



REINSURANCE
ASSOCIATION
OF AMERICA

STATEMENT

Testimony

Of

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Reinsurance Association of America**

**Economic Impacts of Global Warming:
Part I -- Insurance**

Before

**Select Committee on Energy Independence
and Global Warming**

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Chairman Markey, Ranking Member Sensenbrenner and Members of the Committee on Energy Independence and Global Warming:

My name is Frank Nutter and I am President of the Reinsurance Association of America (RAA). It is an honor to appear before you on behalf of the RAA. The RAA is a national trade association representing property and casualty organizations that specialize in assuming reinsurance. Together, RAA members and affiliates write over 70% of the reinsurance coverage provided by U.S. property and casualty reinsurers and affiliates.

No financial services business is more dependent on the vagaries of climate and weather than property and casualty insurers. The industry is at great risk if it does not understand global climate variability and the frequency of extreme events. It must be more than a pass-through mechanism for the costs associated with natural disasters. Understanding global climate change and integrating that information into the insurance system is an essential part of addressing climate extremes and conveying information to governments and the public about the economic consequences of human activity in the face of changing global climate.

Climate and Catastrophes

The General Accounting Office reports that from 1980 through 2005 private and Federal insurers paid \$320 billion in claims on weather related losses. As noted by the GAO, private insurers paid 76% or \$243 billion of this total. The year 2005 alone produced a record: total global insurer catastrophe claims were \$83 billion, 80% of which were from US land-falling hurricanes. Even 2006, thought of as a benign catastrophe year, produced 43 insured loss catastrophes in North America out of a global

total of 349. Although some of these catastrophes are earthquake related, over 90% of events causing damage to people and property originated in the atmosphere. Almost 12,000 people lost their lives to storms and floods in 2006. AIR Worldwide estimates that insured natural catastrophe losses should be expected to double roughly every ten years due to increases in construction costs, increases in the number of structures and changes in their characteristics.

With respect to the impact of climate change, the Association of British Insurers concludes as follows:

- Average annual losses from the three major storm types affecting insurance markets (US hurricanes, Japanese typhoons and European windstorms) could increase by two-thirds by the 2080s.
- Focusing on the most extreme storms (losses with a probability of occurring once every 100 to 250 years), by the 2080s climate change could:
 - Increase wind-related insured losses from extreme US hurricanes by around three-quarters (the equivalent of 2 to 3 Hurricane Andrews annually).
 - Increase wind-related insured losses from extreme Japanese typhoons by around two-thirds. The increase alone would be more than twice the cost of the 2004 typhoon season, the costliest in the last 100 years.
 - Increase wind-related insured losses from extreme European storms by at least 5%.
 - Increase the annual costs of flooding in the UK almost 15-fold.

- Under high emissions scenarios, insurers' capital requirements could increase by over 90% for US hurricanes, and by 80% for Japanese typhoons. Higher capital costs combined with greater annual losses from windstorms alone could result in premium increases of around 60% in these markets.

The ABI advises that these loss estimates do not include likely increases in society's exposure to extreme storms, due to growing, wealthier populations, and increasing assets at risk.

Financial losses from weather-related catastrophes have increased by an average of 2% per year since the 1970s, with climate change a contributing factor, according to the chief researcher of catastrophe modeler Risk Management Solutions, Inc. The rate of loss increase holds true even when inflation, changes in wealth and population growth are taken into account. In its latest climate change report, Rapid Climate Change, Lloyd's of London warns that waiting on "definitive scientific pronouncements" on the impact of climate change "seems like an increasingly risky strategy."

The causes behind the dramatic rise in insured catastrophe losses are several:

- Population growth in high-risk areas.
- Dramatic increases in insured coastal values. Florida now has nearly \$2 trillion of insured properties. New York has \$2 trillion, Louisiana \$209 billion and South Carolina \$149 billion.
- The insurance industry's own expansion of coverage which had the effect of increasing potential insured damage; deductibles were lowered and full replacement cost added to homeowners' policies in the period 1970-1990.

- Government policy, which either endorsed weak building codes or failed to enforce existing building codes and which has facilitated development in high risk areas.
- Climate change and the incidence of more intense extreme events. Munich Re's Geo-Science Department has concluded that the proportion of severe storms has risen and that of moderate storms has fallen. Three of the ten most intense storms ever recorded in North America were in 2005. Swiss Re advises that "climate change presents an increasing risk to the world economy and social welfare."

The Insurance Industry's Financial Interest

The insurance industry's financial interest is inter-dependent with climate and weather. It is the risk of natural events which drives the demand for insurance coverage and yet, if not properly managed, can threaten the viability of an insurer if it is over-exposed in high risk areas. An insurance company thrives or dies on its ability to make estimates of the economic consequences of future events.

Most insurance coverages are priced based upon historical data which is then trended forward using adjustments for inflation and other economic factors. As a result of Hurricane Andrew, however, a paradigm shift occurred. The industry began to recognize that, due to unanticipated climate variability, historical data were potentially misleading with respect to future natural catastrophe exposure. If climate is now fundamentally changed and is causing changes in weather patterns and cycles, will it lead to more extreme events? Swiss Re notes: "climate change, overtime will affect weather and weather patterns." Citing a recent study by Webster and Holland and noting a trend

toward more intense tropical cyclones, Swiss Re observes that the number of category 4 and 5 storms has doubled since the 1970s.

Insurance and Science

Although a number of European insurers and reinsurers have shown great interest in understanding the causes of climate change, including the impact of global warming, US insurers have been more focused on the effect of extreme weather events. Thus, the US industry has been more attentive to approaches to mitigate the consequences of natural catastrophes and other extreme events; while some European insurers have called upon their governments to reduce the human factors they believe contribute to global warming. In the US, the industry's agenda includes the evaluation of building codes and building code enforcement in every community in the country. Through the Institute for Business & Home Safety, the US industry has greatly enhanced its support for hazard mitigation by conducting research on building design and building materials.

The initiative most related to the scientific assessment of global climate change is the use of catastrophe computer models to integrate scientific knowledge about extreme events into the actuarial sciences. These catastrophe models incorporate scientific assumptions about climate trends and the probability of future extreme events, then produce estimated prospective costs associated with natural catastrophes. They assist an insurer with an analysis of its potential exposure and are used to support rates filed for approval with insurance departments. It is the classic example of using insurance to translate scientific analysis and data into the economic consequences of people's behavior, i.e. where they live and the value and potential loss of properties in those areas. The pure result of the use of catastrophe models is the application of risk-based premiums

and aggregate exposure for insured property. Utilizing these models and retracing past hurricane events onto current population in today's built environment, potential insured losses are alarming: the Miami hurricane of 1926 \$80 billion; Hurricane Andrew (1992) \$42 billion; 1900 Galveston, Texas \$33 billion; 1938 Long Island "express" \$35 billion.

If climate change has increased the intensity of future storms, these numbers will rise. If climate change increases the frequency of extreme cyclonic events, the consequence is obvious.

Conclusion

In May 2006 the Chief Risk Officer Forum [CRO], a group of 13 European insurers, issued a report concluding: "Climate change has the potential to develop into the greatest environmental challenge of the 21st century." Stating that insurers need to reflect climate change and the consequent changes in frequency and severity of natural catastrophes in internal analytical models, the CRO Forum identified the industry's adaptive strategy as "limiting exposure, diversifying risks globally and ever sophisticated modeling" in which case the industry could weather the effects of a more active hurricane season. It went on to say, however, that "the sheer magnitude of climate change could impact a large number of industries to such an extent that sustainable insurability may ultimately be put into question."

Insurers are in the business of assessing risk, pricing it and providing risk financing or transfer. The insurance industry's long-term strategy, however, does not include bearing the cost of climate change without a concomitant commitment on the part of society to pursue a mitigation strategy – addressing the causes and consequences of climate change.