Climate Change*; a report conducted with over 30 contributing research and modeling partners that evaluated the risks institutional investors face from climate change risks. The report found that out of all industry sub-sectors evaluated, the average annual returns for oil, gas, coal and power utilities would be the most negatively affected, with the majority of the impacts to occur over the next ten years.[46]

Building off of Mercer's research, as well as that of Ceres' own Carbon Asset Risk Initiative,[47] Ceres released *Assets or Liabilities: Fossil Fuel Investments of Leading U.S. Insurers* in June 2016, a first-of-its-kind study of the fossil fuel holdings of the 40 largest U.S. insurers. The analysis focused on investment data from Schedule D of the statutory financial statements, and used the fair market value of insurers' holdings in bonds, common stocks and preferred stocks as of December 31, 2014.[48] In total, the analysis found that the insurance groups included in the analysis

42 Securities and Exchange Commission, "Concept Release on Business and Financial Disclosure Required by Regulation S-K," April 2016: https://www.sec.gov/rules/concept/2016/33-10064.pdf.

43 Shanna Cleveland et al., *Carbon Asset Risk: From Rhetoric to Action*, Ceres, 2014: https://www.ceres.org/resources/reports/carbon-asset-risk-from-rhetoric-to-action/view.

44 Ashim Paun et al., Stranded assets: what next?," *HSBC Global Research*, April 16, 2015: http://www.businessgreen.com/digital_assets/8779/hsbc_Stranded_assets_what_next.pdf.

45 Christophe McGlade and Paul Elkins, The geographical distribution of fossil fuels unused when limiting global warming to 2C, *Nature International Weekly Journal of Science*, January 8, 2015: http://www.collectif-scientifique-gaz-deschiste.com/fr/accueil/images/pdf/texteschoisis/McGlade_et_al-2015-Nature.pdf.

46 Mercer, Investing in a Time of Climate Change, July 2015: http://www.mercer.com/content/dam/mercer/attachments/global/investments/mercer-climate-change-report-2015.pdf.

47 For more information on the Ceres Carbon Asset Risk Initiative, please visit: www.ceres.org/issues/carbon-asset-risk.

48 Cynthia McHale and Rowan Spivey, *Assets or Liabilities: Fossil Fuel Investments of Leading U.S. Insurers*, Ceres, June 2016: http://www.ceres.org/resources/reports/assets-or-liabilities-fossil-fuel-investments-of-leading-u.s.-insurers/view, 5.

owned collective investments of approximately $237 billion in electric & gas utilities, $221 billion in oil and gas companies, and just under $2 billion in coal companies, for a total of $459 billion.

Insurance Company Reactions

Global re/insurers have reacted to the advancement of the carbon asset risk concept in a number of different ways. Leading up to COP21, in May 2015 French insurer **AXA**, one of the world's largest insurance companies, announced a new initiative to divest 500 million euros of coal assets and invest 3 billion euros into green investments of various types.[49] The move marked the first time a major global investor divested from a fossil fuel asset. Then CEO Henri de Castries elucidated the company's perspective on carbon asset and climate risks stating that "It is our responsibility, as a long-term institutional investor, to consider carbon as a risk and to accompany the global energy transition."[50] AXA's announcement was followed in November by divestments from both French reinsurer **SCOR**[51] and Germany's **Allianz**,[52] who pledged to divest from any companies who generated more than 50 percent or 30 percent of revenues from coal, respectively.

Taking an alternate approach to addressing carbon asset risk, British insurer **Aviva** announced in July 2015 that it had identified a list of forty investee companies in the thermal coal sector (reflecting either mining or power generation).[53] Aviva outlined an approach to *engaging with* these companies as a shareholder to encourage them to reduce their carbon-related risk exposures, however, if the companies' performances did not improve sufficiently, Aviva would divest its holdings in those underperformers.[54] As major shareholders across many sectors, insurers can influence and inform their owned companies on improving their carbon and climate risk performance, and Aviva offers a nuanced example of one approach to engagement.

It is worth noting that, to date, no U.S. insurance companies have taken formal, public steps to either engage with invested fossil fuel companies, or divest of their holdings in those companies.

California Insurance Commissioner's Carbon Asset Risk Disclosure

In January 2016, California Insurance Commissioner Dave Jones issued a statement requesting that any insurance company licensed to do business in California voluntarily divest from its holdings in thermal coal, or in any company that derives more than 30 percent of its revenues from thermal coal.[55] Secondly, Commissioner Jones announced an annual data call, requiring all insurers writing more than $100 million in premium in California to disclose their carbon-based investments. Both Commissioner Jones' coal divestment request and the data call order are predicated on the Department of Insurance's concerns regarding insurers' carbon asset risk exposures, specifically as related to insurer financial stability in the face of volatile commodity prices.[56]

It remains to be seen whether other state insurance regulators follow Commissioner Jones' lead in ordering fossil fuel investment data calls or other regulatory measures, however it is likely that Jones' initiatives will spur insurers to ask new questions regarding carbon and climate risks as they examine their investment portfolios.

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49 Fiona Harvey, "Axa to Divest from High-Risk Coal Funds Due to Threat of Climate Change," *The Guardian*, May 22, 2015: http://www.theguardian.com/environment/2015/may/22/axa-divest-high-risk-coal-funds-due-threat-climate-change.

50 Ibid.

51 Matt Cullen and Denis Kessler, "How Re/insurers' Trillions in Investments Can Influence Climate Change Policy," *Intelligent Insurer*, January 6, 2016: http://www.intelligentinsurer.com/article/how-re-insurers-trillions-in-investments-can-influence-climate-change-policy.

52 Allianz, "Statement on Coal-based Investments," November 2015: https://www.allianz.com/v_1448622620000/media/responsibility/Energy_Guideline_PublicVersion_final.pdf.

53 Cullen and Kessler, 2016.

54 Ibid.

55 California Department of Insurance, "California Insurance Commissioner Dave Jones Calls for Insurance Industry Divestment from Coal," January 2016: www.insurance.ca.gov/0400-news/0100-press-releases/2016/statement010-16.cfm.

56 Anne Obersteadt, "Implications of a Warming World on the Insurance Industry," *National Association of Insurance Commissioners, The Center for Insurance Policy and Research*, March 2016: http://www.naic.org/cipr_newsletter_archive/vol18_warming_world.pdf.

CHAPTER 2

Overall Scoring Results

2.1 REPORT OBJECTIVE

The goal of this analysis is to provide insurers, regulators, consumers, investors and other stakeholders with information about the risks insurers face from climate change and steps companies' disclose to respond to those risks. While insurer survey responses are publicly available,[57] Ceres believes that all stakeholders benefit from an analysis that distills key findings and industry trends from the large volume of survey data, and provides recommendations for insurers and regulators to more effectively disclose and manage climate risks. An additional goal of this report is to provide insurers with concrete examples of leading company climate risk management practices and the business rationales for doing so.

2.2 SCORING METHODOLOGY

Our scorecard report is based on Climate Risk Disclosure Survey responses[58] submitted by insurers doing business in California, Connecticut, Minnesota, New Mexico, New York and Washington. The eight-question NAIC Climate Risk Disclosure Survey was first adopted by the NAIC in 2010, and has since been implemented by a coalition of state regulators. For the 2014 reporting year,[59] which this report covers, insurance companies with direct written premiums over $100 million were required to fill out the survey and submit their responses in August 2015.

Ceres' analysis of the 2014 survey responses encompasses Property & Casualty and Health insurers writing at least $1 billion in direct premiums, and Life & Annuity insurers writing at least $750 million in direct premiums. This report's scope was reduced to focus on a cohort of larger insurers that comprise the majority of premiums written nationally i.e., 148 out of a total of 375 insurance group survey responses. Thus, Ceres' analysis highlights examples of climate disclosure leadership and innovation among insurers that have adequate resources to devote to such issues.

Ceres' Scoring Framework Overview shown in Table 1 below presents the NAIC survey questions as well as the thematic organization of Ceres' scoring approach.

57 Survey responses are available for download at: https://interactive.web.insurance.ca.gov/apex/f?p=201:1:1450775301971:::::

58 See Appendix B for the "Climate Risk Survey Guidance for Reporting Year 2014" document for all questions and sub-questions for the 2014 Survey.

59 Throughout this report we refer to the "2014 reporting year" and "2012 reporting year" survey responses, which were analyzed in this 2016 report and the 2014 version of this report, respectively.

TABLE 2.1: CERES SCORING FRAMEWORK OVERVIEW	
NAIC Survey Question #	**Question Text**
Theme 1:	**Climate Governance**
2	Does the company have a climate change policy with respect to risk management and investment management?
Theme 2:	**Enterprise-Wide Climate Risk Management**
3	Describe your company's process for identifying climate change-related risks and assessing the degree that they could affect your business, including financial implications.
4	Summarize the current or anticipated risks that climate change poses to your company. Explain the ways that these risks could affect your business. Include identification of the geographical areas affected by these risks.
5	Has the company considered the impact of climate change on its investment portfolio? Has it altered its investment strategy in response to these considerations? If so, please summarize steps you have taken.
Theme 3:	**Climate Change Modeling & Analytics**
8	Describe actions the company is taking to manage the risks climate change poses to your business including, in general terms, the use of computer modeling.
Theme 4:	**Stakeholder Engagement**
6	Summarize steps the company has taken to encourage policyholders to reduce the losses caused by climate change-influenced events.
7	Discuss steps, if any, the company has taken to engage key constituencies on the topic of climate change.
Theme 5:	**Internal Greenhouse Gas Management**
1	Does the company have a plan to assess, reduce or mitigate its emissions in its operations or organizations?
Theme 6:	**Quality of Climate Risk Disclosure & Reporting**
N/A	The company answered all eight questions completely and comprehensively.

Scoring Insurers' Survey Responses

Ceres applied a four-tier approach to evaluate insurers' climate risk disclosure quality and comprehensiveness. The evaluations are arranged in a hierarchy as follows:

Climate Risk Management Ratings Hierarchy

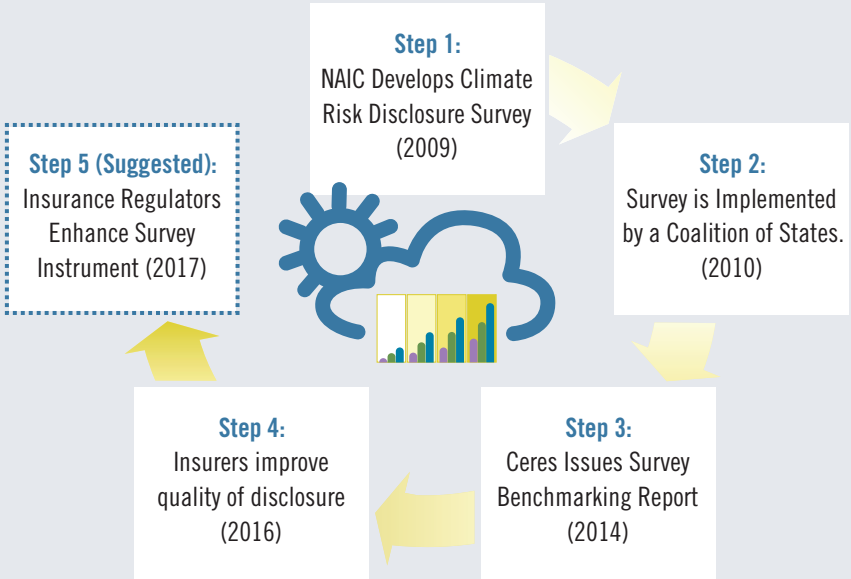
Top Quartile Rated Insurers =	**High Quality Disclosure**
Second Quartile Rated Insurers =	**Medium Quality Disclosure**
Third Quartile Rated Insurers =	**Low Quality Disclosure**
Fourth Quartile Rated Insurers =	**Minimal Disclosure**

The **High Quality** rated companies in the top quartile includes insurers that disclosed a comprehensive understanding of climate change, and substantive actions in managing their climate risks, including board and senior executive involvement and accountability in their responses. **Medium Quality** rated companies (second quartile) disclosed a solid understanding of climate change and have started to develop and implement comprehensive strategies in selected functions. **Low Quality** rated companies (third quartile) disclosed a basic understanding of climate change, but have not yet defined and implemented a comprehensive strategy to address the myriad risks and opportunities. **Minimal** rated companies (bottom quartile) disclosed only a limited amount of detail, omitted answers to survey questions, or indicated an unwillingness to engage with the risks climate change presents to their lines of business.

In order to make more granular comparisons, Ceres' scoring approach was applied across each of the six themes identified above. For example, a company that scored in the top quartile on Stakeholder Engagement is identified as a providing High Quality disclosure on that specific measure, although the company may not have scored well enough to earn a High Quality rating overall. This detailed analysis allows for the identification of leading practices in particular business areas, as well as areas in need of improvement.[60]

An additional important point to note is that Ceres' evaluation of company responses reflects current best practice in climate risk disclosure. As performance has improved since the 2014 version of this report, so our scoring approach has also evolved to reflect those developments to the extent possible.

Insurer Climate Risk Disclosure—Continuous Improvement



As reflected in the diagram above, the NAIC Climate Risk Disclosure Survey, the quality of insurers' survey responses as well as the corresponding depth and breadth of Ceres' reports have developed in stages since 2010. The introduction of mandatory climate risk disclosure in states where insurance commissioners adopted the survey resulted in companies disclosing some climate risk information. However, public benchmarking of company responses in 2014 has contributed to a step-change

60 For a fuller discussion of the scoring methodology used in this report, please see Appendix C.

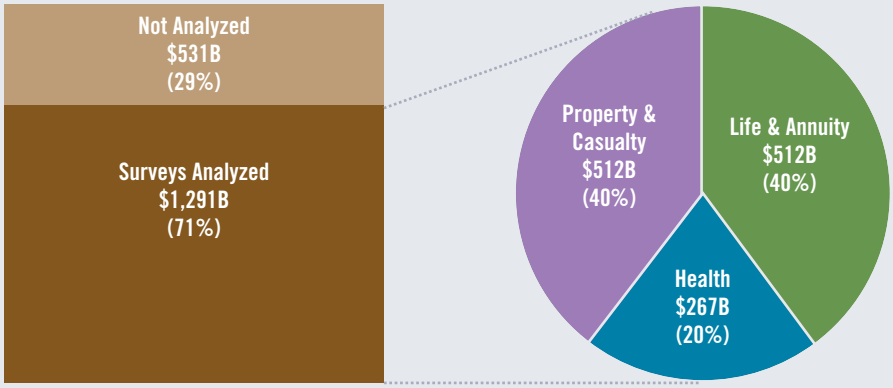
in disclosure quality. The responses analyzed in this report (which were submitted in summer 2015 and cover reporting year 2014) likely reflect insurers' awareness of stakeholders' interests in the benchmarking process, and those companies' greater efforts at offering comprehensive disclosure.

The next logical step in the cycle of continuous improvement of climate risk disclosure is to strengthen the survey instrument itself so that insurers' responses reflect their relative *performance* in addressing climate risk. The existing NAIC Climate Risk Disclosure Survey provides a very useful starting point for insurance regulators and other stakeholders to assess company performance, yet there are specific areas where the survey could be improved, such as requiring more robust responses on companies' strategic outlooks and strategies for dealing with future climate risks, thus giving stakeholders better insights on their differing strategies. (See Chapter 6 for recommendations).

2.3 PROFILE OF INSURERS IN THE SURVEY

This year's survey analysis of 148 insurer groups covers 71 percent of the U.S. insurance market (based on 2014 direct premiums written) as shown in Figure 2.1 below[61]

FIGURE 2.1: CERES' 2016 ANALYSIS OF INSURERS' NAIC CLIMATE RISK DISCLOSURE SURVEY RESPONSES, $ BILLIONS



Market Segment

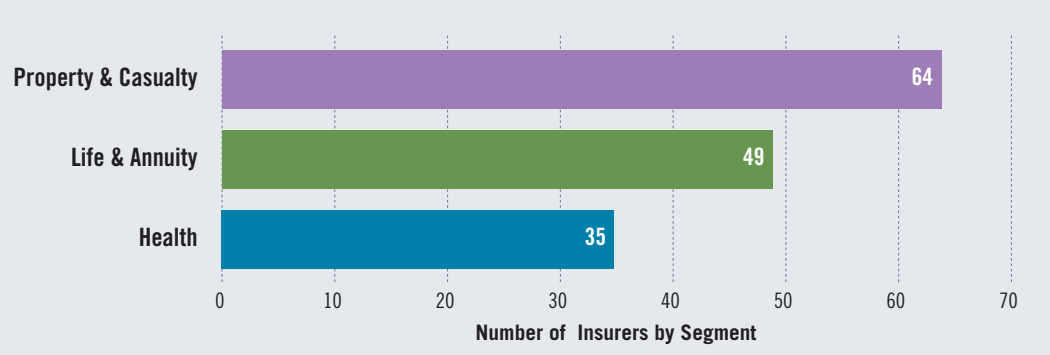
Out of the 148 insurers' surveys analyzed by Ceres (from a total of 375 surveys submitted), nearly half (64 insurers) were property & casualty (P&C), a third (49 insurers) were life and annuities (L&A), and just under one-quarter (35 insurers) were health insurers. Note that as part of the Climate Risk Disclosure Survey, insurers are required to self-report their market segments.[62] See Figure 2.2 for a summary of the type of insurer analyzed in this report.

In total, the 2014 reporting year survey respondents across all three insurance segments accounted for nearly $1.3 trillion in direct premiums written.

61 In the absence of insurer-reported direct premiums written data in the *NAIC Climate Risk Disclosure Survey*, Ceres derived figures based on National Association of Insurance Commissioners (NAIC) Schedule T figures, provided courtesy of the California Department of Insurance.

62 While the 2011 Survey report included a fourth "Multiline" segment category, for the 2014 and 2016 reports, Ceres has determined that the key variable that generally determines a company's perception of climate risk is whether the company underwrites property or not. Thus, this report has aggregated those group insurers who indicated that they are P&C, but also underwrite another line of business, be it Health, or Life & Annuity, into the P&C segment.

FIGURE 2.2: TYPE OF INSURER RESPONDING TO THE NAIC CLIMATE RISK DISCLOSURE SURVEY (2014)



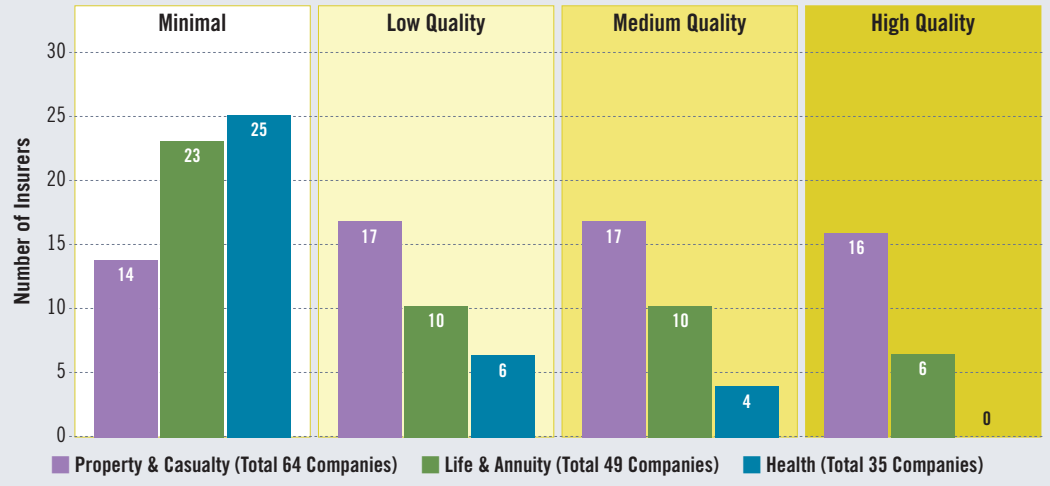
2.4 KEY FINDINGS

Figure 2.2 depicts the spread of ratings for all insurers analyzed. Overall, only 22 insurers, or 15 percent of the total, earned a High Quality rating (compared to 9 insurers earning the top rating in Ceres' 2014 report) while 31 insurers earned the Medium Quality rating. The majority of insurers (64 percent) earned only enough points for the Low Quality or Minimal ratings. The higher performance of the Property & Casualty segment compared to the other two segments is clearly depicted on this chart, with 25 percent of P&C insurers earning High Quality disclosure ratings.

The Influence of Market Segment

As shown in Figure 2.3 below, P&C insurers are outperforming their L&A and Health counterparts in terms of survey performance, the difference in disclosure quality between P&C and L&A insurers in particular has declined greatly. The shift in disclosure performance is mainly due to improved quality from a number of L&A companies compared to prior years. While the physical and property impacts of climate change have long been areas of study, and P&C insurers are generally aware of the findings, as we will note in their respective chapters, L&A and Health insurers are also exposed to climate change risks.

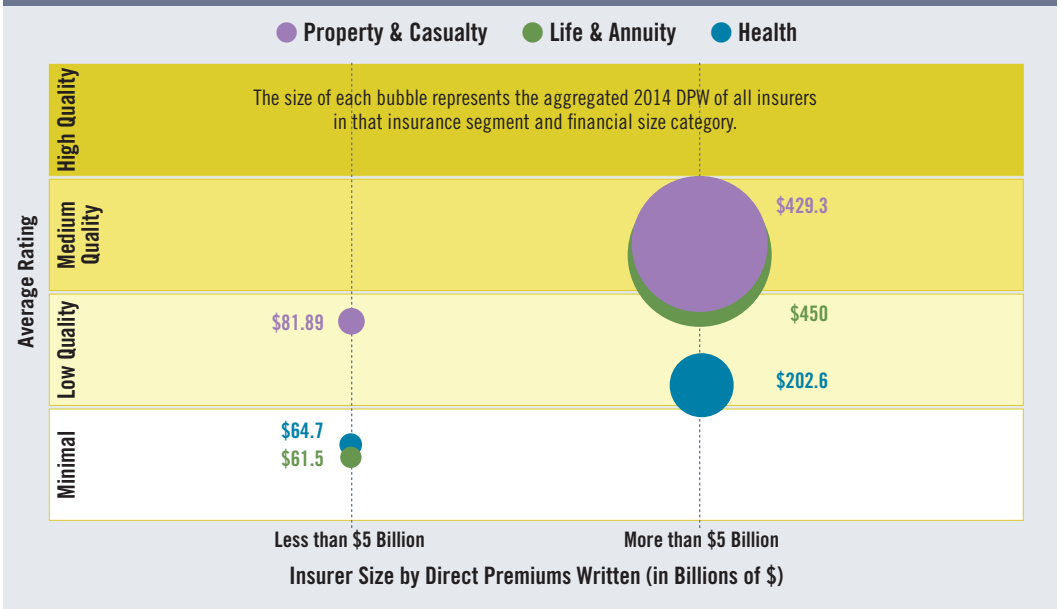
FIGURE 2.3: DISTRIBUTION OF SCORES BY RANK (2014)—TOTAL = 148 COMPANIES



The Influence of Size

Figure 2.4 below shows a clear correlation between insurer size and disclosure quality, with large insurers over $5 billion in direct premiums written across all three segments achieving significantly higher average scores than their counterparts under $5 billion. In the chart below, the size of the bubble reflects the total direct premiums written by all companies within that particular segment and size category.

FIGURE 2.4: AVERAGE SCORES BY INSURER SEGMENT & SIZE



The stronger disclosure quality of larger insurers can likely be attributed to a range of factors, including, potentially, the ability to fund risk management programs, and more specialized employees who may have oversight of climate risk topics. Larger insurers may also have larger corporate social responsibility and/or compliance staffs, who are frequently the employees who coordinate corporate responses to the NAIC *Climate Risk Disclosure Survey* and may be able to devote more time and effort to ensuring high-quality disclosure.

Overall Scoring Results

Highlighted below are the names of the insurers that Ceres rated as offering High Quality disclosure based on their 2014 NAIC Climate Risk Disclosure Survey response.

FIGURE 2.5: INSURERS EARNING A HIGH QUALITY RATING' BASED ON THEIR 2014 NAIC CLIMATE RISK DISCLOSURE SURVEY

ACE Ltd. Group	John Hancock	Sun Life
AEGON US Holding Group	Liberty Mutual Group*	Tokio Marine Holdings, Inc.
Allianz Insurance Companies	Lincoln National Group*	Travelers Group*
American International Group (AIG)*	MetLife Group*	WR Berkley*
AXA Group	Munich Re Group	XL America
Chubb Group of Insurance Companies*	Nationwide Corp*	Zurich US Insurance Group
FM Global Group*	Prudential of America*	Property & Casualty Groups
The Hartford*	Swiss Re Group	Life & Annuity Groups
		* U.S.-based Insurers

2.5 MOST IMPROVED DISCLOSURE QUALITY: 2014 VS. 2012

The chart below lists the eight P&C insurers that materially improved their climate risk disclosure quality, including two insurers that improved enough to advance two quality ratings. Such improvements indicate that these companies devoted significantly more effort to gathering information about their climate risk management activities, and reporting that information. This chart focuses only on those insurers that advanced into the top High Quality disclosure category, indicating that these companies offered the most robust public climate risk disclosures. In contrast, some P&C insurers moved down in the rankings, including **Amica Mutual, AutoClub, EMC, Main Street America** and **Mercury Insurance**.

FIGURE 2.6: MOST IMPROVED DISCLOSURE PROPERTY & CASUALTY INSURERS—2012 TO 2014

Property & Casualty Company	Rating Change From 2012 vs. 2014			
Chubb Group	Low Quality	→	High Quality	+2
FM Global	Low Quality	→	High Quality	+2
AIG	Medium Quality	→	High Quality	+1
AXA	Medium Quality	→	High Quality	+1
Nationwide Insurance	Medium Quality	→	High Quality	+1
Tokio Marine	Medium Quality	→	High Quality	+1
Travelers	Medium Quality	→	High Quality	+1
WR Berkley	Medium Quality	→	High Quality	+1

Five L&A insurers also materially improved their disclosure quality enough to earn a High Quality rating compared to Ceres' last report. Whereas in the 2014 report, the L&A segment had lackluster disclosure quality overall, in this report, the segment has a clear group of leaders emerging with respect to their disclosed climate risk management activities.

While the health segment overall did not perform as well as the other two segments, certain insurers did improve their climate risk disclosure quality compared to the 2014 report results. However, none of the health insurers earned a High Quality rating.

FIGURE 2.7: MOST IMPROVED DISCLOSURE LIFE & ANNUITY INSURERS—2012 TO 2014

Life & Annuities Company	Rating Change From 2012 vs. 2014			
AEGON US Holding Group	Low Quality	→	High Quality	+2
MetLife Group	Low Quality	→	High Quality	+2
John Hancock Group	Medium Quality	→	High Quality	+1
Lincoln National Group	Medium Quality	→	High Quality	+1
Sun Life	Medium Quality	→	High Quality	+1

CHAPTER 3

Property & Casualty Findings

3.1 CONTEXT AND OVERALL SCORES

Property & Casualty (P&C) insurers and reinsurers face direct and tangible exposure to climate change-related risks through the insurance policies they write for homeowners, vehicles and businesses. These companies' business models encompass the transfer of physical and liability risks relating to natural disasters, and therefore, any measurable deviations from historical impact trends related to climate change is cause for concern. The risks are indeed growing, and generally, the P&C segment is taking increasing action to mitigate those risks and seize upon the opportunities.

Despite lower weather-related losses for the global insurance industry in recent years, challenging longer-term trends can be clearly discerned when looking at the global climate picture. Chief among those challenges for the insurance industry will be managing the effects of global warming-driven sea level rise. A March 2016 paper published in *Nature* modeled the potential collapse of the Mexico-sized West Antarctic ice sheet, which could, when combined with melting in other regions, result in five to six feet of sea level rise by 2100, double the worst-case scenario envisioned by the International Panel on Climate Change in 2013.[63]

Report Results

FIGURE 3.1: PROPERTY & CASUALTY INSURERS' OVERALL CLIMATE RISK DISCLOSURE QUALITY, NUMBER OF INSURERS—2012 & 2014[64]

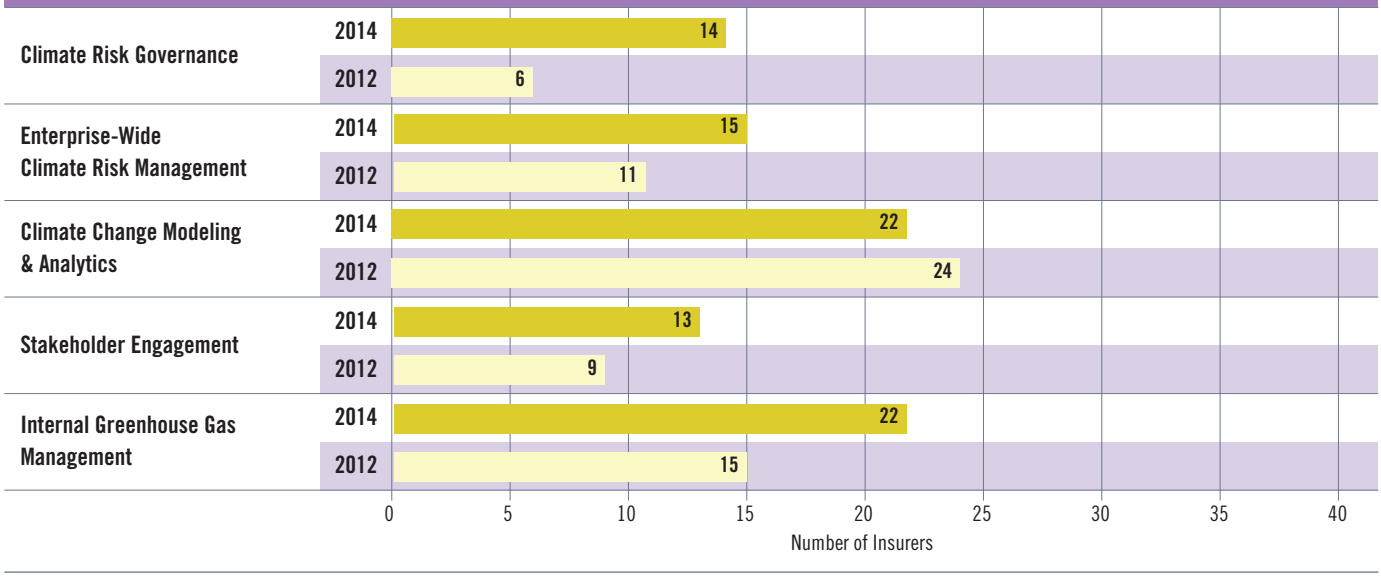
63 Justin Gillis, "Climate Model Predicts West Antarctic Ice Sheet Could Melt Rapidly," *New York Times*, March 30, 2016: http://www.nytimes.com/2016/03/31/science/global-warming-antarctica-ice-sheet-sea-level-rise.html?_r=0.

64 The number of P&C insurance groups compared in this report varied between 2012 and 2014, due to merger and acquisition activity, or companies falling below or rising above the $1 billion direct premium written threshold. When comparing only those companies that submitted both 2012 and 2014 survey responses, the number of P&C insurers falls to 61 each year. See Appendix C for more information.

In comparing the 2014 reporting year (the focus of this report) to the 2012 reporting year results, some notable trends can be seen. The significant increase in companies earning the top High Quality rating is a positive indicator. However, at least some of that increase likely reflects improved disclosure quality and comprehensiveness rather than an underlying performance improvement. Nonetheless, nine additional companies reached the High Quality performance band. Overall 33 insurers (52 percent) earned scores of Medium to High quality disclosure. On the other hand, the still-significant number of companies falling into the Minimal performance category indicates that many P&C companies are still not adequately disclosing information about their climate risk management programs.

The chart below depicts the number of insurers earning High Quality scores by theme, 2014 versus 2012. While most themes show an increase in the number of companies earning the top rating in 2014 versus 2012, fewer insurers earned a High Quality score in Climate Change Modeling & Analytics. This issue will be further explored in Chapter 3.6. In addition, it is clear that P&C insurers have significant room for improvement in the disclosure of their Stakeholder Engagement-related programs, which examines companies' public outreach and educational efforts around climate risk. In the following sections each of these themes will be explored in more detail, and specific leading practices highlighted.

FIGURE 3.2: NUMBER OF PROPERTY & CASUALTY INSURERS EARNING HIGH QUALITY RATINGS BY THEME—2014 & 2012



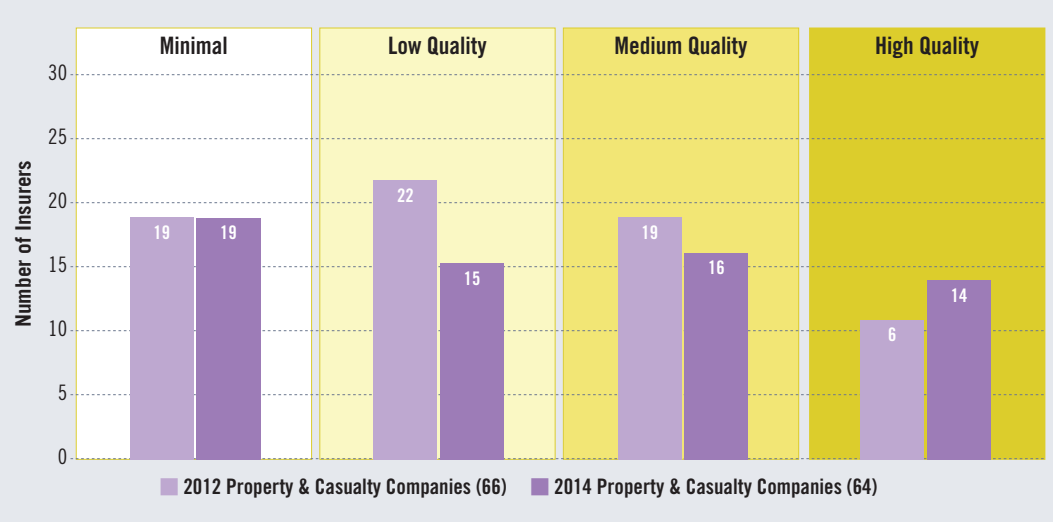
3.2 CLIMATE RISK GOVERNANCE

Climate Risk Governance focuses upon the extent to which climate risk is being addressed at the highest levels of the company, in a holistic manner and against a longer time horizon. More specifically, companies were scored on their responses to the following four NAIC questions:

- Is climate risk addressed at the senior executive level?
- Is climate change explicitly considered in the company's Enterprise Risk Management (ERM) framework?
- Does the Board of Directors have a role in managing the firm's climate risk?
- Has the company issued a public climate change policy statement?

The 2014 survey responses resulted in 22 percent of P&C insurers earning High Quality disclosure ratings, compared to 9 percent in 2012 Climate Risk Governance. While there is clearly an increase in the number of companies earning a high score for Climate Risk Governance, the fact remains that the majority of P&C insurers, 53 percent, performed in the bottom two disclosure quality bands. Many insurance companies today still appear to lack the leadership engagement necessary to improve their overall climate risk management practices.

FIGURE 3.3: PROPERTY & CASUALTY INSURERS' CLIMATE RISK GOVERNANCE BY RATING 2012 & 2014



Governance: Essential to Effective Climate Risk Management

Ceres' analysis of NAIC Climate Risk Disclosure Survey responses indicates that there is a correlation between strong performance on the Climate Risk Governance theme and higher quality disclosure overall. In other words, when senior leadership and boards are engaged on climate risk management issues, the company's overall disclosure quality tends to be higher.

Insurers that indicated a sustained and systematic attention to climate change risks and opportunities discussed the following crucial elements of climate risk governance:

- **Board Member Engagement on Climate Risks:** Insurers' boards are charged with ensuring long-term value creation, and therefore have a crucial role in focusing on climate risks and opportunities across the enterprise. High Quality insurer disclosure indicated boards receive regular updates on corporate activities related to climate risk and have established committees to evaluate corporate strategy in light of a warming planet and associated shifting risk factors.
- **Sustained Senior Management Focus:** Insurers with High Quality disclosure discussed the evaluative and reporting structures created by senior management to ensure that corporate leadership is regularly informed of any changes in risk exposures or relevant advances in climate science. Senior leaders at these companies frequently convene cross-divisional committees that address climate risk and sustainability issues.
- **Climate Risk Incorporated into ERM:** Enterprise Risk Management (ERM) frameworks attempt to limit future losses by systematically and strategically executing risk management practices across the enterprise.[65] High Quality insurer disclosure indicated that climate change risk factors are incorporated into ERM processes.

65 Standard and Poor's, *Insurance Enterprise Risk Management Criteria*, February 26, 2016: https://www.globalcreditportal.com/ratingsdirect/renderArticle.do?articleId=1128192&SctArtId=156567&from=CM&nsl_code=LIME&sourceObjectId=7954499&sourceRevId=1&fee_ind=N&exp_date=20230515-22:14:13

- **Public Climate Risk Management Statements:** High Quality insurer disclosure indicated that companies developed and made publicly available comprehensive climate change policies that catalyze responses across all business units.

Corporate Governance Resource on Climate and Sustainability Risk

In October 2015, Ceres published *View From the Top: How Corporate Boards can Engage on Sustainability Performance*, which lays out how corporate boards can effectively oversee sustainability issues such as climate change. The report draws upon interviews with a range of corporate directors and other stakeholders across numerous industry sectors in order to uncover leading board sustainability engagement practices. Specifically, the report recommends two key and inter-related strategies for embedding sustainability into board functions: "1) Integrating sustainability into board governance systems, and 2) Integrating sustainability into board actions."[66]

Examples of High Quality Disclosure of Climate Risk Governance

Climate risk and sustainability issues are enterprise-wide in nature, and as such, high quality disclosure indicated that corporate boards take a holistic approach to addressing these risks. **Allianz** described a unique approach to environmental, social and governance (ESG) issues by establishing several board committees dedicated to addressing such issues on a regular basis:

> *"In addition to the ESG Board, several committees with Board member leadership play an important role in our decision-making processes.*
>
> *Group Finance and Risk Committee: establishes and oversees the Group-wide risk management and monitoring, including sustainability risk. The Committee is also the decision-making body for ESG-related topics, based on analysis and deliberations within the ESG Board.*
>
> *Group Underwriting Committee: monitors the underwriting business and its risk management, as well as developing the underwriting policy and strategy.*
>
> *Group Investment Committee: monitors the Group's investment policy, among other tasks.*
>
> *The ESG Office reports directly to Jay Ralph, Board member responsible for Management Worldwide and Insurance USA and chair of the ESG Board. The ESG Office is responsible for integrating environmental, social and governance (ESG) aspects into core investment and insurance activities. This involves, among others:*
>
> *Strategy and management: Developing viewpoints on selected ESG topics and creating as well as continuously updating ESG guidelines.*

66 Veena Ramani, *View From the Top: How Corporate Boards can Engage on Sustainability Performance*, Ceres, October 2015, 3: https://www.ceres.org/resources/reports/view-from-the-top-how-corporate-boards-engage-on-sustainability-performance/view.

Governance support: Implementing guidelines and decisions taken by the ESG Board, and regularly informing the Board on progress about all ESG relevant topics.

Process and integration: Supporting the alignment and monitoring of ESG implementation in business lines (insurance and investments); supporting Group functions such as Risk, Compliance and Legal, in integrating ESG considerations into existing processes."

Swiss Re offered an example of how relevant climate-related information is communicated to the company's Board of Directors regularly:

"The governance process of the company's climate change activities includes various Group Executive Committee members and an annual presentation on Swiss Re's climate change strategy and activities is made to the Board of Director's Chairman's and Governance Committee."

Many insurers offering High Quality disclosure institute a standing committee of senior leaders to monitor climate-related risks. For example, **Travelers** delegates broad authorities to its primary climate and environment committee to monitor and report relevant data to senior management:

"The enterprise Climate, Energy and the Environment Committee (CEEC) facilitates coordination and supports the various climate-related initiatives and strategies across the enterprise. The CEEC is segmented into subgroups aligned with four key areas of focus:

• Risk Identification and Management: Supports activities related to identifying, monitoring and assessing climate-related risks.

• Products, Market Development and Customer Services: Supports activities related to the identification and development of new products, exploration of potential new markets, and expansion of service opportunities.

• External Relations, Communications, and Industry Leadership: Supports the work of Travelers' external-facing corporate groups on matters pertaining to climate, energy, and the environment.

• Facilities and Operations Management: Coordinates Travelers activities related to developing and implementing environmentally responsible corporate practices across the enterprise."

Public climate risk management policy statements disclose an insurer's view of and efforts to address climate risk to policyholders, investors, regulators and other stakeholders. High Quality insurer statements address how the company engages with climate science, how the company addresses climate risks and opportunities across both sides of the balance sheet, and how the company will engage on the topic publicly, as exemplified by French insurer **AXA**:

"AXA's position regarding climate change is not only to adapt, but to take advantage of its privileged position to provide solutions...Indeed insurers are well equipped to address climate-related risks. They can fund and promote risk research and education. They possess claims loss data, as well as models and tools to analyze and project this data. They have a duty to unveil and disseminate knowledge about such new risks, including poorly known threats to society. Insurers, through their significant investments, are also well positioned to send the right signals to the investment community and to specific invested companies. This strategy addresses both the "mitigation" and the "adaptation" dimensions of climate change. They are not solely self-interested or commercially driven, but they need to be global and collective to be effective."

The Opportunity

The potential benefits of strong climate risk governance are significant, as the following examples indicate.

- **Opportunity Identification:** Engaging corporate leadership and empowering committees of division leaders to examine climate and environmental data regularly can uncover new business opportunities, as **The Hartford** notes:

  "We identify opportunities through our quarterly Environment Committee meetings. Some of these opportunities are generated in our investment management company, and our business groups, including the Renewable Energy Insurance Practice."

- **Emerging Risk Assessment:** Assessing potential future climate risk scenarios regularly can inform the strategies re/insurers develop today, as **Munich Re** demonstrates:

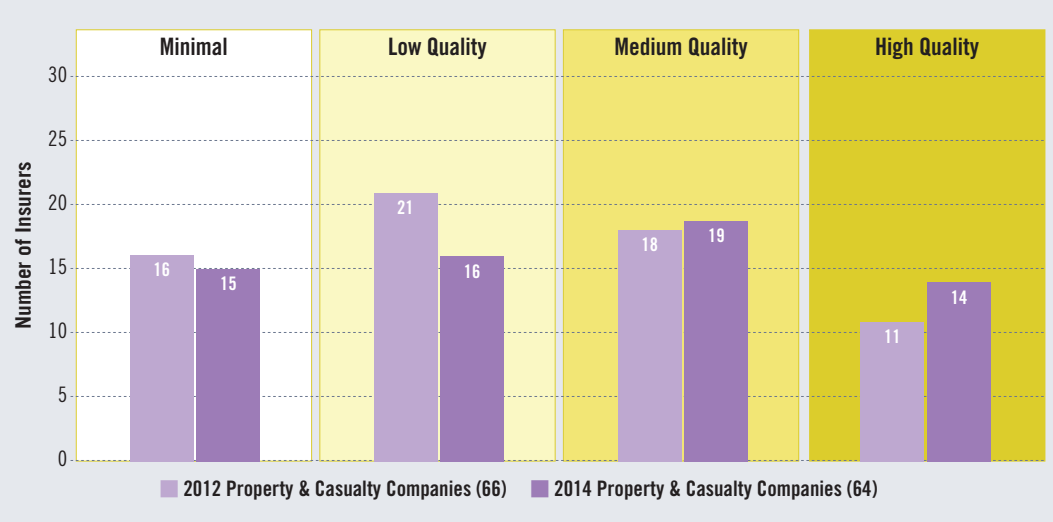
  "Both risks and opportunities at all levels are constantly (daily) assessed by specialist departments and coordinated by Munich Re`s Corporate Climate Centre. We also identify trends/faint signals in many ways, including systematic trend research and regular structured discussions in our Emerging Risks Think Tank (group of internal experts, meeting monthly). They derive conceivable scenarios and analyze their possible impact on Munich Re, also looking at interdependencies between different risks and other consequences related directly or indirectly to emerging risks. Cooperation with external partners complements our internal early-warning system. Moreover, Munich Re's Board of Management appointed a Reputation Risk Committee for reinsurance. Its core function is to advise the operative units on sensitive business decisions on the basis of ecological, social and corporate governance aspects."

3.3 ENTERPRISE-WIDE CLIMATE RISK MANAGEMENT

Enterprise-wide Climate Risk Management focuses on how insurers identify, assess, and manage risks and opportunities related to climate change. These NAIC survey questions cover a broad range of business functions, including:

- **Liquidity and Capital Management:** Does the insurer consider climate risks with regard to liquidity and capital needs, as well as terms and costs of catastrophe reinsurance, and how regularly does the insurer reassess climate risk?
- **Products & Customers:** Does the insurer foresee climate change impacting consumer demand for insurance products; which business segments/products are most exposed to climate risk; and does the company examine the geographic spread of property exposures in relation to expected climate change impacts?
- **Investments:** Does the insurer consider climate risks (across all asset classes) when assessing investments; does the insurer use a shadow price for carbon in assessing carbon-intensive heavy industry investments; and does the insurer have a system for managing correlated risks between its underwriting and investments?

FIGURE 3.4: PROPERTY & CASUALTY INSURERS' ENTERPRISE-WIDE CLIMATE RISK MANAGEMENT BY RATING 2012 & 2014



With 52 percent of P&C insurers earning High Quality or Medium Quality ratings in 2014, compared to 44 percent of the 2012 survey, there has been some improvement in disclosure quality. Given the broad focus of enterprise risk management (ERM) spanning many corporate functions, leading companies disclosed a holistic engagement with climate risk issues.

The Importance of Enterprise-Wide Climate Risk Management

High Quality insurer disclosure indicated that companies' ERM frameworks explicitly factored climate risk into strategic planning, and that those considerations encompass both sides of the balance sheet. In particular, leading insurers consider risks from various business units in formal risk assessments, as exemplified by **Nationwide's** example below.

> *"As part of the detailed risk assessments conducted over several years, Nationwide's ERM team in collaboration with leaders across Nationwide's multiple businesses, has assessed the risk that climate change poses to our businesses over the strategic horizon. The scope of the assessment included impacts arising from potential volatility in Nationwide's Operational, Business/Strategic, Legal/Regulatory, Insurance and Market/Credit risks. The process identified areas of exposure for both incremental risk and reward as well as assessed Nationwide's capabilities against best practices. The risk assessment is periodically refreshed for changes both external and internal to Nationwide."*

As climate change cuts across insurance company functions, it is a natural fit to be incorporated into a holistic ERM framework as **ERIE** notes below:

> *"An annual scanning exercise has elevated climate change as a material emerging risk to ERIE. Risks prioritized within ERIE's Emerging Risk Program ("ERP"), such as climate change, are then put on a track for assessment, which incorporates scenario analysis. This analysis includes identification of trends and uncertainties, and then using the uncertainties to build future realities. Impacts of these scenarios are based on implications to ERIE's value chain and other pre-defined business model components…climate change is considered a primary risk factor related to catastrophe risk, one of ERIE's largest traditional risks. Large traditional risks undergo periodic stand-alone risk evaluations by ERIE's ERM Division. The most recent catastrophe risk report analyzed historic storm frequencies and severities, as well as the enterprise impact of large storms. Impacts spanned financial, operational and reputational consequences."*

Products & Customers High Quality Disclosure Example

Chubb's disclosure offers an example of an insurer looking ahead to anticipate and strategize around shifting customer preferences, influenced by climate risk concerns:

> *"The operational risk review can identify opportunities to address emerging customer needs. We have anticipated increased consumer demand for particular products as a result of climate change. For example, as governments and industries seek to mitigate climate change and preserve natural capital, opportunities arise from the market for low-carbon energy and green technology. We have over 25 years of experience in the Renewable Energy sector and have assembled a Clean Tech team to bring together expertise, products and services that support businesses innovating in such areas as smart grid technologies and resource optimization."*

Investments High Quality Disclosure Examples

As part of its comprehensive and thorough NAIC survey response, **Allianz** offered an extended discussion of the company's view of carbon asset risk[67] and associated environmental, social and governance (ESG) impacts from investments in fossil fuels:

> *"…in light of climate risks and a wide range of ESG impacts associated with energy generation—in particular from coal and other fossil fuels—Allianz announced during its Annual General Meeting in May 2014 that it will develop a holistic energy position, which combines criteria for climate and environmental risks, as well as energy supply security and the financing of sustainable economic growth. As part of this commitment, Allianz has published the Allianz Energy Factsheets [that] provide a factual overview of the key trends and associated ESG issues along the value chain of eight key energy sources (coal, natural gas, oil and oil products, nuclear energy, hydropower, wind, solar and bioenergy). This documentation is part of the overall Allianz Energy Framework and was used as the basis to inform and design Allianz' actions in the energy sector."*

Cincinnati Financial describes investment limits and modeling exercises the company employs to assess and mitigate potential correlated risks between underwriting and investments:

> *"Our investment strategy is integrated with our overall corporate strategy, appropriately balancing risks and rewards associated with the insurance and investment portions of our business…We limit our investment exposure to reinsurers to reduce the total impact of a weather-related loss. We look at how our investment portfolio and insurance writings could aggregate in the event of climate-change related events. We model events that could include both weather-related and market events and adjust our business plan (including our mix of assets and underwriting plan) to stay within defined capital risk tolerance levels."*

The Opportunity

With only 22 percent of insurers earning a High Quality disclosure rating for their Enterprise-Wide Climate Risk Management practices, many P&C insurers have significant room for improvement in better integrating their climate risk insights across the enterprise. In particular, the risk management expertise developed through underwriting presents potentially useful information for companies to use in assessing their investments, as **Munich Re** explains in its comprehensive disclosure:

67 See Cynthia McHale and Rowan Spivey, "Assets or Liabilities: Fossil Fuel Investments of Leading U.S. Insurers" Ceres, May 2016: http://www.ceres.org/resources/reports/assets-or-liabilities-fossil-fuel-investments-of-leading-u.s.-insurers/view.

"Risks arising out of investments in companies with high physical exposure to climate change/exposure to changes in CO2 legislation; i.e., change in regulatory framework, not being prepared for emission trading, energy-efficient production: this could result in higher operational costs/lower returns, and the same applies to cover for litigation risks. We also integrate/translate our expertise in climate change risks and opportunities into new solutions for our asset management, e.g. a special sustainability fund. We analyze not only risks, but also the business opportunities of companies in which we invest. MEAG, Munich Re's asset manager, invests in global infrastructure projects. These include direct equity investments in solar parks and wind farms as well as participations in a power grid and a natural gas grid. By the end of the 2014 financial year, these investments totaled some €1.5bn. In the coming years, we will increase our investments in infrastructure to a cumulative total of €8.0bn, given stable parameters and the achievement of an adequate return."

- **Emerging Risk Monitoring:** High Quality disclosures indicated that insurers' ERM frameworks incorporate forward-looking elements that regularly monitor and evaluate climate risk-related data, as described by **Liberty Mutual**:

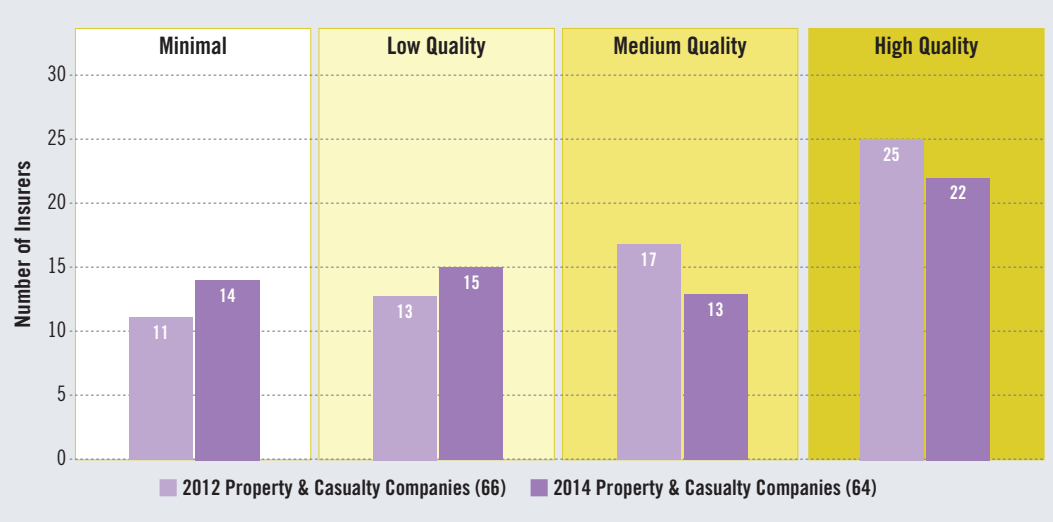
  "Another vital component of the ERM program is the monitoring and management of emerging liability risks. Liberty Mutual has a dedicated complex and emerging risks unit responsible for monitoring emerging risks and handling emerging risk claims, including climate change related risk and claims."

3.4 CLIMATE CHANGE MODELING & ANALYTICS

In this category insurers were scored on three measures as defined in the NAIC Survey:

- **Historical Trend Departure Peril Analysis:** Whether the company has taken steps to model and/or analyze perils associated with non-stationary hazards that deviate from historical trends;
- **Stress Testing:** Whether the company has used catastrophe models to perform hypothetical "stress tests" to determine the implications of a range of plausible climate change scenarios, and;
- **Longer-Term Scenario Modeling:** Whether the company has conducted, commissioned, or participated in scenario modeling for climate trends beyond the 1-5 year timescale.

FIGURE 3.5: PROPERTY & CASUALTY INSURERS' CLIMATE CHANGE MODELING & ANALYTICS BY RATING 2012 & 2014



Compared to other areas, the Climate Change Modeling & Analytics results show a relatively high number of companies earning a positive score in both 2014 and 2012 reporting years. Overall, 34 percent of P&C insurers earned a High Quality disclosure rating based on the 2014 NAIC surveys analyzed. However, the decline in disclosure performance from the 2012 survey reflects that some insurers do not appear to be keeping current with the latest climate risk modeling techniques and tools available, as Ceres' scoring reflects the current state of the science when it comes to catastrophe modeling and the integration of advanced climate science into models. Insurers' disclosures frequently reflected strong understanding of both the capabilities and limitations of modeling software when considering climate impacts.

The Importance of Climate Change Modeling & Analytics

Combining meteorology, geology and climatology with many millions of individual data points regarding property features and insurance policy contracts, catastrophe models are one of the most compelling examples of "Big Data" in action today. Catastrophe ("cat") models aid insurers in evaluating the amount of losses they would take, if, for example, a Category 5 hurricane were to make landfall in Miami, Florida, or a major earthquake were to strike in Southern California. Lloyd's of London describes cat modeling as reducing "the complexity inherent in physical interaction between hazard and vulnerability, by parameterizing characteristics to a limited set of measurable metrics. These metrics are applied systematically, consistently and repeatedly to a custom set of exposure data. The insurance related financial characteristics can then be overlaid to give a net loss bespoke to the client using the tool."[68]

Catastrophe modeling is an essential element of modern property & casualty insurance underwriting and portfolio management. Insurers utilize models to: assess their risk exposures in certain regions and lines of business; to manage their portfolio of risk and evaluate alternative strategies; and to assess the relative values and costs associated with different policy contract structures.[69]

While catastrophe modeling is a complex undertaking to begin with, the addition of climate change impacts, and the additional uncertainty inherent to a changing climate, may render the historical loss data that the models rely upon less useful for such projections. On the other hand, cat model practitioners point out that, for example, storm surge models based on *current* mean sea level would take warming-driven sea level rise into account by nature, and therefore, explicit adjustments for climate impacts may not need to be made to the models.[70]

Nonetheless, catastrophe modelers and their re/insurance industry clients cannot afford to assume that historical data will adequately estimate extreme weather risks to the industry. While the most severe prospective impacts of climate change may be emerging over time (see Chapter 1.2) the potential for more extreme weather is increasing due to a changed climate. Practitioners who engage with the climate science community regularly will be best positioned to keep abreast of the latest scientific advances, to comprehend the uncertainties and assumptions inherent in the cat models they are using, and how such uncertainties may be magnified by climate change variables.

High Quality Climate Change Modeling & Analytics Disclosure Examples

In its survey response, **USAA** discusses its engagement with climate-related research findings, and how that research informs the company's catastrophe modeling work:

68 Lloyd's, *Catastrophe Modelling and Climate Change*, Lloyd's, 2014: https://www.lloyds.com/~/media/lloyds/reports/emerging%20risk%20reports/cc%20and%20modelling%20template%20v6.pdf, 9.

69 Systemic Risk of Modelling Working Party, *Systemic Risk of Modelling in Insurance*, University of Oxford Martin School, November, 2015: http://www.oxfordmartin.ox.ac.uk/downloads/academic/201511_Amlin_FHI_white_paper.pdf, 8.

70 Lloyd's, "Keying climate change into catastrophe models," May 8, 2014: https://www.lloyds.com/news-and-insight/news-and-features/emerging-risk/emerging-risk-2014/keying-climate-change-into-catastrophe-models.

"USAA uses state-of-the-art modeling software to measure hurricane, wildfire, winter-storm and severe thunderstorm (including tornado) risk. The selection of model parameters can produce a wide range of possible exceedance probability curves, so parameter estimation is calibrated with the purpose of any given model run. For instance, when estimating potential climate change related catastrophe risk, USAA uses a subset of historical years with higher than average sea surface temperatures. These scenarios contemplate a more-active tropical cyclone season and can be used to parameterize the computer model as a proxy for estimating hurricanes under global warming conditions… USAA monitors scientific research on climate issues, including findings of the IPCC, the U.S. Department of Defense, the National Climate Assessment of the U.S. Global Research Program, the Actuaries Climate Index Research Project, and various actuarial and scientific journals. This research shapes assessment of weather-related, regulatory and business operation risks, and informs model validation and parameterization."

Travelers notes the challenges posed by changing climatic conditions, and describes a strategic underwriting shift in response to climate-influenced catastrophe modeling:

"…changes in climate conditions could cause our underlying modeling data to be less predictive, thus limiting our ability to effectively evaluate and manage catastrophe risk. We rely, in part, upon these analyses to make underwriting decisions designed to manage our exposure on catastrophe-exposed business. For example, as a result of these analyses, we have limited the writing of new property and homeowners business in some markets and have selectively taken underwriting actions on new and existing business. These underwriting actions on new and existing business include tightened underwriting standards, selective price increases and changes to deductibles specific to hurricane-, tornado-, wind- and hail-prone areas."

CSAA describes the various modeling and brokerage resources the company draws upon to assess and mitigate its particular exposure to various climate-related hazards:

"The principal exposure from climate change for our lines of business arises from hurricane, convective storm and hail perils and wildfire. For hurricane, convective storm and hail, we use a blend of AIR and RMS models to measure our exposure…The models are updated following these seasons with major releases every three to four years. For hurricane, convective storm and hail, we use Aon Benfield to assist us in applying the models to our book of business for predictive purposes and utilize the results in our underwriting and pricing analytics. Regarding wildfire risk, we are paying close attention to the impact of climate-related issues, such as the current drought conditions in California. We use a product developed by ISO to measure exposure and use it for underwriting and pricing analytics. In addition, we utilize quantitative models developed by AIR, EQE-CAT, and Impact Forecasting (an Aon Benfield subsidiary) to gauge our risk to wildfires in California."

The Opportunity

A significant number of insurers noted the inherent uncertainty that underlies any model of the world, and the additional challenges climate change introduces to the science of cat modeling. Beyond the risks, however, there are opportunities for re/insurers in engaging with the climate science community through project partnerships and by stress testing their risk exposures under various scenarios.

- **Advancing Applied Climate Research**: As the frequency and severity of climate-influenced perils increase, leading re/insurance disclosures described partnerships with scientists and other practitioners to evaluate current and future potential impacts. **Allianz** in particular provided details regarding its research with a number of stakeholders on extreme rainfall events and flooding in a particular region, as well as the potential applications of the research globally to its underwriting practices:

  "As an example of the importance of multi-stakeholder partnerships with respect to modeling climate perils, Allianz joined a unique consortium of public and private expertise including JBA Consulting, Intermap, the World Wide Fund For Nature—Germany and the UK Met Office to release the study 'Climate Change and Extreme Surface Flooding in Northern Italy'. The project developed new methods that can be applied globally where sufficient observations exist, to analyze a previously under-researched peril by linking observed current rainfall extremes and flooding to future climate risk by the means of climate and hydrological modeling, in addition to traditional analysis based on historical data. In addition the project addressed whether changing long-term risks were quantifiable and should be taken into account by the insurance industry when writing business."

- **Research & Development-Informed Modeling:** Many re/insurers develop proprietary "climate-conditioned" cat models, reflecting a range of potential future climate states. A core role of the catastrophe modeling function is communicating risk accumulations to senior management, in order that decision-makers may take steps to avoid particularly severe losses. **Liberty Mutual** provided some useful insight into how its dedicated Catastrophe Risk Assessment unit incorporates climate-related data into its modeling framework:

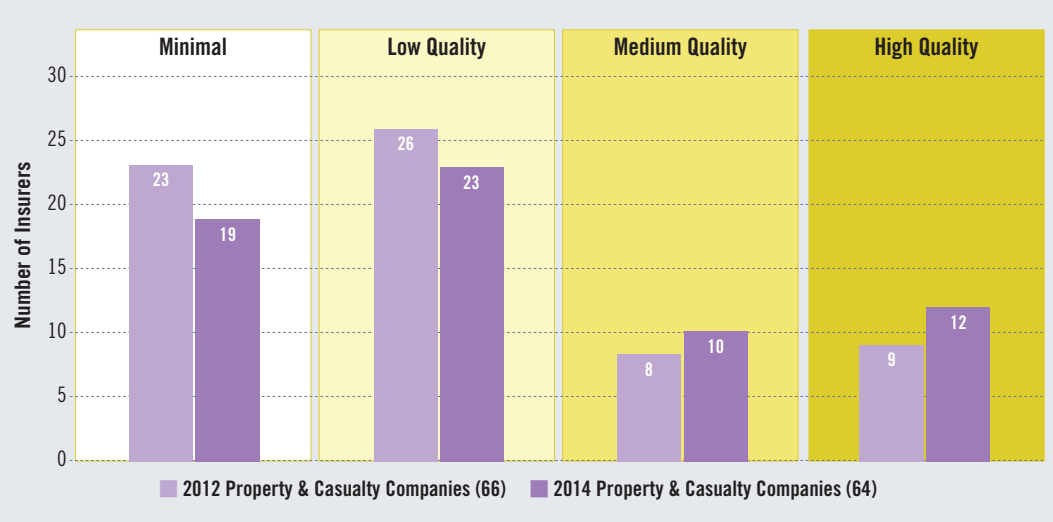
  "The Catastrophe Risk Assessment unit includes a Catastrophe Research and Development team which evaluates the catastrophe models for alignment with the Liberty view of risk. In particular, the team considers a range of event frequency and severity assumptions beyond those embedded in standard models and builds bespoke models using Liberty's historical data, third party tools, publically available scientific data and input from expert consultants. The R&D team also regularly participates in industry conferences to keep current with the latest scientific understanding of climate change."

3.5 STAKEHOLDER ENGAGEMENT

The Stakeholder Engagement theme addresses questions six and seven of the NAIC Climate Risk Disclosure Survey, which ask insurers to respond to the following:

- **Policyholder Climate Risk Mitigation:** What, if any, steps has the company taken to encourage policyholders to reduce climate change-related losses?
- **Constituency Engagement:** Discuss steps the company has taken to engage various constituents on the topic of climate change.

FIGURE 3.6: PROPERTY & CASUALTY INSURERS' STAKEHOLDER ENGAGEMENT BY RATING 2012 & 2014



With 19 percent of Property and Casualty insurers earning a High Quality disclosure rating, and another 16 percent earning a Medium Quality rating, P&C insurers showed only marginal disclosure quality improvement over the 2012 survey results, particularly when compared to other themes. Insurers with High Quality disclosure clearly defined how they incentivize customers to address their climate risk exposures proactively through product design, pricing discounts, or other schemes. In addition, these insurers indicated that they have engaged other stakeholders through supporting climate risk research or risk analysis, as well as educating customers and shareholders on the risks climate change poses to the public and the company. With the majority of P&C insurers' disclosure falling into one of the bottom two ratings, Stakeholder Engagement is an area in need of greater attention from insurers.

The Importance of Stakeholder Engagement

Property & Casualty insurers have a strong financial incentive, as well as multiple points of leverage, to promote investments in building climate resiliency. Providing premium discounts to policyholders who reinforce their properties against weather-related disasters can lessen a claim's severity, or possibly help an insurer avoid having to pay an expensive claim altogether. Funding the advancement of climate-related research and aiding in the dissemination of findings to the public, policymakers and other key stakeholders can help build a more resilient and sustainable society.

- **Climate-Informed Insurance Products:** Many insurers are offering particular products or policy incentives to promote their customers' sustainability efforts. For personal lines (homeowners and auto insurance) some insurers offer usage-based auto insurance that offers discounts for fewer miles driven, thereby incentivizing lower emissions. In addition, some insurers provide discounts for home retrofits that enhance the resilience of existing building stock, mitigating the risks of total loss from climate-influenced weather events. Furthermore, many insurers offer products to facilitate the installation and operation of renewable energy resources on commercial property, aiding the deployment of on-site clean energy generation.
- **Climate Liability Insurance:** High Quality disclosures noted that companies are actively monitoring and assessing the emergence of climate-related liability claims. As climate regulations advance around the globe, some insurers indicated that they are screening

current and potential clients' exposures to climate and environmental litigation by discussing concerns with those clients, and in some cases, introducing new liability products and coverage extensions as a result.

- **Climate Risk Research:** Some insurers indicated that they engage with a range of stakeholders to support and advance original research on climate change modeling, impact assessments and other topics of interest to the re/insurance industry. Insurance industry associations also provide both resources and opportunities for insurers to engage on climate-related topics and advance their internal understanding of the issues.
- **Policyholder Outreach:** While somewhat less prevalent, High Quality insurer disclosures indicated that they offer policyholders climate-related educational materials through website portals, mobile apps, or other means.

High Quality Stakeholder Engagement Disclosure Examples

Swiss Re's survey response describes the company's recent innovations around hedging wind farm and other renewable energy technologies' risks, facilitating reduced financing costs and new business opportunities for the company while being responsive to emerging client needs:

> *"Swiss Re offers tailor-made structured insurance and derivative solutions to manage revenue risk resulting from uncertain wind conditions enabling better financing terms to reduce capital costs. Existing wind farms and new wind projects benefit from these solutions as they reduce revenue volatility. A typical wind output hedge is structured to provide certainty in production volume at single or multiple sites. Swiss Re can structure a hedge with the payout based on a parametric index to compensate against shrinking operating income due to lack of or excess wind. By stabilizing future earnings and cash flows, the result is reduced financing costs, increased opportunities for future investment, and an important contribution enabling the reduction of greenhouse gas emissions. Products using the same concept are used by clients in various renewable energy industries including, wind farms in Texas, hydroelectric generating facilities in the Pacific Northwest, and many other sites around the world."*

Zurich discusses its efforts to develop new products that are responsive to clients' risk exposures as a result of climate-related legislation or litigation and offer specialized coverage for emerging technologies:

> *"Zurich continuously strives to identify and respond to the risk management needs arising from existing or upcoming climate change legislation. During the first years of its climate initiative, Zurich has climate-related products, some of which are, at least in part, driven by this legislation. Examples of these products include: (1) directors & officers liability insurance extended for climate-related claims; (2) political and trade credit risk coverage for carbon credit projects; (3) green, efficient and resilient rebuild insurance, allowing for the rebuilding of damaged property with improvements to green, efficiency or weather-resilience standards; and (4) liability insurance and financial assurance products for Carbon Capture and Sequestration (CCS) facilities. Zurich also made specialized insurance available for electric cars and is developing specialized agricultural coverages focused on improving resilience in the face of climate change and natural resource strain."*

Commercial insurer **FM Global** disclosed extensive public speaking and roundtable participation on climate resilience and mitigation research, including an internal forum that has advanced the company's climate risk understanding:

"The Research Division of FM Global also engages in direct discussions with reputable research institutions and scholars. The most recent activity in 2015 included hosting an all-day workshop and roundtable discussions with professors and scientists from MIT, NCAR, UCLA and SUNY at Stony Brook covering the impact of climate change on precipitation in the United States. The conclusions of the meeting, and similar meetings on specific climate change related topics, will be available to our clients and the public to address the trends, the technical gaps that need to be addressed and any actionable items for loss prevention solutions or changes to our standards. This monitoring provides regular assessments that form FM Global's position on climate change and allows us to have the most reliable information and property loss prevention tools available to help reduce the physical impact of climate-related catastrophes."

The Opportunity

The relative underperformance of most P&C insurers' disclosure on the Stakeholder Engagement theme indicates that many insurers appear not to recognize the benefits that can accrue from a stronger focus on this topic, or perhaps the responsibility to warn society of the enormous risks climate change presents. Highlighted below are two particular examples of where insurers have opportunities to seize:

- **Diversifying and Enhancing Revenue Streams:** The renewable energy sector continues to achieve a record year-over-year growth trajectory, with 2015 seeing $349 billion in global investments, nearly six times the 2004 investment total.[71] Insurers underwriting energy insurance can benefit from listening to their customers, reading the market signals and ensuring their workforces are trained and ready to capitalize on underwriting the renewable energy boom, as **Chubb** describes:

  "We have assembled a Clean Tech team to bring together expertise, products and services that support businesses innovating in such areas as smart grid technologies and resource optimization. Chubb offers a full array of insurance products and services for these companies, including: General liability insurance, Multinational solutions, Workers' compensation, Builders' risk, inland marine, Ocean cargo, Cybercrime and liability, Property insurance, Automobile liability insurance, Excess umbrella."

- **Developing Internal Expertise:** Leading insurer disclosures indicated that their companies engage with and contribute to advanced research on climate change impacts to society and the economy. **ACE** noted that a member of its senior management participated in advancing groundbreaking climate research:

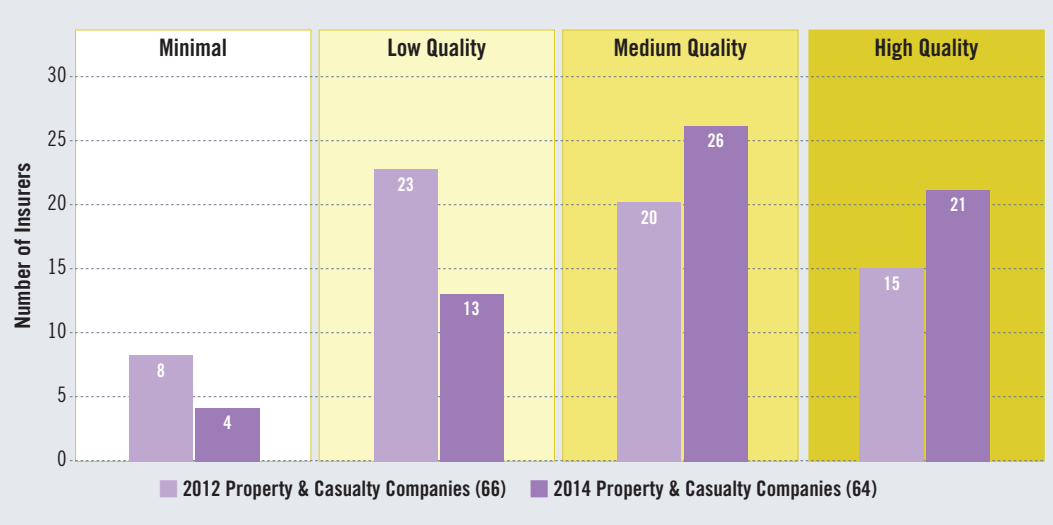
  "The Risky Business Project, a group co-chaired by prominent leaders from the public and private sectors, focuses on quantifying and publicizing the economic risks from the impacts of a changing climate. Risky Business tasked the Rhodium Group, an economic research firm that specializes in analyzing disruptive global trends, with an independent assessment of economic risks posed by a changing climate in the U.S. Rhodium convened a research team co-led by climate scientist Dr. Robert Kopp of Rutgers University and economist Dr. Solomon Hsiang of the University of California, Berkeley. Rhodium also partnered with Risk Management Solutions (RMS), the world's largest catastrophe-modeling company for insurance, reinsurance, and investment-management companies around the world. The result of their work was the report, "American Climate Prospectus: Economic Risks in the United States." ACE's Chief Risk Officer, Sean Ringsted, was a member of the expert review panel for the report."

71 Bloomberg New Energy Finance, "Clean Energy Investment: By the Numbers – End of Year 2015," 2016: http://www.bloomberg.com/company/clean-energy-investment/.

3.6 INTERNAL GREENHOUSE GAS MANAGEMENT

As with other financial services companies, insurance companies are not major greenhouse gas (GHG) emitters, particularly compared to heavy industry. Nonetheless, the industry is global in nature, which generates significant personnel transportation emissions, as well as being increasingly dependent on computing and data processing, which consume large amounts of energy and generates downstream emissions. Assessing the carbon footprint of a company is a key element to implementing an overall corporate sustainability program, yet many insurers indicated that, while they have piecemeal energy efficiency or emissions reductions programs in place, they are not formally assessing their GHG emissions according to accepted accounting standards.

FIGURE 3.7: PROPERTY & CASUALTY INSURERS' INTERNAL GREENHOUSE GAS MANAGEMENT BY RATING 2012 & 2014



The Internal Greenhouse Gas Management theme assesses insurers' stated emissions assessment and reduction plans, although many insurers responded to the question by also discussing other sustainability-related initiatives they have undertaken. Full points were awarded to companies that disclosed the completion of annual emissions inventories, according to established reporting standards, and described their reduction and mitigation efforts in detail, including corporate metrics detailing reductions over time.

Overall 33 percent of P&C insurers earned the top High Quality disclosure rating, and another 41 percent earned the second Medium Quality rating, marking fairly strong improvement compared to the 2012 reporting year data. Only 26 percent of P&C companies fell into one of the bottom two ratings.

A particularly strong survey response came from **American Family Mutual** (which also noted programs in place to measure and reduce corporate water consumption along with a zero waste initiative first implemented in 2011):

> *"The number one objective of the sustainability plan is reducing greenhouse gas emissions. A primary strategy for this is the creation of a corporate energy management strategy with the goal of continuously improving the efficiency across owned facilities. The strategy is managed by a cross-disciplinary team that includes representation from Facilities, Information Services and Data Center Management. It includes rigorous efficiency and*

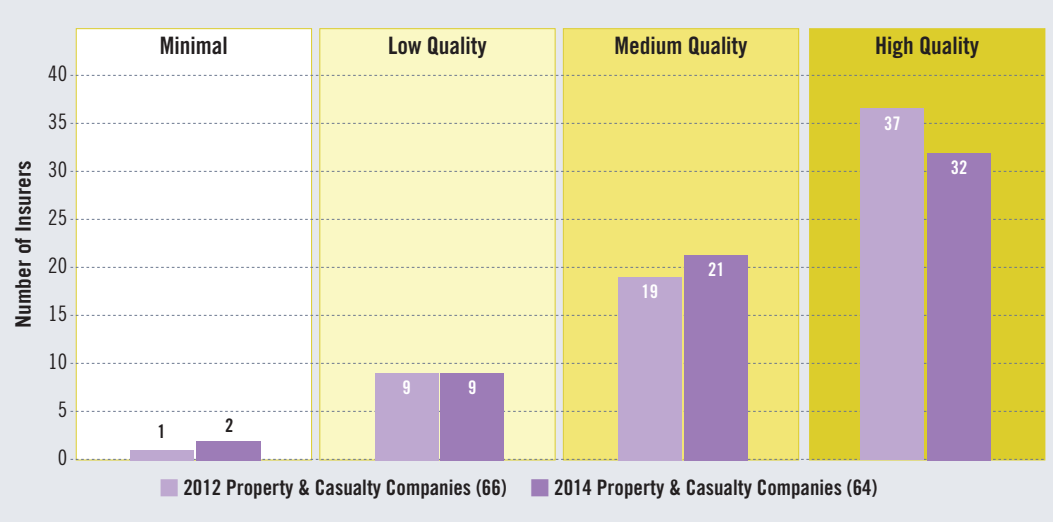
emission targets out to 2025 with a continuous improvement cycle for strategic planning updates annually. Measurement towards these goals has been in place since 2008, when the company established an energy management baseline…To date, these efforts combined have reduced our greenhouse gas emissions by 30,800 metric tons."

As highlighted in Ceres' 2014 version of this report, compared to other corporate GHG disclosure processes, the questions asked in the NAIC Climate Risk Disclosure Survey are not specific enough to gain a comprehensive understanding of insurers' efforts. For example, Ceres' *Roadmap for Sustainability* sets out an expectation that "Companies will reduce scope 1, 2 and 3 greenhouse gas (GHG) emissions by at least 25 percent by 2020 (from a 2005 baseline) and will do that through the improvement of energy productivity, reducing electricity demand, direct procurement of renewable energy, and low-carbon transportation strategies."[72] In contrast, the NAIC survey asks: "Does the company have a plan to assess, reduce or mitigate its emissions in its operations or organizations?" which allows for qualitative descriptions, rather than quantitative metrics.[73]

3.7 CLIMATE RISK DISCLOSURE & REPORTING

This theme evaluated the overall quality and comprehensiveness of P&C insurers' NAIC survey responses. Key evaluation criteria used by Ceres include the level of detail and whether supporting, quantitative data was provided.

FIGURE 3.8: PROPERTY & CASUALTY INSURERS' CLIMATE RISK DISCLOSURE & REPORTING BY RATING 2012 & 2014



While the vast majority of P&C insurers, 85 percent, earned one of the top two ratings on this theme, the portion of insurers earning the top High Quality disclosure rating declined from the 2012 reporting year results, going from 59 percent to 51 percent. In addition, two insurers earned the lowest Minimal rating this year, whereas one insurer earned a Minimal in 2012. These results reveal some disclosure backsliding among P&C insurers, which is a concerning result in a time of ever-increasing scrutiny of insurers' climate risk management activities by regulators and investors, as detailed in Chapter 1.3.

72 Ceres, *The Ceres Roadmap for Sustainability: Performance: Operations*, 2016: https://www.ceres.org/roadmap-assessment/about/roadmap-expectations/performance-operations.

73 For companies that wish to comprehensively evaluate their sustainability programs against leading practices, Ceres' *Roadmap for Sustainability* offers a number of resources, and can be downloaded at: https://www.ceres.org/roadmap-assessment/.

A specific example of leading disclosure practice includes:

Clarity and Comprehensiveness of Disclosure

While it is impossible to convey the level of detail and clarity of thought embodied by the High Quality disclosure NAIC surveys, a number of responses stood out, even amongst the leading examples. In particular, **Allianz** offered what was by far the most comprehensive response of all the NAIC surveys that Ceres reviewed this year. The company provided a clear and condensed version of its climate change policy below, with references to the other relevant questions embedded:

> *"Since 2005 Allianz has continuously updated a dedicated climate change strategy (policy) that commits us to playing a leading role in supporting the development of a low-carbon economy. This strategy includes leveraging our position as a leading global financial services provider and investor to finance low-carbon solutions and raise awareness for the risks and opportunities arising from climate change, as well as our work to reduce our direct carbon footprint as a company (see response to question 1 of this survey), develop and offer customers green products and services to mitigate the negative effects of climate change (see response to question 6 of this survey), and contribute to thought leadership as we engage in public dialogue, policy forums, and industry initiatives focused on mitigating and adapting to climate change (see response to question 7 of this survey)."*

The Opportunity

In Chapter 3.2 of this report Ceres focused on climate risk governance, and the importance of having senior management create dedicated climate risk reporting systems to ensure relevant information is elevated to decision-makers. Relatedly, climate risk disclosure is intended to increase transparency to a broad range of stakeholders, including regulators, shareholders, employees, policyholders, NGOs and others on a critical current and future risk issue.

Climate-related financial disclosures, rather than being "nice to have" for investors, regulators and others, are increasingly expected as required information, particularly for companies with global footprints such as large re/insurers. Senior leaders of insurers that inculcate a corporate culture conducive to robust disclosure are likely to be better positioned to manage the shifts to come, rather than treating these climate disclosure standards as unnecessary. Furthermore, as disclosure is considered a key aspect of corporate social responsibility (CSR) programs, companies that enhance their disclosure mechanisms also strengthen their "green" credentials. A few examples of the opportunities for insurers follow:

- **Goal Setting:** Insurers that publicly disclose corporate goals regarding sustainability and climate risk management efforts create the chance for business units and employees to reassess their practices and policies from a new perspective. Setting ambitious public goals can stimulate new cross-organizational innovation and collaboration opportunities.
- **Employee Engagement:** Comprehensive disclosure requires input from internal stakeholders across the corporate enterprise. Regular assessments of corporate progress against public sustainability and climate risk goals offers insurers the chance to engage employees through announcing successes and restating or reframing corporate values, which are particularly valued by Millenial employees and recruits.[74]

74 Dave Imbrogno, "Is corporate social responsibility part of your recruiting emphasis?" HRMorning, November 4, 2015: http://www.hrmorning.com/is-corporate-social-responsibility-part-of-your-recruiting-emphasis/.

The Hartford discusses the role its branding as a "green" company plays in employee recruitment and retention:

"Competition in property casualty insurance is intense. Companies are constantly looking for ways to differentiate themselves in the marketplace. We believe that companies that themselves demonstrate a strong, comprehensive and sustained approach to environmental stewardship and offer appropriate products at the appropriate price can build a green insurance brand. Also, in the war for talent, companies that can demonstrate a serious commitment to environmental stewardship are better positioned to attract and engage talented employees."

- **Brand Enhancement:** Comprehensive climate risk disclosure offers insurers a venue for communicating their brand values to the public. Climate risk disclosure can reassure policyholders and shareholders that insurers are being proactive in addressing the risks of climate change, and that they have a strong understanding of and plan for an uncertain future.

CHAPTER 4

Life & Annuities Insurers Survey Findings

4.1 CONTEXT AND OVERALL SCORES

Life & Annuity (L&A) insurers face significant prospective risks from climate change, even though the segment's liabilities are not exposed to physical climate risk as is the Property & Casualty segment. L&A insurers have liabilities that are typically long-dated and stable (many life insurance contracts can have a duration of twenty years or more) and companies frequently employ "buy-and-hold" investment strategies that generate predictable returns aligned with when claims come due. This strategy contrasts with that of P&C insurers who hold more liquid assets in order to pay claims over the course of one-year policy terms.

As of year-end 2014, L&A insurers held $3.7 trillion, or about 67 percent of total industry cash and invested assets in the United States.[75] Of those holdings, 72 percent were in bonds, with the majority of insurers' bond portfolios weighted toward corporate bonds, and a smaller proportion held in municipal bonds. Only 4 percent of L&A insurers' investments were in common stock, compared to 29 percent of P&C insurers' portfolios,[76] indicating life insurers' preferences for longer-term and less-volatile investment assets.

L&A insurers' longer investment time horizon exposes them to the risk that the emergence of longer-term climate impacts could affect the value of their investment portfolios. For example, life insurers generally have large holdings of real estate-linked assets, including mortgage-backed securities; are insurers considering the possibility that sea level rise will exacerbate storm surge in coastal areas and potentially affect the value of their investments? Data analytics provider CoreLogic issues an annual Storm Surge Report, and the 2016 version found that 6.8 million U.S. homes are at risk from hurricane-driven storm surge, with a total reconstruction value of $1.5 trillion;[77] life insurers should consider whether they have concentrated holdings in highly exposed properties.

On the underwriting side of the life insurance business, research has increasingly identified the health impacts of climate change, with implications for life insurers' strategic outlooks. The United States Global Change Research Program issued a major report in April 2016, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, which outlined the role that global warming-driven extreme temperatures could have on the public. One model of future climate scenarios found that extreme heat could lead to 11,000 additional premature deaths in the United States by 2030 (compared to a 1990 baseline) and 27,000 deaths by 2100.[78] While such events are unlikely to create financial stability risks for companies, life insurers ought to monitor and strategize around these potential climate-driven mortality trends.

75 National Association of Insurance Commissioners, *Capital Markets Special Report*, June 22, 2015: http://www.naic.org/capital_markets_archive/150622.htm.

76 Ibid.

77 CoreLogic, "CoreLogic Storm Surge Analysis Identifies More Than 6.8 Million US Homes at Risk of Hurricane Storm Surge Damage in 2016," June 1, 2016: http://www.corelogic.com/about-us/news/corelogic-storm-surge-analysis-identifies-more-than-6.8-million-us-homes-at-risk-of-hurricane-storm-surge-damage-in-2016.aspx.

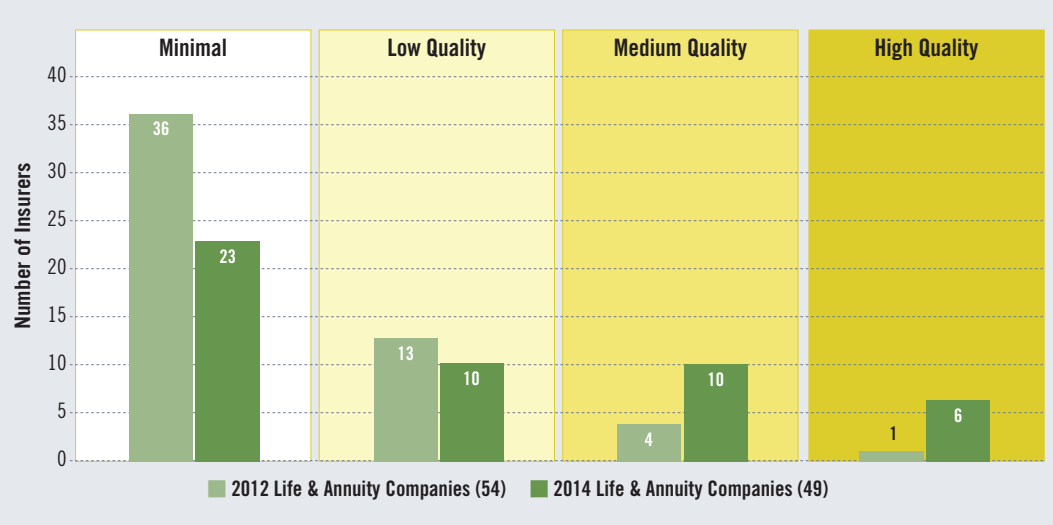
78 The White House, "Fact Sheet: What Climate Change Means for Your Health and Family," April 4, 2016: https://www.whitehouse.gov/the-press-office/2016/04/04/fact-sheet-what-climate-change-means-your-health-and-family.

While the *Climate and Health Assessment* report may be oriented around future extreme heat and mortality risks, climate researchers are increasingly identifying climate change "fingerprints" in current and historical extreme weather events. Researchers published a study in July 2016 reviewing deaths related to a record-setting heat wave that struck Europe in 2003, killing nearly 70,000 people across the continent.[79] Of the 735 deaths in Paris during the heat wave, the report connects 68 percent directly to human-driven climate change, in addition to 20 percent of the 315 deaths in the London region.[80] Such pioneering climate attribution research can aid life insurers and other stakeholders in identifying and reacting to climate change-driven human mortality and morbidity impacts.

This chapter examines L&A insurers' performance across a range of metrics, with a particular focus on climate risk governance and climate risks in investment portfolios. Due to the NAIC Climate Risk Disclosure Survey's lack of attention to the unique climate risks facing L&A insurers,[81] this chapter will not provide as much detail as the P&C portion of this report.

Survey Results

FIGURE 4.1: LIFE & ANNUITY INSURERS' OVERALL CLIMATE RISK DISCLOSURE QUALITY, NUMBER OF INSURERS—2012 & 2014[82]



In terms of overall disclosure quality, a number of companies in the L&A segment made substantial improvements in the 2014 reporting year compared to the 2012 reporting year results. Nonetheless, there is still much room for improvement.

Overall, 12 percent of L&A insurers earned a High Quality disclosure rating, and another 20 percent earned a Medium Quality rating, compared to just 2 percent and 7 percent respectively in the 2012 results. As a consequence of the shift of the 2014 results towards higher performance bands, the number of L&A insurers falling into the bottom two tiers was reduced considerably. In 2012, 67 percent of L&A insurers earned the bottom Minimal disclosure rating, compared to 47 percent in the 2014 reporting year results.

79 Gayathri Vaidyanathan, "Scientists link heat wave deaths directly to climate change," *E&E ClimateWire*, July 8, 2016: http://www.eenews.net/climatewire/2016/07/08/stories/1060039947.

80 Ibid.

81 See Section 6, Recommendations, for more information on the challenges with the survey.

82 The number of L&A insurance groups compared in this report varied between 2012 and 2014, due to merger and acquisition activity, or companies falling below or rising above the $1 billion direct premium written threshold. See Appendix C for more information.

As noted in Chapter 2.6, a significant number of L&A insurers improved their disclosure performance enough that they moved up two performance bands. For example, **MetLife** improved from earning only a Low Quality disclosure rating in 2012 to earn the top High Quality rating in 2014, and **AEGON** made a similar jump in performance. These substantial individual disclosure quality gains, in addition to broader improvement across the segment, likely reflect an increased focus on providing effective and comprehensive disclosure at a number of companies. Ceres has found, through numerous discussions with a range of insurers, that many companies have well-developed climate and sustainability plans *already in place*, yet they had not devoted the resources to offer robust disclosure.

Since the 2014 Climate Risk Disclosure Survey Report was launched, Ceres has held many individual meetings, webinars and public speaking events to raise awareness of both the importance of and opportunities to be derived from robust climate risk disclosure. When combined with the December 2015 signing of the Paris Climate Agreement and growing climate and sustainability awareness among the business community, it appears that some US L&A insurers are seeing the benefits of strong climate risk disclosure.

The selected themes that follow highlight some leading practices in key areas of importance to the L&A insurance segment. However, given that the current NAIC Climate Risk Disclosure Survey is oriented toward the particular business model of the P&C segment, Ceres has limited its discussion of leading practices among the L&A segment.

FIGURE 4.2: LIFE & ANNUITY INSURERS EARNING HIGH QUALITY RATINGS BY THEME—2014 & 2012

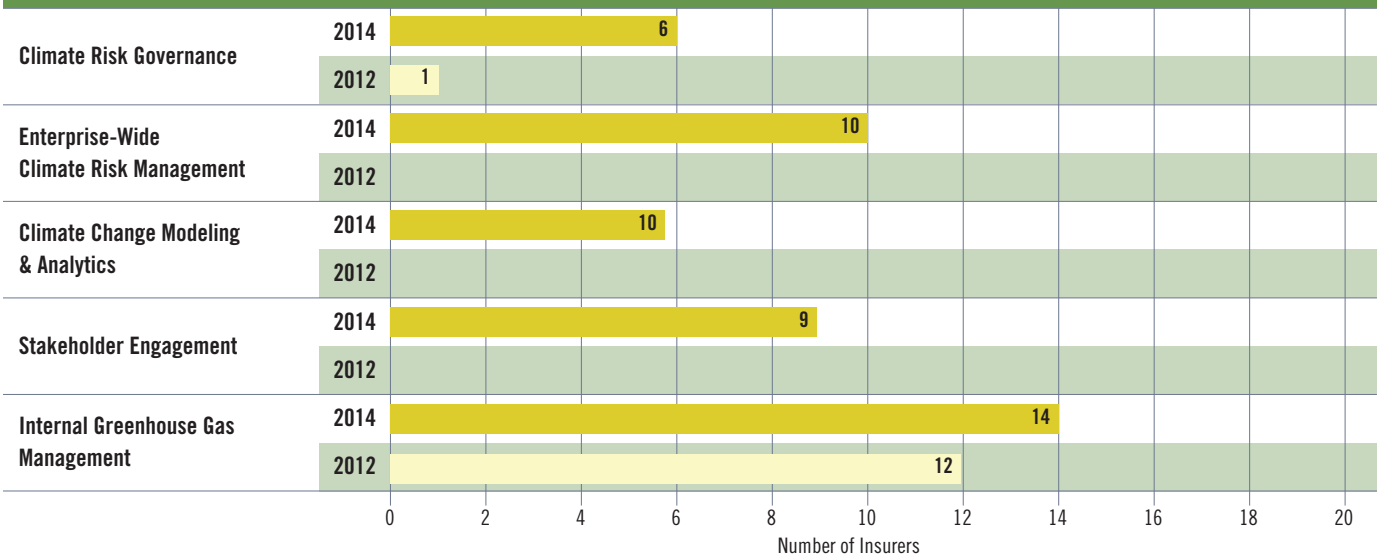
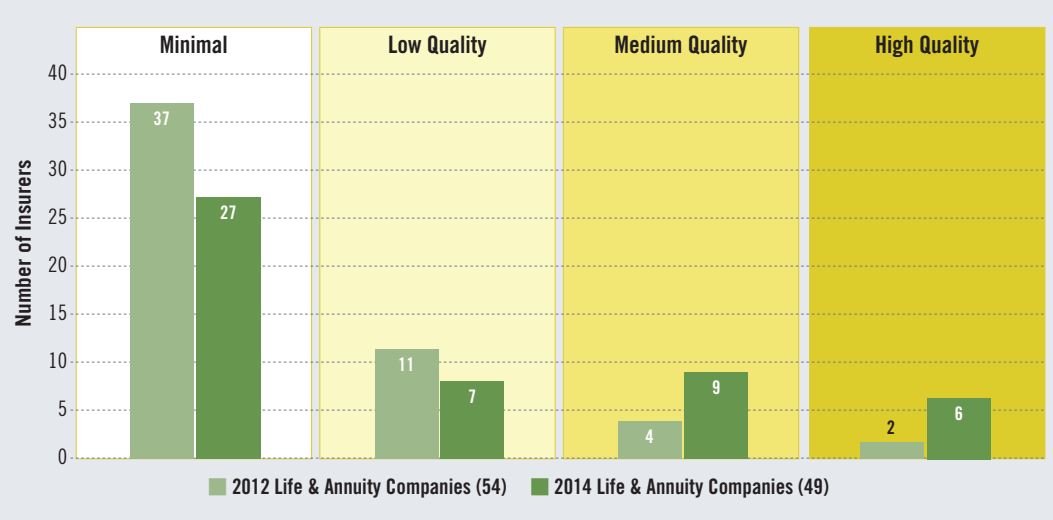


Figure 4.2 compares L&A insurers' 2014 reporting year disclosure performance across each of the six themes with their 2012 reporting year performance. The focus here is on the top performers, those companies who earned High Quality ratings across each of the themes. While every theme shows a growth in the number of companies earning the top rating in 2014 compared to 2012, only a small number of insurers earned a top score in 2014 with regard to Climate Risk Governance. A promising development is the substantial improvement in the Enterprise-wide Climate Risk Management theme, which combines risk identification, risk assessment, and investment management of climate risks. Companies earning a High Quality disclosure rating in that theme indicated strong integration of climate risk management practices across the enterprise.

4.2 CLIMATE RISK GOVERNANCE

Similar to the overall performance results among the L&A segment, a number of life insurers made substantial individual improvements in their disclosure on the Climate Risk Governance theme compared to the 2012 reporting year. Given that this theme examines companies' governance systems for identifying, monitoring and acting on climate risks at the Board and senior management levels, it is notable that 69 percent of L&A companies fell within the bottom two tiers, indicating a lack of focus on climate risk from senior leadership.

FIGURE 4.3: LIFE & ANNUITY INSURERS' CLIMATE GOVERNANCE BY RATING 2012 & 2014



Unlike the majority of L&A insurers evaluated, **Prudential**[83] indicated that not only is a specific board committee charged with overseeing corporate sustainability measures, but that board members' environmental credentials are considered as part of their nominations:

> *"The Board of Directors' Corporate Governance and Business Ethics Committee Charter includes environment and sustainability as part of their oversight. Overall, Board members' experience in these areas is noted as part of the skills, experience, and qualifications that are considered in the nomination process. Prudential's 2015 Proxy Statement contains more detailed information."*

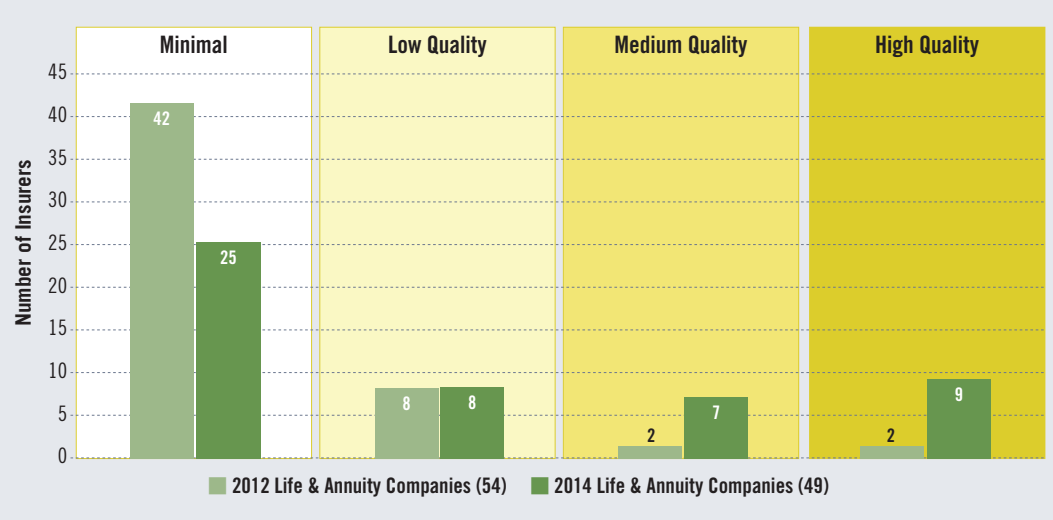
As noted in Chapter 3, strong corporate governance related to climate risk and sustainability are essential elements of a company that effectively mitigates its risks and capitalizes on uncovered opportunities. Furthermore, the importance of strong governance is universal across all three insurance segments evaluated in this report given that if senior management and boards do not have climate risks on their regular agenda, it is unlikely that related issues will be comprehensively addressed across business units.

83 In the interests of transparency, please note that Prudential Financial, Inc. is a member of the Ceres Company Network, although this fact was not taken into account in evaluating the company's survey response. More information on the Company Network can be found at http://www.ceres.org/company-network.

4.3 CLIMATE RISK AND INVESTMENTS

As noted in the introduction to this chapter, L&A insurers are large institutional investors with substantial holdings aligned with their strategic objectives. Question 5 of the Climate Risk Disclosure Survey asks about insurers' investment management practices, and whether they have policies and practices in place to consider climate risks to their investment portfolios.

FIGURE 4.4: LIFE & ANNUITY INSURERS' INVESTMENT MANAGEMENT BY RATING 2012 & 2014



As with the overall disclosure quality and the governance theme above, L&A insurers' investment management with respect to climate risk has improved compared to 2012, however that improvement is in the context of the poor performance of the segment in the prior report. Thus, while 18 percent of L&A insurers earned the High Quality disclosure rating on this metric, and another 14 percent earned the Medium Quality rating, the remaining 68 percent of insurers scored in the bottom two ratings. Despite the majority of L&A insurers underperforming in their investment management of climate risks, there remain some strong disclosed practices to highlight.

As major institutional investors, insurers invest in many different companies, and therefore have a clear interest in those companies' financial performance. As environmental, social and governance (ESG) investment considerations have grown more mainstream, certain insurers, such as **AEGON** (parent company to **Transamerica**) indicated that they pay close attention to such factors when screening investments:

> *"Our Responsible Investment Policy ensures that we take environmental and climate change issues, as part of ESG integration, in our investment decision-making. We have negative ESG screening for one-third of our actively managed assets. The outcomes of this screening may result in alternative investment decisions, divestment, or engagement with the companies in which we invest."*

High Quality L&A disclosures often noted that with regard to companies' real estate investments, which can be quite substantial, the sustainability of facilities is systematically considered prior to making an investment. **Prudential**[84] in particular discusses the broad view of sustainability that such due diligence takes into consideration, including climate resilience, and details key real estate performance metrics:

84 In the interests of transparency, please note that Prudential Financial, Inc. is a member of the Ceres Company Network, although this fact was not taken into account in evaluating the company's survey response. More information on the Company Network can be found at http://www.ceres.org/company-network.

"PREI, Prudential's real estate investment business, has mounted a global sustainability initiative. As part of that initiative, the PREI investment team has looked to reduce the carbon footprint of our real estate investment portfolio and related risks, and also to demonstrate value added associated with environmental sustainability. Sustainability is an aspect of each investment decision presented before the Investment Committee. For real estate acquisitions, a due diligence report identifies many of the risks (and the potential mitigants) frequently associated with climate change, such as severe weather, flooding, and the risk to infrastructure…PREI tracked building performance at nearly 800 properties in the portfolio. Many properties conducted energy conservation measures, saving approximately 9.5 million kilowatt hours of energy at 690 properties. At 450 properties, conservation efforts reduced water usage by 12.8 million gallons."

In addition to real estate, certain High Quality L&A disclosures revealed companies' due diligence processes for evaluating climate risk-related factors that may affect other physical investment assets. **John Hancock**[85] (and parent company **Manulife**) addressed the company's consideration of climate risk in its forestry and land division:

"The investment strategy of our Hancock Natural Resources Group, Inc. (HNRG) subsidiary gives consideration to the potential physical impacts of climate change. HNRG evaluates potential land holdings from a long-term investment perspective (i.e. 20+ years), and thus we have enhanced our due diligence and are looking to focus our acquisitions in geographies where water availability and other climate-influenced natural forces (i.e. pests and fires) are conducive to value growth over several decades."

L&A insurers' longer investment horizon allows them to make direct investments in renewable energy infrastructure that, by reducing greenhouse gas emissions, will aid in reducing future climate change impacts and enable insurers to diversify their portfolios. **MetLife** described its direct renewable energy investments in further detail:

"MetLife makes debt and equity investments in renewable energy projects, such as wind and solar. Specifically, since 2003, MetLife invested approximately $2.9 billion in renewable energy projects, such as solar and wind farms, as of December 31, 2014. For example, on Long Island, New York, MetLife's partnership with the U.S. Department of Energy, BP Solar (British Petroleum) and the Long Island Power Authority resulted in the construction of the largest solar photovoltaic plant in the eastern United States."

Canadian-based **Sun Life** highlighted the company's perspective on how climate policy has created opportunities in renewable and low-carbon energy investments:

"…we believe that climate change regulation generally will create investment opportunities for us in energy efficiency and renewable energy…The Government of Canada has made a commitment to having 90 per cent of Canada's electricity provided by non-emitting sources such as hydro, nuclear, and wind power by 2020 (Speech from the Throne to Open the First Session of the 40th Parliament of Canada: Protecting Canada's Future; November 19, 2008). In the United States, during President Obama's first term, the United States more than doubled generation of electricity from wind and solar energy; President Obama has set a goal to again double wind and solar generation by 2020 (State of the Union Address: The President's Plan for A Strong Middle Class & A Strong America; February 12, 2013). Sun Life is continuing to enhance its expertise in financing clean and renewable energy given the potential for growth and investment opportunities in this sector."

85 In the interests of transparency, please note that Manulife is a member of the Investor Network on Climate Risk (INCR), although this fact was not taken into account in evaluating the company's survey response. More information on INCR can be found at https://www.ceres.org/investor-network/incr.

While the overall improvement of climate risk disclosure quality among L&A insurers compared to the 2012 reporting year is encouraging, many companies' disclosure quality remains poor.

For example, **Pacific Life** states simply:

> *"Pacific Life has not incorporated the impact of climate change in our Investment Guidelines."*

Continuing the theme, **William Penn Life**, a subsidiary of **Legal & General America**, appears not to consider climate change to be a material business risk at all:

> *"William Penn Life Insurance Company of New York does not have a formal plan. The Legal & General Investment Management America (LGIMA) does not deem climate risk a significant risk to our life insurance business and as a result do not incorporate it into their investment strategy."*

As noted at the opening of this chapter, L&A insurers face material climate risks that are both current and prospective in nature. While there is a growing cohort of strong disclosers among L&A insurers compared to the 2012 results, the majority of the segment nonetheless lags significantly.

CHAPTER 5

Health Insurers Survey Findings

5.1 CONTEXT AND OVERALL SCORES

Health insurers face potentially significant risk exposures to some of the most serious impacts of climate change: the impacts to human health and wellbeing. Climate scientists and public health experts have been publishing increasingly targeted research outlining both current and projected health implications of climate change. Health insurers have great incentives to monitor such research and consider how these advances in our understanding of climate change should inform their strategies going forward.

In April 2016, the United States Global Change Research Program released a major new report, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*.[86] Developed over three years by over one hundred experts in climate science and public health from a range of government agencies, the report clearly explains that climate change is having significant public health impacts now, with worsening outcomes in the future, particularly if GHG emissions are not curbed.[87]

The *Climate and Health Assessment* found that concentrations of air pollution and airborne pathogens are expected to rise, particularly as a result of increasing ozone concentrations. The study also noted that, as of 2011, ragweed pollen season is now 11 to 27 days longer than it was in 1995, affecting many of the 6.8 million children with asthma and susceptible to allergens.[88] Warmer winters and springs are projected to enable an earlier annual onset of tick-borne Lyme disease cases in the Eastern US and Upper Midwest; between 2001 and 2014 the number and distribution of Lyme cases increased in those regions. The incidence of foodborne pathogens and toxins are expected to increase as a result of temperature increases and weather extremes, requiring the enhancement of food safety practices and general vigilance.[89]

Munich Re U.S. Life, a division of global reinsurer **Munich Re**, surveyed over 100 life insurance underwriters to produce a report in July 2016, which found that 70 percent of those underwriters surveyed expect that pandemics and epidemics will increase in both severity and frequency over the next 5 to 10 years.[90] Researchers have found, for example, that the recent spread of the Zika virus may have distinct linkages to climate change, with both higher temperatures and increased heavy rainfall events aiding mosquito breeding and the disease's reproduction.[91] While not solely

86 U.S. Global Change Research Program, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, April 4, 2016: http://www.globalchange.gov/news/climate-change-growing-threat-human-health-new-usgcrp-report.

87 The White House, "Fact Sheet: What Climate Change Means for Your Health and Family," April 4, 2016: https://www.whitehouse.gov/the-press-office/2016/04/04/fact-sheet-what-climate-change-means-your-health-and-family.

88 Ibid.

89 Ibid.

90 Artemis.bm, "Pandemic frequency & severity expected to increase: Survey," July 5, 2016: http://www.artemis.bm/blog/2016/07/05/pandemic-frequency-severity-expected-to-increase-survey/.

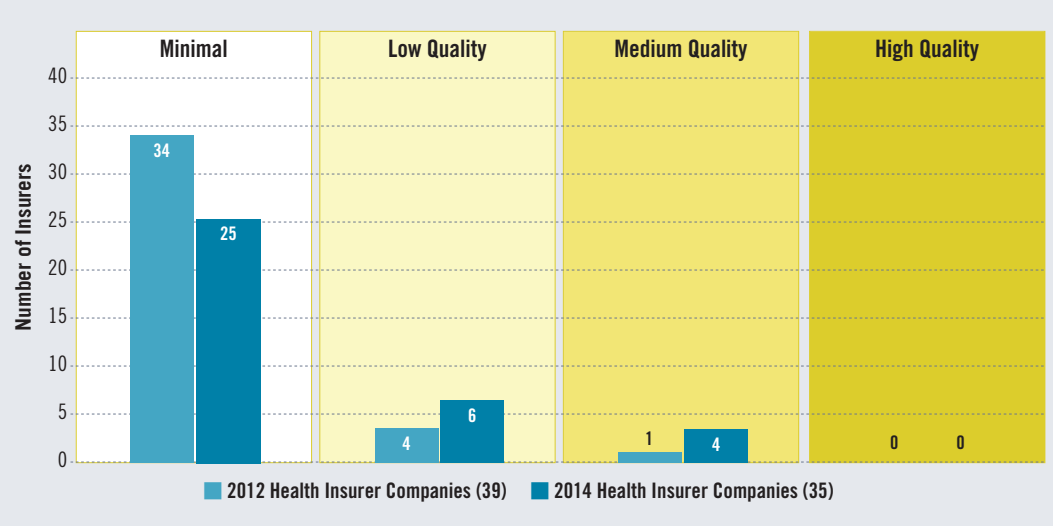
91 Umair Irfan, "As Congress dithers on Zika, climate signals get stronger," *E&E ClimateWire*, July 6, 2016: http://www.eenews.net/climatewire/2016/07/06/stories/1060039804.

a function of climate change, health insurers would be wise to engage with researchers to model the spread of such diseases and test their own resilience to the risks of mass disease infections.

This chapter examines health insurers' climate risk responses across a range of themes, including useful examples of climate risk mitigation. However, because the survey does not adequately account for the unique climate risks confronting health insurers,[92] combined with the insurers' generally poor disclosure quality, this chapter is not as detailed as the P&C chapter.

Survey Results

FIGURE 5.1: HEALTH INSURERS' OVERALL CLIMATE RISK DISCLOSURE QUALITY, NUMBER OF INSURERS—2012 & 2014



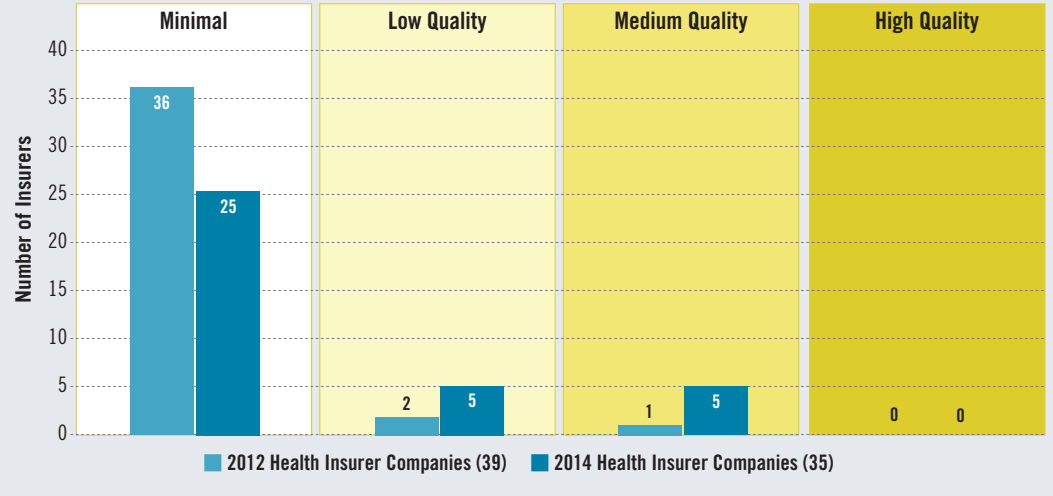
The Health insurance segment achieved very minimal disclosure quality improvements compared to the 2012 reporting year results as shown in Figure 5.1 above. Overall, 89 percent of the segment earned one of the bottom two ratings in the 2014 reporting year, with another 11 percent earning the second-highest Medium Quality disclosure rating, and no insurers earning the top High Quality disclosure rating. Those results compare to 97 percent of insurers earning one of the bottom two ratings in the 2012 reporting year.

5.2 CLIMATE RISK GOVERNANCE

As noted in earlier chapters, the Climate Risk Governance theme evaluated whether insurers disclose in detail how senior management and boards engage with climate risk topics and data. Despite small improvements compared to the 2012 reporting year data, Health insurers fared poorly on this topic, with no insurers earning the top High Quality disclosure rating, and 25 insurers—71 percent—earning the bottom Minimal rating. None of the Health insurers had a comprehensive response concerning their Climate Risk Governance practices, particularly compared to the other two segment leaders, indicating a lack of attention to these crucial issues among corporate leadership. See Figure 5.2 for details.

92 See Chapter 6, Key Recommendations for Insurance Regulators, for more information on the challenges with the survey.

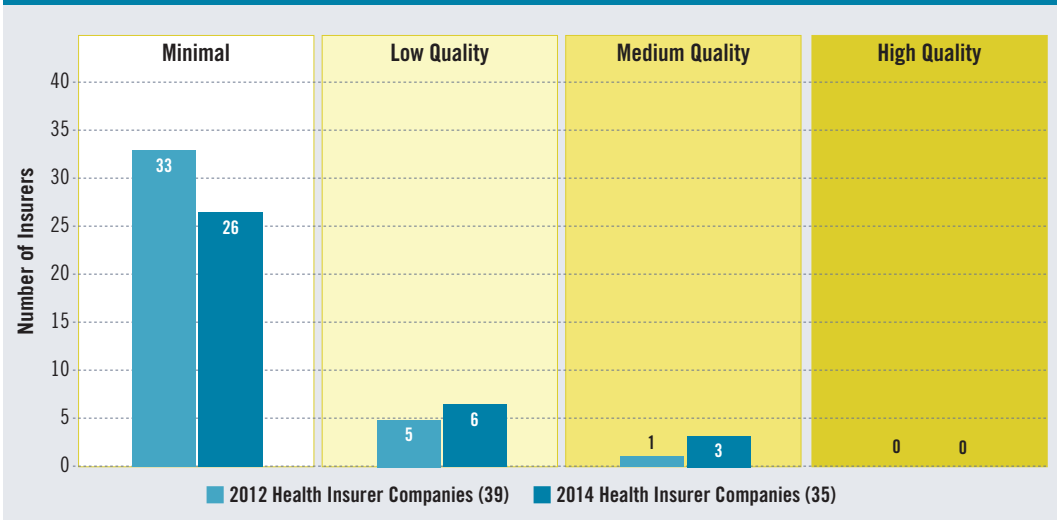
FIGURE 5.2: HEALTH INSURERS' CLIMATE RISK GOVERNANCE BY RATING
2012 & 2014



5.3 ENTERPRISE-WIDE CLIMATE RISK MANAGEMENT

The Enterprise-Wide Climate Risk Management theme is the most broadly focused of the six themes, evaluating insurers' climate risk responses across risk management, risk identification, and investment management practices. This question offers insurers the opportunity to disclose their ongoing assessment and monitoring of climate risks.

FIGURE 5.3: HEALTH INSURERS' ENTERPRISE-WIDE CLIMATE RISK MANAGEMENT BY RATING
2012 & 2014



As with the other themes, health insurers showed only marginal disclosure improvements compared to the 2012 reporting year results. A large majority—74 percent of Health insurers—fell into the bottom Minimal disclosure rating, and another 17 percent earned only the second lowest Low Quality disclosure rating. Three companies earned the second highest Medium Quality rating, up from one in 2012, while no companies earned a High Quality rating, indicating that the segment as a whole does not have any examples of comprehensive and coordinated climate risk responses.

While the company did not earn a High Quality disclosure rating on this theme due to less comprehensive disclosure regarding its investments and other topics included in this theme, **HealthPartners** offered a succinct and clear explanation of the risks the company perceives and is monitoring related to climate change:

> *"HealthPartners has identified three specific risks that climate change could pose to its business. The first is the spread of pandemic-causing organisms affected by climate change. A pandemic could affect HealthPartners in one of two ways—loss of employees to process claims and/or increase in claims from members becoming sick. HealthPartners has a robust pandemic monitoring and response program to mitigate the risks of a pandemic to the company. The second risk is a surge in claims related to a catastrophic weather event such as a tornado. As mentioned in previous answers, HealthPartners employs several strategies to ensure its ability to cover unexpected surges in health claims. The third risk is an increase in chronic illness related to climate change, such as asthma. HealthPartners routinely monitors changing health patterns of its members and takes these patterns into account during underwriting and product development."*

Cigna also disclosed its perception of another key risk factor related to climate and sustainability challenges, that of reputational risk:

> *"Corporate reputation on performance related to environmental responsibility, particularly on issues related to climate change, is increasingly important to our corporate clients as evidenced by the frequent occurrence of sustainability questions on RFPs for potential corporate clients and RFIs from existing ones. Also, our reputation on performance related to climate change issues is becoming increasingly important to our employees, investors and other stakeholders. We will continue to monitor their key concerns and areas of greatest interest through stakeholder materiality assessments."*

In contrast, **Emblem Health** offered a response indicating that the company apparently does not consider climate change to present any material risks:

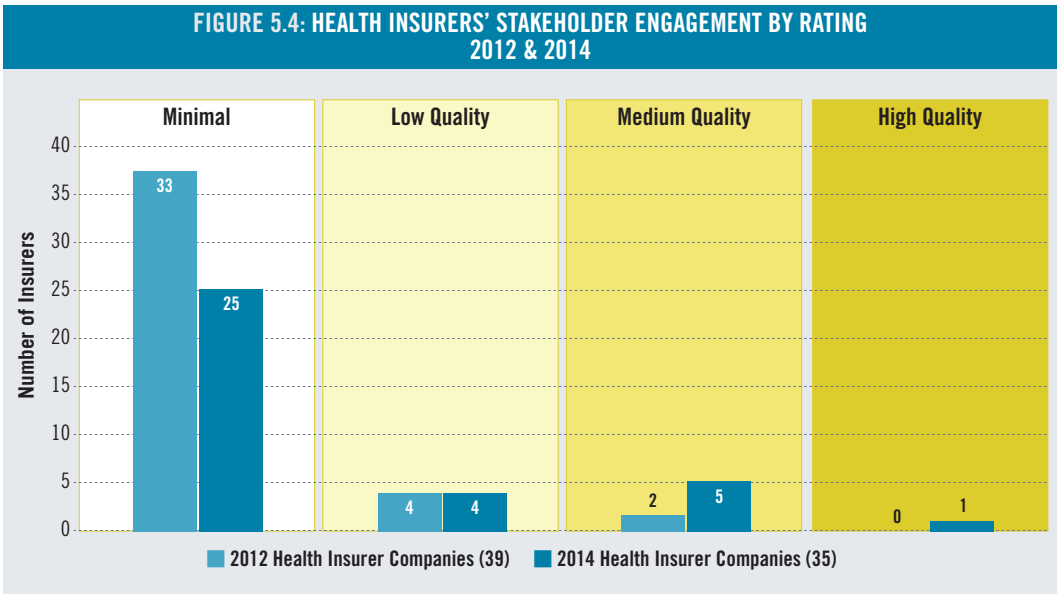
> *"The company's operations are not impacted by climate change and as such there is no associated risk. Without more specific information it is impossible to predict any financial effects on the business."*

Overall, few companies discussed the risks that climate change could pose to their policyholders, focusing instead on questions of business continuity. Furthermore, few companies indicated that they consider climate change risks as part of their investment management processes. In contrast to the progress noted in the P&C and L&A segments evaluated in this report, the Health segment is lagging in addressing climate risk across the enterprise.

5.4 SUPPORTING RESEARCH AND PUBLIC AWARENESS

Health insurers were also asked about their engagement with key stakeholders, including policyholders, employees, shareholders, and outside research and advocacy organizations on the topic of climate risk.

Unlike the other themes, one insurer, **Kaiser Permanente**, earned the top High Quality disclosure rating for the company's description of its comprehensive approach to supporting public engagement and education with respect to climate and environmental health risk factors. However, 82 percent of Health insurers fell into the Minimal or Low Quality disclosure rating categories, while 14 percent (5 companies) earned a Medium Quality rating, up from 2 companies in the 2012 reporting year.



Focusing its efforts on promoting the reduction of GHG emissions and the related reduction in other air pollutants, **Kaiser Permanente** describes its efforts to partner with outside organizations and other health care systems to address climate risk:

> *"In an effort to build a unified voice among hospitals committed to addressing climate change, KP participates in the Health Care Climate Council established in 2015 by Health Care Without Harm. The Council's mission is to amplify public and private responses to climate change by: Accelerating investment in renewable energy and energy efficiency; Scaling the health sector's adoption of climate change mitigation and resiliency programs; and Advocating for local, state, and national policies that ensure a sustainable and healthy future consistent with our collective vision for healthy individuals and communities.*
>
> *KP also helped found the Healthier Hospitals Initiative (HHI) (www.healthierhospitals.org), a collaborative of hospitals and NGOs pursuing environmentally sound health care operations. The published priorities include activities around energy, transportation, buildings, and waste management among others that promote sustainable health care, including reduced greenhouse gas emissions. These priorities are being shared widely within the health care sector."*

As in our previous two reports, Kaiser has consistently emerged as a leader in its public engagement and research advancement efforts related to climate change and environmental factors. While other health insurers may be funding research to advance the understanding of climate change impacts on public health, very few acknowledged such programs.

CHAPTER 6

Recommendations

Over the course of this analysis, Ceres evaluated 148 separate insurance company survey responses, applicable to reporting year 2014. The following represents Ceres' recommendations for how the re/insurance industry and its regulators can most effectively respond to the far-reaching risks that climate change presents to society and the economy. There are five separate sections below, with recommendations for all insurers, specific recommendations for each individual insurance segment and recommendations for insurance regulators.

6.1 KEY RECOMMENDATIONS FOR ALL U.S. INSURANCE SEGMENTS

1. **Elevate Climate Risk Leadership at the Board and C-Suite Levels**
   Re/insurance companies face near- and long-term risks from climate change, and as such, it would be a competitive advantage for corporate directors and senior management to address climate risk comprehensively. Ceres' recommendations in this regard include the following:
   - **a.** Appoint a specific board committee responsible for overseeing climate risks; ideally these responsibilities would be written into the committee's charter.
   - **b.** Identify and recruit corporate directors with expertise in climate change-related topics.
     - The entire board should also be regularly educated and updated on sustainability and climate risk issues.
   - **c.** Include climate risk management metrics and performance as key factors in executive compensation policies.
   - **d.** Appoint a senior executive to oversee the company's climate risk management program, with clearly defined responsibilities and expectations.
2. **Consider Carbon Asset Risk in Investment Portfolios**
   Institutional investors, including re/insurers, tend to have major investments in fossil fuel-related assets. Those investments face an unprecedented series of emerging risks, including those related to regulatory changes that are necessary to promote climate stabilization and that may reduce the market value of fossil fuel assets; unfavorable economics for extraction firms, particularly related to unconventional shale and tar sands oil; and innovations relating to renewable energy, energy storage, electric vehicles and others that have considerable potential to negatively affect the longer term value of carbon-based assets.[93] These challenges, collectively referred to as carbon asset risk, raise fundamental questions for investors regarding the potential stranding of fossil fuel assets and related devaluations.

   In the face of accelerating market and regulatory action toward decarbonization and more frequent and severe extreme weather impacts, insurers have a host of emerging risks they should be considering in their investment strategies. Just as many insurers stress test their liabilities against various loss scenarios, insurers can gain additional risk perspective by modeling their investment strategies against low-carbon global scenarios aimed at limiting global temperature rise to well below 2 degrees Celsius or less—the specific goal of the 2015 Paris Climate Agreement.

93 Ashim Paun et al., "Stranded assets: what next?," *HSBC Global Research*, April 16, 2015: http://www.businessgreen.com/digital_assets/8779/hsbc_Stranded_assets_what_next.pdf.

3. **Integrate Climate Risk into ERM Frameworks**
   Insurance companies should be integrating climate change as a risk consideration in companies' enterprise risk management (ERM) frameworks. For example, correlated climate-enhanced risks, such as a company having significant liability exposure in coastal areas while also holding mortgage-backed securities in the same region, can be effectively uncovered through ERM. Insurers can also utilize scenario analysis to evaluate the potential climate change-related impacts on their business and to inform forward-looking strategy development.

4. **Engage with Key Stakeholders on Climate Risk**
   As fundamental risk managers for society, re/insurers should be doing more to leverage their unique influence in public dialogues on climate risks and mitigating those risks. There are many effective ways that insurers can engage with stakeholders including, for example, advocating for increased public funding for climate science research, educating the public on health impacts or informing policymakers about the benefits of stronger building codes for climate resiliency and stronger measures to reduce the pollution that is causing climate change.

6.2 KEY RECOMMENDATION FOR PROPERTY & CASUALTY INSURERS

Utilize Climate Change Perspectives from Experts

P&C insurers have many key risk intermediaries that they work with on a regular basis, including reinsurers, brokers and catastrophe modelers. Primary insurers seeking additional expertise regarding their potential climate risk exposures can gain useful insights by engaging with these experts regarding advancements in climate science and climate risk modeling. Insurers can also form climate research partnerships with various academic and public institutions to better inform their underwriting strategies and modeling work.

6.3 KEY RECOMMENDATION FOR LIFE & ANNUITY INSURERS

Consider Sustainable Infrastructure Investment Opportunities

As long term investors, life insurers are able to invest in physical infrastructure assets. The 2015 Paris Climate Agreement sent a clear market signal that sustainable infrastructure investments, including renewable energy, long distance electricity transmission lines, grid modernization and energy efficiency are investments that can position life insurers well for the future while earning acceptable returns. Providing debt capital to fund sustainable infrastructure can also help hedge some of the investment risks posed by fossil fuel related investments as the world transitions toward a low-carbon future. While life insurer responses showed that some insurers are considering these investments and developing expertise in these areas, they would benefit from more integrated strategies regarding sustainable infrastructure and clean energy.

6.4 KEY RECOMMENDATION FOR HEALTH INSURERS

Anticipate and Advocate to Reduce Climate Change Health Impacts

A surprisingly large number of health insurers indicated a lack of understanding of and/or disregard for the materiality of climate change risks to their business interests and policyholders, especially in regard to health-related impacts. Health insurers can inform their policyholders about ways they can protect their families from worsening air quality and extreme temperatures. Furthermore, health insurers can engage with policymakers to educate them on current and anticipated health impacts due to climate change, and advocate for policies to reduce GHG emissions and and promote investments in clean energy.

6.5 KEY RECOMMENDATIONS FOR REGULATORS

1. Enhance the Climate Risk Disclosure Survey

The NAIC Climate Risk Disclosure Survey is a useful instrument as it stands, but there are many ways the survey could be improved to better capture insurers' actual climate risk management *performance*. Advancements in the understanding of how climate-related risks may manifest, for example, by way of analysis of carbon asset risk exposure associated with certain investments, or extreme weather climate attribution studies, have developed in the years since the survey was initially adopted. Updating the survey instrument will offer regulators, investors and other stakeholders more detailed and timely information about the efforts companies are, or are not making, to address climate risks across their businesses.

2. Continue to Expand Climate Risk Disclosure

Insurance regulators in six states required insurer participation in the 2014 NAIC Climate Risk Disclosure Survey. Insurance regulators in the other 45 domestic jurisdictions within NAIC could advance the interests of their jurisdictions by requiring insurers under their purviews to provide survey responses to signal the importance of climate risk management to regulators, insurers and investors. Comprehending insurers' climate risk management activities can aid regulators in assessing companies' emerging risk strategies and outlooks for the future.

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APPENDIX A

SEGMENT: PROPERTY & CASUALTY COMPANIES OVER $5 BILLION 2014 DPW								
Insurance Company		Rating Theme						
		Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
ACE Ltd. Group	2014	High Quality	Medium Quality	High Quality	High Quality	High Quality	High Quality	High Quality
	2012	High Quality	Medium Quality	High Quality	High Quality	High Quality	High Quality	High Quality
Allianz Insurance Companies	2014	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality
	2012	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality
Allstate Insurance Group	2014	Medium Quality	Medium Quality	Medium Quality	Medium Quality	High Quality	High Quality	Medium Quality
	2012	High Quality	Medium Quality	Medium Quality	Low Quality	High Quality	High Quality	Medium Quality
American Family	2014	High Quality	Medium Quality	High Quality	Low Quality	High Quality	High Quality	Medium Quality
	2012	Medium Quality	Medium Quality	High Quality	Low Quality	High Quality	High Quality	Medium Quality
American Financial Group	2014	Minimal	Minimal	Minimal	Minimal	Low Quality	Low Quality	Minimal
	2012	Minimal	Minimal	Minimal	Minimal	Minimal	Low Quality	Minimal
American International Group, Inc.	2014	High Quality	Medium Quality	High Quality	High Quality	High Quality	Medium Quality	High Quality
	2012	High Quality	Medium Quality	Medium Quality	High Quality	High Quality	High Quality	Medium Quality
AmTrust Financial Services, Inc.	2014	Medium Quality	Low Quality	Low Quality	Minimal	Low Quality	Medium Quality	Low Quality
	2012	Minimal	Minimal	High Quality	Minimal	Low Quality	Low Quality	Minimal
Assurant, Inc.	2014	Minimal	Minimal	Minimal	Minimal	High Quality	Low Quality	Minimal
	2012	Low Quality	Minimal	Minimal	Minimal	High Quality	Low Quality	Minimal
AXA Group	2014	High Quality	Medium Quality	Medium Quality	Medium Quality	High Quality	High Quality	High Quality
	2012	Medium Quality	Medium Quality	Low Quality	Minimal	High Quality	High Quality	Medium Quality
Berkshire Hathaway Group	2014	Low Quality	Low Quality	Medium Quality	Medium Quality	Medium Quality	High Quality	Medium Quality
	2012	Low Quality	Low Quality	Medium Quality	Medium Quality	Medium Quality	High Quality	Medium Quality
Chubb Group of Insurance Companies	2014	High Quality	High Quality	High Quality	Medium Quality	High Quality	High Quality	High Quality
	2012	Minimal	Low Quality	Low Quality	Low Quality	Medium Quality	High Quality	Low Quality
CNA	2014	Medium Quality	Medium Quality	Low Quality	Medium Quality	Medium Quality	Medium Quality	Medium Quality
	2012	Medium Quality	Medium Quality	Medium Quality	Medium Quality	Low Quality	High Quality	Medium Quality
Erie Insurance Group	2014	Medium Quality	Medium Quality	Medium Quality	Low Quality	Low Quality	Medium Quality	Medium Quality
	2012	Minimal	Minimal	Low Quality	Low Quality	Low Quality	Minimal	Minimal
Farmers Insurance Group of Companies	2014	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality	Medium Quality
	2012	Medium Quality	Medium Quality	High Quality	Medium Quality	Medium Quality	High Quality	Medium Quality
The Hartford Financial Services Group, Inc.	2014	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality
	2012	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality	High Quality
IDS Property Casualty Insurance Company (Ameriprise Financial Group)	2014	Low Quality	Low Quality	Low Quality	Low Quality	Low Quality	Medium Quality	Low Quality
	2012	Low Quality	Low Quality	Low Quality	Low Quality	Low Quality	Medium Quality	Low Quality
Liberty Mutual Group	2014	Medium Quality	High Quality	High Quality	Medium Quality	Medium Quality	High Quality	High Quality
	2012	Medium Quality	Medium Quality	High Quality	Low Quality	Medium Quality	High Quality	Medium Quality
Nationwide Corp Group	2014	Medium Quality	High Quality	High Quality	Medium Quality	High Quality	High Quality	High Quality
	2012	Minimal	High Quality	High Quality	Medium Quality	High Quality	High Quality	Medium Quality

= High Quality = Medium Quality = Low Quality = Minimal

Note: Company size is based on 2014 direct premiums written (DPW)

APPENDIX A

SEGMENT: PROPERTY & CASUALTY COMPANIES OVER $5 BILLION 2014 DPW								
Insurance Company		Rating Theme						
		Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
Old Republic	2014							
	2012							
Progressive Insurance Group	2014							
	2012							
State Farm Companies	2014							
	2012							
Swiss Re Group	2014							
	2012							
Tokio Marine Holdings, Inc.	2014							
	2012							
Travelers Group	2014							
	2012							
USAA Property & Casualty Insurance Companies	2014							
	2012							
White Mountains Insurance Group	2014							
	2012							
Zurich US Insurance Group	2014							
	2012							
Average Segment Score – 2014								
Average Segment Score – 2012								

= High Quality = Medium Quality = Low Quality = Minimal

Note: Company size is based on 2014 direct premiums written (DPW)

APPENDIX A

SEGMENT: PROPERTY & CASUALTY COMPANIES UNDER $5 BILLION 2014 DPW

Insurance Company		Rating Theme						
		Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
Acuity Mutual Group	2014	Medium	Medium	High	Medium	Medium	Medium	Medium
	2012	Medium	Medium	High	Medium	Medium	High	Medium
American National Group	2014	Low	Low	Low	Low	Medium	Low	Low
	2012	Low	Low	Low	Medium	Medium	Medium	Low
Amica Mutual Insurance Company	2014	Low	Medium	Low	Medium	Medium	Medium	Low
	2012	Medium	Medium	Medium	Medium	Medium	High	Medium
Arch Insurance Group	2014	Low	Low	Medium	Low	Low	Medium	Low
	2012	Medium	Low	High	Low	Low	Medium	Medium
Auto Club Enterprises Group	2014	Medium	Medium	Medium	High	Medium	Medium	Medium
	2012	High	Medium	Medium	High	Medium	High	High
Auto Owners Group	2014	Low	Low	Low	Low	Medium	Medium	Low
	2012	Low	Low	Low	Medium	Medium	Medium	Low
Automobile Club Michigan Group	2014	Low	Medium	Medium	Low	High	Medium	Medium
	2012	Low	Medium	High	Low	High	High	Medium
Cincinnati Financial	2014	High	High	Medium	Medium	Medium	High	High
	2012	High	Medium	High	Medium	Medium	High	High
Country Insurance & Financial	2014	Low	Medium	Medium	Low	Medium	Medium	Medium
	2012	Low	Low	Medium	Low	Low	Medium	Low
CSAA Insurance Group	2014	High	Medium	Medium	Medium	High	High	High
	2012	High	High	High	High	Medium	High	High
CUNA Mutual Group	2014	High	Medium	Medium	Medium	Medium	High	Medium
	2012	Medium	High	Medium	Low	Medium	High	Medium
EMC Insurance CO Group	2014	Medium	Medium	Medium	Medium	Medium	High	Medium
	2012	Medium	High	High	Medium	Medium	High	High
Endurance Group—American Agri-Business Insurance	2014	High	High	Medium	Medium	Medium	High	High
	2012	Low	Low	Low	Low	Low	Medium	Low
Fairfax Financial Group	2014	Medium	High	High	Medium	Medium	High	High
	2012	Medium	Medium	Medium	Low	Medium	Medium	Medium
Federated Mutual Group	2014	Medium	Low	Medium	Low	Medium	Medium	Low
	2012	Medium	Low	Medium	Low	Medium	Medium	Low
FM Global Group	2014	High	Medium	High	High	High	High	High
	2012	Medium	Medium	Medium	Medium	Medium	High	Medium
Infinity Prop & Casualty Insurance Group	2014	Low	High	Medium	Low	Medium	Medium	Medium
	2012	Medium	Medium	Medium	Low	Medium	Medium	Medium
Iowa Farm Bureau Group—Western Agricultural Insurance Company	2014	Low	Low	Low	Medium	Low	Medium	Low
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kemper Corp Group	2014	Low	Low	Low	Low	Low	Medium	Low
	2012	Low	Medium	Medium	Low	Low	Medium	Low
Main Street America Group	2014	Low	Low	Low	Low	Low	Low	Low
	2012	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Markel Corp Group—Alterra American Insurance	2014	Medium	High	High	Low	Medium	Medium	Medium
	2012	Medium	High	High	Low	Medium	Medium	Medium
Mercury Insurance Group	2014	Medium	Medium	Low	Medium	Medium	Medium	Medium
	2012	Medium	Medium	Medium	Medium	Medium	High	Medium

= High Quality = Medium Quality = Low Quality = Minimal

Note: Company size is based on 2014 direct premiums written (DPW)

APPENDIX A

SEGMENT: PROPERTY & CASUALTY COMPANIES UNDER $5 BILLION 2014 DPW

Insurance Company		Rating Theme						
		Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
Munich Re Group	2014	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■
	2012	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■
New Jersey Manufacturers Insurance Company	2014	■■□□	■■□□	■■■□	■■■□	■■■□	■■■□	■■□□
	2012	■■□□	■■□□	■■■□	■■■□	■■□□	■■■■	■■□□
New York State Insurance Fund	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
QBE Insurance Group	2014	■■■■	■■■□	■■■□	■■□□	■■■□	■■■■	■■■□
	2012	■■□□	■□□□	■■■■	■■□□	■■□□	■■■□	■■□□
Selective Insurance	2014	■■□□	■■□□	■■□□	■□□□	■■■□	■■■□	■■□□
	2012	■□□□	■■■□	■■□□	■■□□	■■□□	■■■■	■■□□
Sentry Insurance Group	2014	■□□□	■■■□	■■□□	■□□□	■■■□	■■■□	■■□□
	2012	■□□□	■■■□	■■■■	■□□□	■■■□	■■■■	■■□□
Starr International Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■■□□	■□□□	■■□□	■□□□	■■□□	■■■□	■□□□
State Auto Group	2014	■■□□	■■■□	■■■□	■■■■	■■□□	■■■■	■■■□
	2012	■□□□	■□□□	■■□□	■□□□	■■□□	■■■□	■□□□
State Compensation Insurance Fund	2014	■■□□	■□□□	■□□□	■■□□	■■■□	■■■□	■■□□
	2012	■□□□	■■□□	■□□□	■■□□	■■□□	■■■□	■□□□
The Commerce Insurance Group (MAPFRE Insurance Group)	2014	■□□□	■□□□	■□□□	■□□□	■■■■	■■□□	■□□□
	2012	■■□□	■■□□	■□□□	■■■□	■■■■	■■■□	■■□□
The Hanover Insurance Group	2014	■■■□	■■■□	■■■□	■■□□	■■■■	■■■□	■■■□
	2012	■■■□	■■■■	■■■□	■□□□	■■■□	■■■■	■■■□
Wells Fargo	2014	■■■■	■■■■	■■□□	■■■□	■■■□	■■■■	■■■□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Westfield Insurance Company	2014	■■■□	■■□□	■■■■	■■□□	■■■□	■■■■	■■■□
	2012	■■■□	■■□□	■■■■	■■□□	■■□□	■■■■	■■■□
WR Berkley Corp Group	2014	■■■□	■■■■	■■■■	■■■■	■■■□	■■■■	■■■■
	2012	■■■□	■■■■	■■■■	■■□□	■■□□	■■■■	■■■□
XL America Group	2014	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■
	2012	■■■□	■■■■	■■■■	■■■■	■■■□	■■■■	■■■■
Average Segment Score – 2014		■■□□	■■□□	■■□□	■■□□	■■■□	■■■□	■■□□
Average Segment Score – 2012		■■□□	■■□□	■■■□	■■□□	■■□□	■■■□	■■□□

■■■■ = High Quality ■■■□ = Medium Quality ■■□□ = Low Quality ■□□□ = Minimal

Note: Company size is based on 2014 direct premiums written (DPW)

SEGMENT: LIFE & ANNUITY COMPANIES OVER $5 BILLION 2014 DPW

Insurance Company		Rating Theme: Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
Aegon US Holding Group	2014	■■■■	■■■■	■■■□	■■■■	■■■□	■■■■	■■■■
	2012	■□□□	■■□□	■□□□	■■■□	■■■■	■■■■	■■□□
Aflac Group	2014	■■■□	■■□□	■■□□	■■□□	■■■■	■■■□	■■□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■■■□	■□□□
Ameriprise Financial Group	2014	■□□□	■■□□	■■□□	■■□□	■■■□	■■■□	■■□□
	2012	■□□□	■■□□	■■□□	■□□□	■■■□	■■■□	■■□□
Genworth Financial Group	2014	■■■□	■■■□	■■■□	■■□□	■■■□	■■■■	■■■□
	2012	■■■□	■□□□	■□□□	■■□□	■■□□	■■■□	■■□□
Goldman Sachs Group	2014	■□□□	■□□□	■■□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
Great West Group	2014	■□□□	■■□□	■■□□	■□□□	■■□□	■■■□	■■□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Guardian Life Group	2014	■□□□	■■□□	■■□□	■■□□	■■■□	■■■■	■■□□
	2012	■■□□	■■□□	■□□□	■■□□	■■■□	■■■■	■■□□
ING American Insurance Holding Group	2014	■■■□	■■■■	■■□□	■■■■	■■■■	■■■■	■■■□
	2012	■□□□	■■□□	■□□□	■□□□	■■■■	■■■■	■■□□
Jackson National Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■□□□	■□□□
John Hancock Group	2014	■■■■	■■■■	■■■□	■■■■	■■■■	■■■■	■■■■
	2012	■■■□	■■□□	■□□□	■■■□	■■■■	■■■■	■■■□
Lincoln National Group	2014	■■■■	■■■■	■■■□	■■■■	■■■■	■■■■	■■■■
	2012	■■■□	■■■□	■■□□	■■□□	■■■■	■■■■	■■■□
MassMutual Life Insurance Group	2014	■■□□	■■□□	■□□□	■■□□	■■■□	■■■□	■■□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■■□	■□□□
Metropolitan Group (MetLife)	2014	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■
	2012	■■□□	■■□□	■■□□	■□□□	■■■■	■■■□	■■□□
Minnesota Mutual Group	2014	■□□□	■□□□	■□□□	■■□□	■■■□	■■■□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Mutual Of Omaha Group	2014	■■■□	■■■□	■■■□	■□□□	■■■□	■■■■	■■■□
	2012	■■□□	■■□□	■□□□	■□□□	■■■□	■■■□	■■□□
New York Life Group	2014	■■□□	■■■□	■■■□	■□□□	■■■■	■■■■	■■■□
	2012	■■□□	■□□□	■□□□	■□□□	■■■■	■■■□	■■□□
Northwestern Mutual Group	2014	■■□□	■■■■	■■□□	■□□□	■■■□	■■■■	■■■□
	2012	■■□□	■■□□	■□□□	■□□□	■■□□	■■■■	■■□□
Pacific Life Group	2014	■□□□	■□□□	■□□□	■■□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■■□	■□□□
Principal Financial Group	2014	■■■■	■■□□	■□□□	■■■□	■■■■	■■■■	■■■□
	2012	■■□□	■■□□	■□□□	■■□□	■■■■	■■■■	■■□□
Prudential Of America Group	2014	■■■■	■■■■	■■■□	■■■■	■■■■	■■■■	■■■■
	2012	■■■■	■■■□	■■■■	■■■■	■■■■	■■■■	■■■■
Sammons Enterprises Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
TIAA Family Group	2014	■■■□	■■■■	■■□□	■■■■	■■■□	■■■■	■■■□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■■□	■□□□
Unumprovident Corp Group	2014	■■■□	■■■■	■■□□	■■■□	■■■■	■■■■	■■■□
	2012	■■■□	■■■□	■□□□	■■■□	■■■■	■■■■	■■■□
White Mountains Insurance Group (Life)—Symetra	2014	■□□□	■■□□	■□□□	■□□□	■■■□	■■■□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
Average Segment Score – 2014		■■□□	■■■□	■■□□	■■□□	■■■□	■■■□	■■■□
Average Segment Score – 2012		■■□□	■■□□	■□□□	■■□□	■■■□	■■■□	■■□□

■■■■ = High Quality ■■■□ = Medium Quality ■■□□ = Low Quality ■□□□ = Minimal

Note: Company size is based on 2014 direct premiums written (DPW)

SEGMENT: LIFE & ANNUITY COMPANIES UNDER $5 BILLION 2014 DPW

Insurance Company		Rating Theme						
		Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
American Equity Investment Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
American Fidelity Assurance Company	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Ameritas Mutual Holding Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Athene Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
Banner Life Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Blue Shield of California Group	2014	■■□□	■■■□	■□□□	■■■■	■■■■	■■■■	■■■□
	2012	■□□□	■□□□	■□□□	■□□□	■■■■	■■□□	■□□□
CNO Financial Group	2014	■□□□	■■□□	■□□□	■□□□	■■■□	■■■□	■■□□
	2012	■□□□	■■□□	■□□□	■□□□	■■■□	■■■□	■□□□
Fidelity Investment Insurance & Annuity Group	2014	■■□□	■■□□	■■□□	■■□□	■■■■	■■■■	■■□□
	2012	■■□□	■□□□	■□□□	■□□□	■■■■	■■■■	■■□□
HCC Insurance Holdings	2014	■■■□	■■□□	■□□□	■■□□	■■■■	■■■■	■■□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
Jefferson National Life Insurance Co	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
Liberty National Group—Torchmark Group Insurance Companies	2014	■□□□	■■□□	■□□□	■□□□	■■□□	■■■□	■□□□
	2012	■□□□	■■□□	■□□□	■□□□	■■□□	■■■□	■□□□
Mutual Of America Life Insurance Co	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■■□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■■□	■□□□
National Guardian Life Insurance Group	2014	■■□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■■□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
National Life Group	2014	■■■□	■■□□	■□□□	■■□□	■■■□	■■■□	■■□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
National Western Life	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
Nestle SA Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
Ohio National Life Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■■□	■□□□
	2012	■■□□	■□□□	■□□□	■□□□	■■□□	■■■□	■□□□
OneAmerica Financial Partners Group	2014	■■□□	■■□□	■□□□	■□□□	■■□□	■■■□	■■□□
	2012	■□□□	■■□□	■□□□	■□□□	■■□□	■■■□	■□□□
Penn Mutual Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
Phoenix Companies Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Primerica Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
Protective Life Insurance Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Stancorp Financial Group	2014	■□□□	■■■□	■■■□	■■■□	■■■■	■■■■	■■■□
	2012	■■□□	■■□□	■■□□	■□□□	■■■■	■■■■	■■□□
Sun Life Assurance Company of Canada Group	2014	■■■□	■■■■	■■□□	■■■■	■■■■	■■■■	■■■■
	2012	■■■■	■■■□	■■□□	■■■□	■■■□	■■■■	■■■□
West Southern Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■■□	■□□□
Average Segment Score – 2014		■□□□	■■□□	■□□□	■□□□	■■■□	■■□□	■□□□
Average Segment Score – 2012		■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□

■■■■ = High Quality ■■■□ = Medium Quality ■■□□ = Low Quality ■□□□ = Minimal

Note: Company size is based on 2014 direct premiums written (DPW)

APPENDIX A

SEGMENT: HEALTH COMPANIES OVER $5 BILLION 2014 DPW

Insurance Company		Rating Theme: Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
Aetna Group	2014	■■■□	■■□□	■■□□	■■■□	■■■■	■■□□	■■■□
	2012	■■□□	■■□□	■■□□	■■□□	■■■■	■■□□	■■□□
Anthem Inc Group	2014	■■□□	■■□□	■□□□	■■□□	■■■■	■■■□	■■□□
	2012	■□□□	■□□□	■□□□	■■□□	■■■■	■■■□	■□□□
Cigna Health Group	2014	■■■□	■■■□	■□□□	■■■□	■■■■	■■■■	■■■□
	2012	■■□□	■■□□	■□□□	■■■□	■■■■	■■■□	■■□□
HCSC Group	2014	■□□□	■■□□	■□□□	■■□□	■■■□	■■■□	■■□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
HIP Insurance Group	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
Humana Group	2014	■■□□	■■■□	■■□□	■■■□	■■■■	■■■■	■■■□
	2012	■□□□	■■□□	■■□□	■■□□	■■■■	■■□□	■■□□
Lifetime Healthcare Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
UnitedHealth Group	2014	■□□□	■□□□	■□□□	■□□□	■■■■	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■■■□	■□□□
Average Segment Score – 2014		■■□□	■■□□	■□□□	■■□□	■■■□	■■■□	■■□□
Average Segment Score – 2012		■□□□	■□□□	■□□□	■■□□	■■■□	■□□□	■□□□

■■■■ = High Quality ■■■□ = Medium Quality ■■□□ = Low Quality ■□□□ = Minimal

Note: Company size is based on 2014 direct premiums written (DPW)

SEGMENT: HEALTH COMPANIES UNDER $5 BILLION 2014 DPW

Insurance Company		Rating Theme: Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
Blue Cross Blue Shield of Minnesota Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■■□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
Cambia Health Solutions Inc	2014	■■■□	■■□□	■□□□	■■□□	■■■□	■■■■	■■□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
CDPHP Inc Group	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
Centene Corp Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
Community Health Plan Of Washington	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CVS Caremark Group	2014	■■■□	■□□□	■□□□	■■■□	■■■■	■■■■	■■□□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dentegra Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Group Health Coop Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
Health Markets Inc.	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
Health Net Inc Group	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□

APPENDIX A

SEGMENT: HEALTH COMPANIES UNDER $5 BILLION 2014 DPW

Insurance Company		Rating Theme: Climate Risk Governance	Enterprisewide Climate Risk Management	Climate Modeling & Analytics	Stakeholder Engagement	Internal Greenhouse Gas Management	Climate Risk Disclosure & Reporting	Overall Rating
Health Now New York Inc	2014	■■□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Health Partners Group	2014	■□□□	■■□□	■■□□	■■■□	■■■□	■■■■	■■□□
	2012	■□□□	■■□□	■■■□	■■□□	■■■□	■■■□	■■□□
Healthfirst Inc Group	2014	■■□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Highmark Group	2014	■■□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
Independence Health Group Inc Group	2014	■□□□	■■□□	■□□□	■■□□	■■■□	■■■□	■■□□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Independent Health Benefit Corporation	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□
Kaiser Foundation Group	2014	■■■□	■■■□	■■■■	■■■■	■■■■	■■■■	■■■□
	2012	■■■□	■■■□	■■■□	■■■□	■■■■	■■■■	■■■□
Medica Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Molina Healthcare Inc. Group	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MVP Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Noridian Mutual Insurance Co	2014	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■□□□	■□□□
Premera Blue Cross Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Presbyterian Healthcare Service Group	2014	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Providence Health Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■□□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
UCare Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vision Service Plan Group	2014	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■■■□	■■□□	■□□□
Wellcare Group	2014	■□□□	■□□□	■■□□	■□□□	■■□□	■■■□	■□□□
	2012	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□	■□□□
Average Segment Score – 2014		■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□
Average Segment Score – 2012		■□□□	■□□□	■□□□	■□□□	■■□□	■■□□	■□□□

■■■■ = High Quality ■■■□ = Medium Quality ■■□□ = Low Quality ■□□□ = Minimal

Note: Company size is based on 2014 direct premiums written (DPW)

APPENDIX B

NAIC Insurer Climate Risk Disclosure Survey Questions

Question One: Does the company have a plan to assess, reduce or mitigate its emissions in its operations or organizations?

Yes—The company has a plan to assess and reduce or mitigate emissions in our operations or organizations—Please summarize.

No—The company does not have a plan to assess and reduce or mitigate emissions in our operations or organizations—Please describe why not.

Insurers who are unfamiliar with frameworks for greenhouse gas emission measurement and management are encouraged to review the principles of "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" developed by the World Resources Institute and the World Business Council for Sustainable Development ("the GHG Protocol").

Each insurer is encouraged to clarify whether its plan for measuring and management of its emissions in operations and/or its subsidiary organizations' operations includes emissions related to energy use for data storage or other computing-intensive processes.1

Question Two: Does the company have a climate change policy with respect to risk management and investment management? If yes, please summarize. If no, how do you account for climate change in your risk management?

Yes—The company has a climate change policy with respect to risk management and investment management—Please summarize.

No—The company does not have a climate change policy with respect to risk management and investment management—Please describe how you account for climate change in your risk management, or why you do not account for climate change in your risk management.

■ **Questions to consider include:**

- **Where in the structure of the company is climate risk addressed?**
- **Does the company approach climate change as an Enterprise Risk Management (ERM) issue?**
- **Does the company have a dedicated point-person or team within the company that is responsible for managing its climate change strategy?**
- **What is the role of the board of directors in governing climate risk management?**
- **Does the company consider potentially correlated risks affecting asset management and underwriting?**
- **Has the company issued a public statement on its climate policy?**

Question Three: Describe your company's process for identifying climate change-related risks and assessing the degree that they could affect your business, including financial implications.

Yes—The company has a process for identifying climate change-related risks and assessing the degree that it could affect our business including financial implications—Please summarize.

No—The company does not have a process for identifying climate change-related risks and assessing the degree that it could affect our business including financial implications—Please describe why not.

■ Questions to consider include:

- How may climate change shift customer demand for products?
- What implications may climate change have on liquidity and capital needs?
- How might climate change affect limits, cost and terms of catastrophe reinsurance, including reinstatement provisions?
- Has the insurer considered creative methods of risk distribution such as contingency plans to reduce financial leverage and resolve any liquidity issues in the event of a sudden loss in surplus and cash outflows as a result of a catastrophic event?
- How are these impacts likely to evolve over time? Does the company have plans to regularly reassess climate change related risks and its responses to those risks?

Question Four: Summarize the current or anticipated risks that climate change poses to your company. Explain the ways that these risks could affect your business. Include identification of the geographical areas affected by these risks.

Yes—The company has identified current or anticipated risks that climate change poses to our company—Explain the ways that these risks could affect your business—Include identification of the geographical areas affected by these risks.

No—The company has not identified current or anticipated risks that climate change will pose to our company—Please describe why not.

■ Questions to consider include:

- Which business segments or products are most exposed to climate-related risks?
- Has the company considered its potential exposure to climate liability through its D&O or CGL policies?
- Are there geographic locations, perils or coverages for which the company has increased rates, limited sales, or limited or eliminated coverages because of catastrophic events? How do those actions relate to assessments of climate change impacts made by the company?
- Has the company examined the geographic spread of property exposures relative to the expected impacts of climate change, including a review of the controls in place to assure that the insurer is adequately addressing its net exposure to catastrophic risk?

Question Five: Has the company considered the impact of climate change on its investment portfolio? Has it altered its investment strategy in response to these considerations? If so, please summarize steps you have taken.

Yes—The company has considered the impact of climate change on its investment portfolio—Please summarize.

No—The company has not considered the impact of climate change on its investment portfolio—Please describe why not.

Yes—The company has altered its investment strategy in response to these considerations—Please summarize steps you have taken.

No—The company has not altered its investment strategy in response to these considerations—Please describe why not.

■ Questions to consider include:

- Does the company consider regulatory, physical, litigation, and competitiveness-related climate risks, among others, when assessing investments?
- Has the company considered the implications of climate change for all of its investment classes, e.g. equities, fixed income, infrastructure, real estate?
- Does the insurer use a shadow price for carbon when considering investments in heavy emitting industries in markets where carbon is either currently regulated or is likely to be regulated in the future?
- Does the insurer factor the physical risks of climate change (water scarcity, extreme events, weather variability) into security analysis or portfolio construction? If so, for what asset classes and issuers (corporate, sovereign, municipal)?
- How does climate change rank compared to other risk drivers, given the insurer's asset liability matching strategy and investment duration?
- Does the insurer have a system in place to manage correlated climate risks between its underwriting and investments?

Question Six: Summarize steps the company has taken to encourage policyholders to reduce the losses caused by climate change-influenced events.

Yes—The company has taken steps to encourage policyholders to reduce the losses caused by climate change-influenced events—Please summarize.

No—The company has not taken steps to encourage policyholders to reduce the losses caused by climate change-influenced events—Please describe why not.

■ **Questions to consider include:**

- How has the company employed price incentives, new products or financial assistance to promote policyholder loss mitigation? In what lines have these efforts been attempted, and can the outcome of such efforts be quantified in terms of properties retrofitted, losses avoided, etc.?
- For insurers underwriting D&O, CGL and professional liability policies, what steps has the company taken to educate clients on climate liability risks or to screen potential policyholders based on climate liability risk? How does the company define climate risk for these lines?

Question Seven: Discuss steps, if any, the company has taken to engage key constituencies on the topic of climate change.

Yes—The company has taken steps to engage key constituencies on the topic of climate change—Please summarize.

No—The company has not taken steps to engage key constituencies on the topic of climate change—Please describe why not.

■ **Questions to consider include:**

- How has the company supported improved research and/or risk analysis on the impacts of climate change?
- What resources has it invested to improve climate awareness among its customers in regulated and unregulated lines?
- What steps has it taken to educate shareholders on potential climate change risks the company faces?

Question Eight: Describe actions the company is taking to manage the risks climate change poses to your business including, in general terms, the use of computer modeling.

Yes—The company is taking actions to manage the risks climate change poses to the business—Please summarize what actions the company is taking and in general terms the use if any of computer modeling.

No—The company is not taking actions to manage the risks climate change poses to the business—Please describe why.

■ **Questions to consider include:**

- For what perils does the company believe that future trends may deviate substantially from historical trends due to changes in the hazard? Similarly, for what perils, if any, does the company believe that a catastrophe model extrapolating observed trends would be insufficient to plan for maximum possible loss or yearly average loss? What steps has the company taken to model or analyze perils associated with non-stationary hazards?
- Has the company used catastrophe models to conduct hypothetical "stress tests" to determine the implications of a wide range of plausible climate change scenarios? If so, over what timescale, in what geographies and for what perils?
- Has the company conducted, commissioned or participated in scenario modeling for climate trends beyond the 1-5 year timescale? If so, what conclusions did the company reach on the potential implications for insurability under these scenarios?

APPENDIX C

Report Methodology

TABLE C.1: HISTORY OF NAIC CLIMATE RISK DISCLOSURE SURVEY AND CERES REPORTS

1. Reporting Year	2. Participating States	3. Reporting Threshold[94]	4. Ceres' Report Release Date	5. # of Insurance Group Respondents Evaluated by Ceres	6. Survey Reporting and Ceres' Analysis/Methodology
2010	CA, NJ, NY, OR, PA, WA	>$500m	Sept. 2011	88	• Voluntary reporting • Qualitative assessment • Insurers not scored
2011	CA, NY, WA	>$300m	Mar. 2013	184	• Mandatory reporting • Quantitative scoring • Individual company scores not publicly released
2012	CA, CT, MN, NY, WA	>$100m	Oct. 2014	330	• Mandatory reporting • Quantitative scoring and performance rankings • Individual company ranks publicly released
2014	CA, CT, MN, NM, NY, WA	>$100m	Oct. 2016	148	• Mandatory reporting • Quantitative scoring and performance rankings • Individual company ranks publicly released • Shared methodology with 2012 • Year-over-year comparisons possible • Evaluation thresholds: >$1b (P&C, Health); >$750m (L&A)

Ceres has employed the same scoring methodology in this report as used for the 2014 reporting year.[95] Thus, direct year-over-year insurer climate risk management disclosure quality comparisons are possible, and Ceres has utilized this capability to highlight insurers that have significantly improved the quality of their climate risk disclosure.

In order to provide a standardized comparison between companies, Ceres assigned a point value to each question and sub-question of the NAIC survey.[96] The points assigned to each question were weighted based on their relative importance to an insurer's capacity to manage climate risks. For example, Enterprise-Wide Climate Risk Management is more material to an insurance company's management of climate risks than is a company's Internal Greenhouse Gas Management policy, so point values were weighted accordingly. Weightings also varied slightly between Property & Casualty and Life & Annuity/Health insurers, because some of the NAIC survey questions were not directly relevant to L&A/Health insurers.

Insurance company scores are reported according to four disclosure quality bands, or ratings, providing a tool for companies to assess their disclosure relative to their peers and to learn from the climate-related initiatives that others are adopting. If a company offers higher quality disclosure than its peers with regard to a specific theme, it does not necessarily mean it has fully met that expectation. However, these scores highlight climate risk leaders in the insurance industry, as well as those companies that have more room to improve. The complete list of insurer ratings may be found in Appendix A. This report also includes many examples of industry-leading practices, as well as examples of companies lagging behind their peers.

94 All reporting thresholds are based on annual insurer direct premiums written.

95 The 2011 through 2014 Surveys, when distributed to insurers required to respond, included a document entitled "Climate Risk Survey Guidance", that was designed to offer more specific guidance to insurers in responding to the Survey questions. This document included "questions to consider" that expand on each of the eight primary questions in order to draw out more specificity from company responses, and Ceres has used those sub-questions as guidelines with which to assess insurers.

96 For a full list of questions and sub-questions see Appendix B

APPENDIX C

*When evaluating NAIC survey responses, Ceres looked for **examples of concrete actions** implemented by insurers with respect to each of the survey questions and sub-questions. Companies also earned points based on the overall quality of their NAIC survey responses in terms of whether all eight questions were answered completely and comprehensively. Ultimately, all scores were determined based on companies' performance **as disclosed in their NAIC survey responses**, and thus, Ceres' analysis is inherently dependent on the quality of disclosure.*[97]

The Scoring Framework Overview shown in Table C.2 below presents the NAIC survey questions as well as the thematic organization of Ceres' scoring approach.

TABLE C.2: CERES SCORING FRAMEWORK OVERVIEW

NAIC Survey Question #	Question Text
Theme 1:	**Climate Governance**
2	Does the company have a climate change policy with respect to risk management and investment management?
Theme 2:	**Enterprise-Wide Climate Risk Management**
3	Describe your company's process for identifying climate change-related risks and assessing the degree that they could affect your business, including financial implications.
4	Summarize the current or anticipated risks that climate change poses to your company. Explain the ways that these risks could affect your business. Include identification of the geographical areas affected by these risks.
5	Has the company considered the impact of climate change on its investment portfolio? Has it altered its investment strategy in response to these considerations? If so, please summarize steps you have taken.
Theme 3:	**Climate Change Modeling & Analytics**
8	Describe actions the company is taking to manage the risks climate change poses to your business including, in general terms, the use of computer modeling.
Theme 4:	**Stakeholder Engagement**
6	Summarize steps the company has taken to encourage policyholders to reduce the losses caused by climate change-influenced events.
7	Discuss steps, if any, the company has taken to engage key constituencies on the topic of climate change.
Theme 5:	**Internal Greenhouse Gas Management**
1	Does the company have a plan to assess, reduce or mitigate its emissions in its operations or organizations?
Theme 6:	**Quality of Climate Risk Disclosure & Reporting**
N/A	The company answered all eight questions completely and comprehensively.

97 This report and the associated scorecards exclusively reflect information provided by insurers through the Climate Risk Disclosure Survey issued by the NAIC. For an assessment of corporate sustainability performance based on a broad range of public disclosures, please refer to *Gaining Ground: Corporate Progress on the Ceres Roadmap for Sustainability* accessible at http://www.ceres.org/gaininggound.

As shown in Table C.2, Ceres has re-ordered the survey questions and grouped them based on their relative contribution to effective climate risk management by insurers. **Corporate governance** is of great importance in managing climate risk, as senior management and Boards of Directors set companies' priorities and policies, and can effectively drive climate risk-related initiatives across their organizations. **Enterprise-wide climate risk management** characterizes whether insurers are addressing climate risk across both sides of their balance sheets: underwriting/insurance risk, and investment risk. The third theme is **climate change modeling and analytics**, which assesses the disclosed use of catastrophe modeling and other risk management tools that allow for quantification of risk and probable loss assessment under various possible climate scenarios. The **stakeholder engagement** theme assesses insurers' reported climate-aware products and services offered to customers, as well as insurers' support of research and public education efforts around climate risk. **Internal greenhouse gas (GHG) management** is less strongly emphasized, reflecting the fact that insurers are generally not large emitters of GHGs and face much greater risks from their underwriting and investment lines of business. The final theme is **climate risk disclosure and reporting**, which evaluates the overall quality and comprehensiveness each insurers' survey responses.

APPENDIX D

Listing of Insurer Respondents Analyzed in this Report

PROPERTY & CASUALTY COMPANIES OVER $5 BILLION IN 2014 DPW			
ACE Ltd. Group	Cincinnati Financial	Liberty Mutual Group	Tokio Marine Holdings, Inc.
Allianz Insurance Companies	CNA	Munich Re Group	Travelers Group
Allstate Insurance Group	CSAA Insurance Group	Nationwide Corp Group	Wells Fargo
American Family	Erie Insurance Group	QBE Insurance Group	XL America Group
American International Group, Inc.	Farmers Insurance Group	State Auto Group	Zurich US Insurance Pool Group
AXA Group	FM Global Group	Swiss Re Group	
Chubb Group of Insurance Companies	The Hartford Financial Services Group, Inc.	The Hanover Insurance Group	

PROPERTY & CASUALTY COMPANIES UNDER $5 BILLION 2014 DPW		
Acuity Mutual Group	Endurance Group	QBE Insurance Group
American National Group	Fairfax Financial Group	Selective Insurance
Amica Mutual Insurance Company	Federated Mutual Group	Sentry Insurance Group
Arch Insurance Group	Infinity Property & Casualty Insurance Group	Starr International Group
Auto Club Enterprises Group	Iowa Farm Bureau Group (Western Agricultural)	State Auto Group
Auto Owners Group	Kemper Corp Group	State Compensation Insurance Fund
Automobile Club Michigan Group	Main Street America Group	The Commerce Insurance Group (MAPFRE Insurance Group)
Cincinnati Financial	Markel Corp Group—Alterra American Insurance	The Hanover Insurance Group
COUNTRY Insurance & Financial	Mercury Insurance Group	Wells Fargo
CSAA Insurance Group	Munich Re Group	Westfield Insurance Company
CUNA Mutual Group	New Jersey Manufacturers Insurance Company	WR Berkley Corp Group
EMC Insurance Group	New York State Insurance Fund	XL America Group

LIFE & ANNUITY COMPANIES OVER $5 BILLION IN 2014 DPW			
AEGON US Holding Group	Guardian Life Group	Metropolitan Group	Principal Financial Group
AFLAC Group	ING America Insurance Holding Group	Minnesota Mutual Group	Prudential Of America Group
Ameriprise Financial Group	Jackson National Group	Mutual Of Omaha Group	Sammons Enterprises Group
Genworth Financial Group	John Hancock Group	New York Life Group	TIAA Family Group
Goldman Sachs Group	Lincoln National Group	Northwestern Mutual Group	Unumprovident Corp Group
Great West Group	Mass Mutual Life Insurance Group	Pacific Life Group	White Mountains Group (Life)—Symetra

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LIFE & ANNUITY COMPANIES UNDER $5 BILLION 2014 DPW		
American Equity Investment Group	Jefferson National Life Insurance Co	Penn Mutual Group
American Fidelity Assurance Company	Liberty National Group—Torchmark Group Insurance Companies	Phoenix Companies Group
Ameritas Mutual Holding Group	Mutual Of America Life Insurance Co	Primerica Group
Athene Group	National Guardian Life Insurance Group	Protective Life Insurance Group
Banner Life Group	National Life Group	Stancorp Financial Group
Blue Shield Of California Group	National Western Life	Sun Life Assurance Company of Canada Group
CNO Financial Group	Nestle SA Group	West Southern Group
Fidelity Investment Insurance & Annuity Group	Ohio National Life Group	
HCC Insurance Holdings	OneAmerica Financial Partners Group	

HEALTH COMPANIES OVER $5 BILLION IN 2014 DPW			
Aetna Group	Cigna Health Group	HIP Insurance Group	Lifetime Healthcare Group
Anthem Inc Group	HCSC Group	Humana Group	United Health Group

HEALTH COMPANIES UNDER $5 BILLION 2014 DPW		
BCBS of Minnesota Group	Health Net Inc Group	Molina Healthcare Inc. Group
Cambia Health Solutions Inc	Health Now New York Inc	MVP Group
CDPHP Inc Group	Health Partners Group	Noridian Mutual Insurance Co
Centene Corp Group	Healthfirst Inc Group	Premera Blue Cross Group
Community Health Plan Of Washington	Highmark Group	Presbyterian Healthcare Service Group
CVS Caremark Group	Independence Health Group Inc Group	Providence Health Group
Dentegra Group	Independent Health Benefit Corporation	Ucare Group
Group Health Coop Group	Kaiser Foundation Group	Vision Service Plan Group
Health Markets Inc.	Medica Group	Wellcare Group

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