

# The Strategy of Chinese Insurance Industry to Deal with Global Climate Change

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**Abstract:** Climate Change has increased the frequency and severity of extreme weather events, affected the normal operation of the economy, and brought severe challenges to the sustainable development of the economy and society. The insurance industry has a wide range of stakeholders in the real economy, so climate change will have a significant impact on the insurance industry. The insurance industry plays a dual role in addressing climate change: It should not only reduce the negative impact of climate change on underwriting and asset business, but also seize opportunities in adapting to climate change, provide insurance products and services to manage climate risks, and provide financial support to new energy, energy conservation, environmental protection, new energy vehicles and other strategic emerging industries, so as to contribute to the mitigation of climate change.

**Keywords:** Insurance; Climate Change; Strategy

## I. INTRODUCTION

Global warming has become an indisputable fact. According to *The 2009 Climate Report* released by the National Oceanic and Atmospheric Administration (NOAA) of The United States, the global average surface and lower troposphere temperatures over the past 30 years were significantly higher than those in previous decades, and the period 2000-2009 was the warmest decade since instrumental records began. Warming is particularly evident in the middle and high latitudes of the Northern Hemisphere. Global warming is closely related to greenhouse gas emissions from human activities, especially the use of fossil fuels. According to NOAA's *The 2009 Climate Report*, atmospheric concentrations of greenhouse gases continued to rise in 2009, with carbon dioxide rising faster than the average from 1978 to 2008. Although the global development of low-carbon economy can slow down climate warming, but future climate warming is inevitable. The Intergovernmental Panel on Climate Change (IPCC) of The United Nations has predicted that global temperatures are likely to rise by 2C by 2040, regardless of current and future measures to reduce greenhouse gas emissions.

Climate warming increases the uncertainty of weather and increases meteorological disasters. The IPCC report argues that warming will lead to more intense or frequent extreme weather and climate events, including floods, storms, thunderstorms, hail, blizzards, forest fires, droughts, heat waves, lightning strikes and coastal erosion. Since forests and shrubs are the major terrestrial carbon sinks, forest fires also contribute significantly to the carbon content of the atmosphere. Globally, the most costly weather-related insurance losses are caused by tropical cyclones (also known as hurricanes, typhoons in other parts of the world) or winter storms.

From a meteorological point of view, extreme weather

events such as tropical storms may not be much more severe than the regular downpours that occur each year. However, they can achieve a significant increase in losses by breaking critical thresholds. In other words, even a small increase in the severity of an incident can lead to a significant increase in losses. Once gusts reach a certain level, entire roofs blow away or trees are blown down, but anything below that level could do little damage. Similarly, hail below a certain size does not damage car panels, but over a certain size, the damage will suddenly increase. The experience of the Australian Insurance Group (IAG) has shown that gusty strength increased by 25%, construction claims that can be caused will increase by 6.5 times.

In its report "Adaptability and Vulnerability in Climate Change: The Role of the Financial Industry" released by the United Nations Environment Programme (UNEP), the economic losses caused by extreme weather conditions caused by climate change will increase every 12 years. Doubled. In the next 30-40 years, losses caused by droughts, storms, and floods will reach US\$1 trillion per year. China is one of the countries most vulnerable to climate change. Against the background of global climate change, China's various extreme weather and climate events are occurring more and more frequently, and the degree of damage is getting stronger and stronger. The "National Assessment Report On Climate Change" issued by the Chinese government pointed out that China's extreme weather and climate events will increase in the future. With the increase in the total economic volume, the increase in population density and the acceleration of the urbanization process, the loss of meteorological disasters will also continue to expand.

## II. THE NEGATIVE IMPACT OF CLIMATE CHANGE ON THE INSURANCE INDUSTRY

Which is an industry that directly manages risks, the insurance industry faces more risks to climate change than any other economic sector. The increase in climate change and extreme weather disasters will affect many areas of insurance companies business.

The frequent occurrence of global warming and extreme weather events caused by meteorological disasters has caused insurance companies to face huge potential losses in their underwriting business. Most underwriting businesses, including property insurance, health insurance, life insurance, and liability insurance, are sensitive to climate change and extreme weather events. In terms of commercial property insurance, the losses caused by climate change include not only direct property losses, but also loss of income and additional costs incurred by the policy owner during the repair and relocation process. Agriculture is a sector that is very sensitive to climate and weather. The climate-related risks faced by

agricultural insurance include drought, rainstorms, floods, hail, heat waves, storms, wildfires, pests and plant diseases. Drought is one of the most common disasters. Automobile insurance is also sensitive to weather. Various forms of severe weather such as storms, hail and floods have caused an increase in vehicle accidents, and the number of loss claims is often staggering. For life insurance, climate change is also an important factor affecting mortality and morbidity. The death toll from heat waves will increase. Rising temperature, increased humidity, more wildfires and more dust and particles may greatly aggravate upper respiratory diseases (allergic rhinitis, conjunctivitis, sinusitis) and cardiovascular diseases, especially threats to the elderly and outdoor workers. As the climate warms, tropical diseases may enter high latitude areas. Companies performing tasks in vulnerable areas may be shut down due to extreme weather, and if they suffer losses due to climate disasters, they may have to pay expensive replacement costs. If the company has business interruption insurance, claims for business interruption losses include lightning, floods, and wildfires.

People tend to gather in high-risk areas, and the loss of climate change will further intensify. Climate change also often affects more than one insurance business. For example, extreme high temperature events cause increased mortality and increased risk of forest fires.

Traditionally, insurance companies rely on historical claims data to determine future insurance product prices and underwriting requirements. Given that extreme weather events may become more intense and frequent, and the frequency and extent of catastrophic losses will increase, the past insurance pricing models can no longer reliably guide future pricing and may produce misleading results. This risk can be systematically underestimated to a certain extent, and insurance claims are higher than expected, which significantly affects the profitability and capital adequacy ratio of the sector. A large claim in a single year may pose a serious threat to the solvency and financial stability of an insurance company, and may even bankrupt it. Climate change also affects the affordability and availability of the insurance industry, while slowing down its development. Incorporating climatology into traditional insurance pricing models is a complex and time-consuming task, especially since climatology is currently unable to accurately predict how and when extreme weather events will occur. For China's insurance industry, as insurance density and insurance penetration rate increase, the impact of climate change on China's insurance industry will be magnified.

Another direct impact of climate change on the insurance industry is its investment business. Climate change and the natural disasters caused by it may cause loss or impairment of insurance industry assets. In particular, real estate that insurance companies invest directly or indirectly face greater risks. The insurance industry's long-term investments in some economic sectors that are more affected by the effects of global warming are also facing the same risks. The assets held by the life insurance industry are mainly long-term assets, which have relatively lower liquidity requirements than the property insurance industry, and are more affected.

### III. THE BUSINESS OPPORTUNITY

Risk develops, so does insurance. The development of risk provides space for the insurance. Climate change is not

entirely a challenge to the insurance industry. The ever-changing climate and the adjustment of China's economic structure to reduce greenhouse gas emissions have provided new business opportunities for the insurance industry.

In terms of underwriting business, the increased risk of climate disasters will definitely increase the urgency of risk transfer for policyholders, and the development of clean energy and low-carbon economy will also generate a large number of new risk targets. Insurance companies can seize development opportunities and provide a series of insurance products related to climate change.

In terms of investment business, a series of strategic measures to mitigate climate change have also brought investment opportunities to the insurance industry. The current global economy is making great strides towards a low-carbon economic model based on low energy consumption, low pollution, and low emissions. The related technological innovation, new energy development, and industrial transformation will generate huge capital demand and infrastructure investment. It provides a rare opportunity for the use of insurance funds.

### IV. COPING STRATEGIES

The insurance industry is an industry that directly manages risks and is at the forefront of the threat of climate change. Therefore, it should take active actions and formulate a comprehensive climate change strategy to adapt to and mitigate climate change. Actively responding to climate change is not only related to the development of the insurance industry itself, but also a manifestation of being responsible to shareholders and consumers. By cooperating with peers, customers and the government, insurance companies can help society prevent the worst effects of climate change on society. They can also provide important incentives for technological and behavioral changes to reduce greenhouse gas emissions.

Giving full play to the functions of risk protection and social management. Purchasing insurance is an effective way to reduce the loss of weather disaster insurance. Insurance companies can improve the original insurance products to make them have the function of responding to climate risks. As climate change will cause extreme weather events to affect new geographic areas, insurance companies can detect these changes and promptly introduce new markets with insurance products that cover these risks and at appropriate prices. Climate change will also affect large economic sectors in different ways. The insurance industry must understand the changing risk profile of its customers and meet their insurance needs. Insurance companies can play the social management functions of insurance to reduce greenhouse gas emissions. Climate change may have an impact on the repair process of claims and insurance subjects. Huge climatic disasters may put pressure on the claims process, as insurance companies may not be able to cope with large-scale claims. In addition, the insured is facing resource shortages for reconstruction after a disaster, and maintenance costs tend to rise rapidly. There is an opportunity for the claims and repair process to be rebuilt in a more sustainable way. The use of environmentally friendly building materials and leading building technology for reconstruction can not only prevent future losses of the insurer, but also reduce greenhouse gas emissions.

Stopping greenhouse gas emissions from causing climate

change, mainly by improving energy efficiency and increasing the use of carbon-free energy. Insurance companies can develop new insurance products related to climate change. The insurance industry, on the one hand, avoids climate risks by providing new insurance products for projects such as green building design, energy-saving and renewable energy, and environmentally friendly vehicles; on the other hand, it adapts to the CDMs demand for carbon credit delivery guarantees and develops carbon trading insurance. The carbon emissions market is growing rapidly, but there are many risks in carbon emissions trading, such as price fluctuations, failure to deliver on time, and failure to pass regulatory certification, which may cause losses to investors or lenders. The intervention of insurance can help diversify Carbon trading risks.

Providing incentives and guiding to consumers and encourage them to reduce greenhouse gas emissions. For example, discounts on insurance rates are provided to families and individuals who use low-displacement hybrid vehicles. Pay as you drive (PAYD), popular in European and American countries, encourages the insured to drive less to reduce emissions. Chinese insurance companies can also launch similar products.

Collecting more comprehensive loss data related to weather and improving the standard of disaster modeling. Strengthen coordination with regulatory agencies on insurance pricing that takes into account climate change factors. In order to avoid the doom of bankruptcy in future terrible disasters, insurance companies must strictly control the procedures of risk assessment, claim settlement and reinsurance.

Further transferring of risks through the capital market and reinsurance market. For example, catastrophe bonds are used to transfer insurance risks to the capital market, and catastrophe reinsurance is used to further diversify catastrophe losses across the world.

Insurance companies have become one of the largest institutional investors in Chinas capital market and can provide a lot of capital for cleaner energy technologies and help drive the move towards a low-carbon economy. It can also use its influence to encourage the companies in which it invests to change their behaviour and respond more effectively to the impacts of climate change.

Strengthening its own emission reduction. Compared with industrial enterprises, insurance companies are not the main greenhouse gas emitters. However, with the rapid development of Chinas insurance industry, insurance practitioners and assets have rapidly expanded, economic activities have become more frequent, and the industries own greenhouse gas emissions have also increased. Not small. Insurance companies have the opportunity to broadly influence society through their own emission reductions. Insurance companies can save energy in office building lighting, cooling, and vehicle usage. Optimizing business processes, such as promoting the use of electronic insurance policies, can also effectively reduce carbon emissions. In addition, insurance companies can also actively participate in energy conservation and emission reduction related public welfare activities. For carbon emissions that cannot be avoided by themselves, insurance companies can achieve carbon neutrality by purchasing carbon offset projects.

Disclosing climate risk. The contents revealed include the impact of climate change on business, the progress of

various measures for climate change risk management, and so on. Climate risk disclosure can provide consumers and investors with decision-making reference.

Analyzing and sharing knowledge and solutions on climate risks,through close cooperation with academic institutions and think tanks. Participate in climate change scientific research and surveys on the economic impact of climate change. Promote environmental and climate change issues to the public.

## V. REGULATORS AND GOVERNMENT DEPARTMENTS

The responsibility of insurance supervision is to ensure the stable and healthy development of the insurance industry and to protect the interests of the insured. Therefore, it is necessary for the regulatory authorities to conduct a comprehensive assessment of the impact of global warming on the insurance industry.

Regulators and government agencies should encourage product development and innovation aimed at mitigating climate risks, and expedite their approval so that policyholders can purchase insurance. Allow insurance companies to charge appropriate risk premiums for these products to reflect actual and expected threats caused by climate change. Individual companies are unlikely to take the initiative to increase premiums, because this will put them at a disadvantage in the competition, and regulators are likely to play a leading role in it.

Encouraging insurance companies to collect more comprehensive loss data related to climate and improve disaster modeling standards. Research to incorporate climate risk into the solvency regulatory framework of the insurance industry. Explore the establishment of a catastrophe reserve system to ensure that the industry has sufficient capital to cope with climate change losses.

Creating a good environment for the insurance industry to participate in the construction of a low-carbon society. Learn from the experience of European and American countries, support the development of auto insurance products based on "mileage", encourage the insured to reduce travel, save energy and reduce emissions.

In terms of insurance investment, it is possible to consider adjusting the existing policies for the use of insurance funds to guide insurance investment towards a low-carbon economy.

Government departments should establish an early warning system, do a good job in land use planning, improve building codes, and strengthen coordination and cooperation between national and international rescue efforts.

## CONCLUSION

The insurance industry should play a more leadership role in understanding and managing the impacts of climate change. Most insurance companies in China have recognized the importance of climate change, but are still waiting to see. Leading insurers should adapt to climate change before its rules are changed. The process of changing the insurance industry will not take place overnight in response to climate change, but the sooner it is implemented, the less he cost will be for the insurance industry and society as a whole.

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