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REPORT ON THE IMPACTS ON CONSUMERS FROM POTENTIAL STATE & NATIONAL LEGISLATION DESIGNED TO PREPARE AND PROTECT CITIZENS FROM NATURAL CATASTROPHES

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May 14, 2007

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INTRODUCTION

ProtectingAmerica.org advocates for a comprehensive, integrated approach to the complex issues involved in dealing with natural catastrophes. This approach, which is based on a stronger public-private partnership at the local, state and national levels, will better prepare and protect America from the consequences of natural catastrophes. Federal and state legislation is recommended to accomplish this goal. H.R. 91 captioned the "Homeowners Insurance Protection Act of 2007," introduced in the U.S. House of Representatives in January, 2007, is one example of this type of Federal legislation. Legislation has been introduced in several states that is based upon a model bill adopted by the National Conference of Insurance Legislators. Milliman, Inc. was retained by ProtectingAmerica.org to provide actuarial and economic analysis of this type of legislation.

SCOPE OF REPORT

Background

Insurance that provides dwelling and contents coverage in catastrophe prone geographic areas is subject to enormous risk. Since "mega-catastrophic" events are characterized by very low frequency and extremely large potential severity, insurance that provides coverage for such events is subject to large potential variation in underwriting results from year to year. In order to have sufficient resources to respond to these exposures, insurance and reinsurance companies must hold extremely large amounts of capital. Because it is exposed to substantial risk, the costs associated with providing this capital are significant. Indeed, shortages of capital and a declining appetite for bearing catastrophic risk, have led to a lack of availability of homeowner insurance by private market insurers in catastrophe prone areas.[1]

Major Features of Legislation

Milliman has been asked to identify and quantify any potential impacts on consumers resulting from possible state and national legislation protecting citizens from natural catastrophes. Legislation enacting a national backstop for natural catastrophes would include provisions in three areas that would impact the price consumers pay for property insurance coverage.

First, state or regional catastrophe funds could be established to add capacity for homeowner insurance coverage against large catastrophic events. The Florida Hurricane Catastrophe Fund

[1] It is well known that when insured exposures are highly correlated, it is considerably more difficult for traditional insurance mechanisms to efficiently provide coverage. Indeed, some have argued that for events with extreme severity and relatively low frequency, such as major hurricanes or earthquakes, the private sector cannot effectively provide adequate insurance coverage. Mr. Robert E. Litan asserted in the Brookings Institution, Policy Brief #150, Preparing for Future Katrinas, "Portions of the Gulf Coast and East Coast are now seeing evidence of insurance market failure in the wake of the 2004 and 2005 hurricane seasons."

("FHCF") and the California Earthquake Authority ("CEA") are examples of existing state catastrophe funds.

Second, a national backstop mechanism could be created that provides additional capacity for higher layers of loss, improves liquidity and addresses timing risk. (These are all issues that have been identified by Robert E. Litan of the Brookings Institution).[2] The national backstop would be coordinated with the state or regional catastrophe funds.

Third, various provisions designed to further prepare and protect consumers and to prevent or reduce the potential property damage from large catastrophic events could be funded through state, regional or national mechanisms. Examples of these other provisions include mandates and resources:

- To improve preparedness;
- To strengthen first responders;
- To educate consumers about catastrophe preparedness;
- To facilitate research, development and implementation of mitigation and prevention initiatives;
- To assist in recovery and rebuilding from natural catastrophes;
- To provide a more rigorous and integrated oversight, coordination and continuous improvement process; and
- To better assist in the financial recovery from natural catastrophes.

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[2] The Brookings Institution, Policy Brief # 150, Preparing for Future "Katrinas", March 2006, www.brookings.edu.

Milliman's Role

The focus of Milliman's actuarial and economic analysis is on the provisions of the proposed legislation relating to the state/regional catastrophe funds and the national backstop. Of course, there are many possible ways to structure the coverage, funding and capacity of the state and national catastrophe funds. For purposes of this analysis, we have assumed specific structures for a state catastrophe fund mechanism (based on a structure similar to the FHCF), and a national backstop mechanism (based on a structure similar to the one contained in HR 91). Some possible variations in the design of these funds will also be discussed later in this report.

Our report will also analyze and discuss the indirect savings to consumers resulting from the other provisions of the legislation listed above.

EXECUTIVE SUMMARY

Milliman was engaged by ProtectingAmerica.org to identify, evaluate and provide an independent analysis of the cost impacts on consumers resulting from the enactment of proposed state and national legislation to protect citizens from natural catastrophes.

This work is intended to help policymakers and the public understand some of the complex issues involved with catastrophe management. In particular, this report is intended to help policymakers and consumers better understand how a stronger public-private partnership with a financial backstop can provide more protection at lower cost for consumers (as we have demonstrated through our analysis). It is important to emphasize at the outset that our analysis confirms that the financial backstop would not replace, but would supplement, the private insurance and reinsurance markets. The approach would generate substantial additional capacity, provide more stability and certainty, and generate significant savings for consumers.

If a national backstop mechanism is enacted and a state catastrophe fund is created in every state included in our analysis, the aggregate direct reductions consumers can realize in their homeowners premiums would exceed $11 billion annually.[3]

Homeowner insurance premiums contain provisions to cover losses to buildings and contents resulting from natural disasters. However, because of the potential for highly correlated losses due to natural catastrophes, insurers must hold large amounts of capital to support their promise to pay claims. Of course, insurance premiums include the costs of exposing these large amounts

[3] This estimate of consumer savings is based on the specific assumptions and calculations documented in this report. Other assumptions regarding the structure and operations of these new mechanisms would produce different estimated savings.

of capital to catastrophic events, as well as the costs of purchasing reinsurance from private reinsurers for layers of catastrophe coverage.

The legislation we have evaluated essentially supplements, at the higher levels, the reinsurance protection related to catastrophic natural disasters through public sector, non-profit mechanisms. The public sector mechanisms charge an actuarially estimated loss cost plus a modest expense load for the layer of coverage, but do not charge for the risk of exposing capital to catastrophic events. For our analysis, we have defined a structure where each state has a state catastrophe fund with a national backstop mechanism which together provides coverage up to each state's 1 in 250 year event. Under this structure, our analysis indicates potential annual reductions in homeowners' premiums of over $11 billion.[4]

Other state catastrophe fund and national backstop structures are also possible. The related consumer savings will move up or down depending on the structural changes, but under virtually any structure that provides meaningful coverage, the potential saving will remain significant.[5]

Either state catastrophe fund or national backstop legislation can authorize funds from the public sector mechanism be used in efforts to further prepare and protect citizens from natural

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[4] "Accordingly, the federal program can charge risk loads that are well below those in the private sector, with the savings passed on to consumers, making catastrophe coverage more affordable and ensuring its availability." See Robert E. Litan, Brookings Institution Policy Brief #150, Preparing for Future Katrinas.

[5] For example, one of our assumptions is that the national backstop coverage limit is a 1 in 250 year event. Raising the national backstop coverage limit to a 1 in 500 year event would increase the overall consumer savings estimates significantly.

catastrophes. We have discussed the general effects of these efforts in the Indirect Savings of Legislation section of this report. Mitigation or retrofitting efforts will produce additional saving to consumers in the form of lower homeowners' insurance premiums by decreasing the underlying loss costs. Strengthening and enforcing building codes and improving land use policies and practices can also have a measurable effect on decreasing the underlying loss costs associated with insuring against losses from natural catastrophes.[6]

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[6] AIR Worldwide Corporation ("AIR") has studied the effectiveness of building codes designed for hurricane prone areas and concluded that the estimated impact on losses from applying building codes to all buildings in hurricane prone areas is an approximate 30% reduction in average annual loss.

STRUCTURE OF A STATE CATASTROPHE FUND AND NATIONAL BACKSTOP MECHANISM

To estimate consumer cost savings, we have made certain assumptions about how the state catastrophe fund/national backstop mechanism might be structured. These assumptions are based on some of the concepts contained in HR 91 and the current structure of the FHCF. In this section we address the major issues that arise in designing such mechanisms, discuss some variations in the potential structure of the state and national catastrophe funds, and document the structure that was used in our cost savings analysis.

Perils

The catastrophe fund mechanism can be designed to cover some, or all, naturally occurring perils as defined in the legislation. We have focused on the perils of hurricane and earthquake because these are the perils that will result in the most severe insured losses. In our analysis, we have assumed that the catastrophe funds would provide layers of catastrophe coverage for specific events. The specific events covered would be named storms designated as hurricanes and all earthquakes.

Covered Dwellings

The catastrophe fund mechanism can be structured to cover all residential and commercial buildings, or some subset of these buildings. Residential dwellings would include private homes, multi-family homes, and mobile homes. Commercial residential buildings would include rental units and large condominium buildings. Commercial buildings would include all structures used for commercial purposes, such as retail outlets, office buildings and governmental buildings (e.g., schools and municipalities).

Homeowner policies generally cover damage to the building, damage to contents and additional living expenses when the dwelling is not habitable after an event. Commercial policies generally cover damage to the building, damage to contents and inventories, and business interruption. The types of buildings and types of losses that would qualify for coverage under the state or national catastrophe fund would be defined in legislation.

In our analysis, we have assumed that the state and national catastrophe funds would cover insured losses to the building, contents and additional living expenses. We have further assumed that these catastrophe funds would cover policies for homeowners, renters, condominium owners and mobile homeowners.

Participation Level

Currently the FHCF has participation percentage options of 45%, 75% and 90% which primary insurers can choose at their own discretion. Under the 90% participation option, for example, the state catastrophe fund would reimburse the primary insurer for 90% of the covered losses in the covered layer. Currently, the vast majority of Florida primary insurers elect the 90% participation option.[7] In our analysis we assumed a 90% participation level in the state funds and a 100% participation level in the national backstop.

[7] This is not surprising in light of the fact that the FHCF provides reinsurance at significantly lower cost compared to private reinsurance.

Funding

The state and national catastrophe funds' primary source of revenue would be charges to primary insurers related to the reinsurance coverage being offered. Using one or more catastrophe models, the actuarially indicated pure premium or loss cost for the coverage layer can be calculated. Another potential source of revenue for the catastrophe funds is an allocation from general revenues of the government entity. A third source of revenue is the investment income earned on the cash balances held by the catastrophe funds. Other sources of revenue such as extra sales tax revenue due to rebuilding after a catastrophic event, a real estate transaction tax, etc. could be included in potential state catastrophe fund legislation. In addition, if there is perceived to be a need for an initial cash infusion, a provision for a rapid cash build up could be included in the legislation, as was the case in the Florida legislation regarding the FHCF. This additional revenue could be obtained by initially charging primary insurers more than the actuarially indicated loss and expense costs for the catastrophe coverage. Primary insurers could be charged 110%, 125% or even 150% of the indicated cost.

The funding of a catastrophe fund must also contemplate the expenses of administering the fund and any legislative provisions allocating funds for mitigation or other catastrophe preparation efforts.

An actuarially estimated charge to primary insurers for the catastrophe coverage, the expenses of running the fund and the costs of any mitigation or catastrophe preparation efforts would, in the long run, generate enough revenue for the fund to achieve a break-even operating result. In particular, over a long period of time, the investment income in years when the fund has a positive balance will be offset by interest paid on bonds when the fund is in a deficit position.[8] However, significant potential annual variation in covered losses creates some probability that the fund, especially in the initial years of operation, may not have adequate resources to pay all covered losses. This eventuality can be covered by the ability of the fund to issue bonds which would ultimately be retired through future charges to primary insureds and/or emergency assessment provisions. The emergency assessment provision can be structured in the legislation to apply similar to a premium tax for the property lines of business as well as other lines of business.

In our analysis, we have assumed that the primary insurer will be charged the actuarially indicated loss cost generated from the AIR model plus a provision to cover the administrative expenses of the fund.[9] The administrative expenses of the FHCF have been slightly less than 1% of premiums, or approximately $5 million annually. However, the annual premiums for catastrophe funds in other states will be substantially less than in Florida; hence, the administrative expenses will likely be a slightly higher percentage of premiums than in Florida.[10] In our analysis, we have assumed that the expenses necessary to cover the administrative expenses of a state fund will be the greater of $3 million or 1% of premium. The

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[8] This conclusion depends on several conditions including the assumptions of perfect capital markets (i.e., the fund has the ability to borrow and lend unlimited amounts at a constant rate) and complete participation by all entities in all years.

[9] AIR Worldwide Corporation ("AIR") is one of the world's largest providers of catastrophe modeling services to insurers, reinsurers and others.

[10] The larger is the premium base, the greater the volume of business over which to spread the fixed costs of administration. If premium volume is substantially lower than in Florida, it is probable that the total administrative costs will exceed 1% of premium but would still likely remain small.

provision to cover administrative expenses of the national fund has been assumed to be 1% of premiums, although it could be less, especially over time.

We have further assumed that the cost for mitigation programs and catastrophe preparation would be covered by investment income earned by the catastrophe funds and any other investment income earned would remain in the fund to cover losses. In the FHCF, premiums are increased by 5% to cover loss adjustment expenses and loss payments by the fund are increased by 5% to cover the expense of adjusting covered claims. For simplicity, we have not included a loss adjustment expense provision in our calculations.

While the assumptions above form the foundation of our analysis in this report, many other funding variations are possible. Additional calculations can be made for specific legislative provisions for variations in funding, bonding and expenses of a catastrophe fund.

Layers of Coverage

For simplicity, we have assumed that the state and national catastrophe funds will provide catastrophe reinsurance to primary insurers only. In actual practice, each primary insurer will have a different layer of catastrophe reinsurance based on its exposure in a state. However, rather than attempting to model every primary insurer individually, our model assumes that there is a single primary insurer in each state. As to the coverage provided, the actual layer of catastrophe losses covered by a state's fund will be defined by legislation, with many possible industry-wide attachment points and limits. To make our analysis tractable, we have assumed what we believe is a reasonable layer of coverage for each state in the study. In addition, we have assumed that the national backstop mechanism would provide coverage from the state catastrophe fund limit or capacity up to a predetermined limit.

We have constructed a simple example to illustrate the layers of coverage for a catastrophic event under a state catastrophe fund and national backstop model. The charts contained in Attachment A are based on a hypothetical State x, where the state fund provides coverage from $5 billion to $10 billion at a 90% participation level and the national backstop facility provides coverage from $10 billion to $50 billion. Page 1 of Attachment A displays the layers of coverage provide by the primary insurer, the state cat fund and the national backstop. We assumed that a catastrophic event occurs in State x producing covered losses of $15 billion. Page 2 of Attachment A displays the amount of loss covered by each of these entities.

The layers of loss exposure covered by each state catastrophe fund used in our analysis are displayed in Attachment B. The national backstop attachment point is the limit of the state fund coverage. The limit of the national backstop coverage is the 1 in 250 year aggregate loss. The national catastrophe fund attachment points and limits used in the analysis for each state are also listed in Attachment B.

To place these assumptions in context, consider the experience of the FHCF during its brief history. The FHCF coverage layer has varied over its existence, for many reasons. Throughout its history the fund has provided a layer of coverage close to the layer of a 1 in 10 year event to a 1 in 50 year event. Based on the latest AIR model, the layer of coverage in Florida from the 1 in 10 year event to the 1 in 50 year event is approximately from $5.8 billion to $27.8 billion.

We have analyzed the 1 in 10 year to 1 in 50 year event layers in other states, and have concluded that in many states the catastrophe fund would start providing coverage at fairly low levels. For example, in Louisiana, the 1 in 10 year event is a catastrophe producing $523 million of covered industry losses. For an individual insurer with a 10% market share, reinsurance coverage from the state catastrophe fund would begin at a loss of about $52 million. This is a much lower attachment point than most primary insurers would use for their own private reinsurance coverage. As a result, for our analysis, we have chosen a minimum of $2 billion for the attachment point of any state catastrophe fund.[11]

HR 91 defines the limit of the national backstop to be the 1 in 500 year event, with an overall limit across all states and regions of $200 billion. Companies that purchase reinsurance generally buy layers of coverage somewhat lower than the 1 in 500 year event. For example, it is not unusual for a company to purchase catastrophe reinsurance up to the 1 in 250 year event. For our analysis we have chosen to limit the national backstop coverage at the 1 in 250 year event. Consumer savings for a higher national backstop coverage limit will be greater than those quantified in our analysis.

HR 91 contains provisions to lower the attachment point of the national backstop layer in various situations including the start up of a new state catastrophe fund and a decrease in the capacity of a state fund due to a covered event. We have assumed the national backstop layer over each state catastrophe fund will be established annually so that no gap in coverage will exist between the state fund and the 1 in 250 year event.

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[11] Lower attachment points are certainly possible, and further analysis can be done to quantify consumer cost savings for other layers of coverage. Our preliminary assessment suggests that these savings would be significant.

In addition, the national backstop coverage in HR 91 is designed to cover the aggregate losses from multiple events in the same year. A state catastrophe fund can also be structured to cover multiple events in the same year or, as was the case with the FHCF, have an aggregate limit subject to separate retentions for each event. Other variations are also possible. According to HR 91, the national backstop layer would begin when coverage for the state catastrophe fund reaches its capacity (either from a single event or from multiple events). Thus, for each event, aggregate losses will all be covered by either the state or national funds. For simplicity of the calculations, our analysis is based on aggregate annual losses, as opposed to occurrence or event losses. Our model applies the state catastrophe fund limits and the national backstop limits based on annual losses for all covered events combined.[12]

The national backstop coverage in HR 91 is designed to attach at the capacity of each state catastrophe fund. During the initial years of a state catastrophe fund and after an event consumes the capacity of a state fund, the national backstop is designed to attach at a lower layer of coverage. When a state catastrophe fund has reduced capacity, the layers used in our calculations will overstate the savings arising from the state catastrophe fund and understate the savings arising from the national backstop. In our analysis, we have intended to capture the long term split between state and national funds contemplated by HR 91. In short term situations where the capacity of a state fund is reduced, some of the cost savings is shifted from the state fund to the national backstop, however the total cost savings is not affected.

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[12] If a state catastrophe fund offers reinsurance under a structure other than aggregate annual losses, our cost savings calculations may somewhat overstate the actual savings due to the state catastrophe fund.

CONSUMER COST SAVINGS CALCULATIONS

Overview

Our analysis includes states where the 1 in 250 year event from a hurricane or earthquake is measurably greater than $2 billion. For each state, we have selected the layer of coverage for the state catastrophe fund and for the national backstop mechanism as displayed in Attachment B. In the state catastrophe fund analysis, we have estimated the cost the primary insurer would pay for reinsurance provided by the state catastrophe fund. We have also estimated the cost of this coverage if primary insurers purchased this reinsurance from reinsurers. The difference is the estimate of statewide premium savings resulting from implementation of a state catastrophe fund with the structure discussed in this report.

The national catastrophe fund analysis was performed in a similar manner. The cost of reinsurance paid by primary insurers for the national backstop layer of coverage was estimated based on the AIR model results. We also estimated the cost of this layer of coverage if purchased from reinsurers. The difference is the estimate of premium savings resulting from implementation of a national backstop catastrophe fund.

The savings to consumers arises from the fact that the state and national catastrophe funds are assumed to set prices as the sum of the actuarially indicated pure premium plus a very modest expense loading. This cost is then compared to the cost of private reinsurance, which is comprised of the actuarial pure premium, a substantially higher expense load, plus, most notably, a significant risk margin applied to losses. This risk margin is the provision in the premium that provides for a return on the capital required to support the catastrophe exposure. Because the amounts of required capital are extremely large, and the required return is high (given the risk of the exposure), the indicated risk margin or underwriting profit factor in reinsurance prices is quite high. Since the state and national catastrophe funds are assumed to impose no charge for this risk, the resulting premium will be substantially lower, generating significant savings for consumers.[13]

Loss Cost Data from AIR Worldwide Corporation ("AIR")

AIR provided an analysis of potential industry-wide losses by state for the hurricane and earthquake perils. The AIR output provides aggregate annual losses as if all residential insurance policies were written by a single primary insurance company. Included in the output from AIR were the average annual aggregate losses for various layers of coverage in each state. The average annual aggregate losses were used in our analysis. The industry residential exposure database used by AIR represents amount of insurance values as of December 31, 2005.[14] The aggregate annual losses from catastrophic events will increase each year due to population growth and inflationary impacts on the replacement cost of dwellings and contents. We have not made any adjustments in our analysis for the impact of these factors. However, both the pure premium in the state catastrophe fund layer and the cost of reinsurance for the same layer will be impacted by population growth and inflation. Therefore, the impact of these factors on our analysis will be a modest understatement of consumer savings.

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[13] Another factor that gives rise to savings from a public-sector reinsurance mechanism is the fact that such funds are assumed to be tax exempt. Private sector reinsurers must charge a price that provides for a fair and reasonable after-tax return on capital, which increases the required risk margin, and ultimately the price of reinsurance, relative to a tax exempt alternative.

[14] For the earthquake peril, the client has asked us to quantify the potential savings due to the legislation assuming all consumers in earthquake prone areas purchase the coverage. Not all consumers in these areas purchase earthquake coverage today. Our quantification of savings for the earthquake peril includes current savings for consumers purchasing the coverage and potential saving for consumers deciding to purchase the coverage in the future.

Appendix I provides some background on the construction and output of catastrophe models.

Rates on Line for Catastrophe Reinsurance Coverage

The premium charged for reinsurance coverage is generally quoted using a concept known as "rate on line" ("ROL"). For example if the layer of coverage provided is $5 billion in excess of $2 billion, the primary insurer would retain the first $2 billion of losses and the reinsurer would cover the next $5 billion of insured losses up to a total of $7 billion. If the ROL for this coverage was 10%, then the reinsurance premium would be the layer of coverage ($5 billion) times the ROL (10%), or $500 million.

We obtained current and historical ROLs for catastrophe reinsurance from several different sources. The ROLs vary depending on the expected value of losses in the covered layer and the probability of having a loss in the covered layer. Generally, as the probability of loss increases, the ROL will also increase. The ROL for catastrophe reinsurance also varies by state because the expected value of losses in a covered layer varies by state.

Benfield provided current ROLs for each state for various layers of coverage based on their knowledge of the reinsurance market. Benfield also provided ROLs for comparison from 2003. Other publicly available ROL data was obtained from reports published by Guy Carpenter and Lane Financial, LLC. All of our data sources indicate that ROLs available in the private insurance market increased significantly between 2003 and early 2007. In our analysis, our calculations of the impact of introducing state catastrophe funds and a national backstop are intended to reflect a long-term average. In order to approximate the long term average ROLs, we selected ROLs for each state between the 2003 and current values provided by Benfield.

The Guy Carpenter data can be found in their September 2006 report titled, "The World Catastrophe Reinsurance Market: Steep Peaks Overshadow Plateaus." Within this report, catastrophe reinsurance ROLs are compared to the likelihood of a covered loss. The Lane Financial data can be found in their April 2006 report titled, "How High Is Up? The 2006 Review of the Insurance Securitization Market." This report contains catastrophe bond yields for securities issued by several different corporations.

All three data sources (Benfield, Guy Carpenter, and Lane Financial) contain information that allows us to evaluate the ROLs for different layers of coverage, the probability of incurring a loss in that layer, and the type of loss being covered. Benfield's data was the most detailed, providing ROLs separately for individual states and for numerous layers of coverage within each state. The data from Guy Carpenter was extracted from a chart that plotted the 2005 and 2006 ROLs for U.S. catastrophes against the likelihood of loss. In evaluating the data from Lane Financial, we selected the ten catastrophe bonds issued after Hurricane Katrina that cover losses caused by U.S. earthquakes or windstorms, including hurricanes.

A catastrophe bond (cat bond) securitizes a layer of loss when an investor provides an amount of capital equal to the entire layer that is being covered. The funds are deposited into an account that yields the risk free rate (LIBOR). The return the investor receives is LIBOR plus a risk premium; however, the investor is subject to loss if a covered catastrophic event occurs during the term of the security. The expected "profit" on this investment is the difference between the risk premium and the expected value of loss in the layer being covered. The details of the ten securities we evaluated are listed in a table found in Attachment F, including the expected annual loss and risk premium above LIBOR, as discussed above. In order to compare cat bonds to the data from Benfield and Guy Carpenter, we used the Probability of First Dollar Loss and a Rate on Line equivalent to an adjusted Risk Premium above LIBOR (adjusted from a 360-day rate, which is typical for LIBOR, to a 365-day rate). These two statistics are comparable to the probability of loss and ROL found in catastrophe reinsurance contracts, respectively.

The ROLs from Benfield, Guy Carpenter, and Lane Financial are summarized in the chart included as Attachment G. For simplicity and clarity, we chose to include Benfield data from a single sample state (Louisiana) rather than data for each state in this chart. The ROLs from all three sources of data consistently increase as the probability of loss increases. The Louisiana ROLs provided by Benfield are lower than the ROLs from the other sources. The variation in the ROLs at various probabilities of loss among the three sources of data can be attributed to such things as differences in the types and locations of risks being covered, differences in when the ROLs were issued, and differences in the duration of the coverage.

The ROL data provided by Benfield was the most detailed of the three sources. Since the ROLs provided were state specific, Benfield was able to identify the potential peril in each state. For most of the Gulf and East Coast states, the coverage was specific to hurricanes; for states like California, Washington, and Oregon, the coverage was specific to earthquake; and for a state like South Carolina, the reinsurance coverage underlying the ROL reflected both hurricane and earthquake perils.

Not surprisingly, the ROLs at various probabilities of loss vary by state and peril. ROLs provided by Benfield from six states are included in a chart labeled Attachment H. This chart includes states with both the hurricane and earthquake perils and includes the range of ROLs by state.

The Lane Financial data used in our analysis is contained in Attachment F. In most cases the cat bonds cover multiple perils and apply in multiple states. In contrast to this, the Guy Carpenter data was a more global perspective of all U.S. property catastrophes.

Another difference in the three data sources that contributes to the variation in the ROLs is the timing of the coverage. Benfield provided ROLs from both 2003 and late in 2006, the data from Guy Carpenter included information from 2005 and 2006, and the cat bonds from Lane Financial included securities issued from 2002 to February, 2006. All three sources of data showed significant increases in the market ROLs after Hurricane Katrina in August of 2005. As previously discussed, to better reflect a long-term average ROL, we selected a ROL for each state between Benfield's current and 2003 ROLs.

After considering the expected differences in ROLs discussed above we believe the Lane Financial and Guy Carpenter data corroborates the selected ROLs used in our analysis. These other sources indicate that our selections are conservative on the low size.

Typically, private catastrophe reinsurance is purchased to cover the first event, and a reinstatement limit is offered at additional premium if any of the first event coverage is used. In our model, we selected ROLs that contemplate coverage for aggregate annual losses from covered events to be consistent with the coverage contemplated by HR 91. The cost of private catastrophe reinsurance for aggregate annual coverage could be estimated by first estimating the cost of the first event cover and then estimating probabilities of the need to purchase second event covers. Instead, we have chosen to estimate aggregate annual coverage directly by contemplation of the higher expect loss value (aggregate vs. single event) in our selection of ROLs for the layers covered by the state catastrophe funds and national backstop.

State Fund Analysis (Attachment C)

Our analysis of consumers' savings from state catastrophe funds is included in Attachment C. The calculations are based on the attachment point and state catastrophe fund limit from Attachment B. The ROL for the layer of coverage offered by each state catastrophe fund was selected based on data provided by Benfield and other publicly available information discussed above. In the state fund analysis, we have assumed that the fund will only offer coverage for 90% of the layer. The estimated cost of reinsurance is calculated by taking 90% of the product of the ROL and the amount of coverage. The pure premium for the layer of coverage offered by the state catastrophe fund obtained from AIR analysis is shown next. The estimated cost of state catastrophe reinsurance is calculated from the pure premium, adding a provision for administrative expenses the state catastrophe fund, and assuming a 90% participation level. The difference between the premiums for private reinsurance coverage and the premiums for the state catastrophe fund coverage is the statewide savings realized by consumers.

A version of a state catastrophe fund already exists in both Florida and California. These states were included in Attachment C for illustrative purposes. The last row on Attachment C shows the total for all states excluding Florida and California, which reflects the potential savings for consumers purchasing homeowner insurance, if a state catastrophe fund is implemented in the remaining states included in the analysis. Additional consumer savings are possible in Florida and California from a national backstop mechanism.

National Backstop Analysis (Attachment D)

Our analysis of consumers' savings from the national backstop is similar to the state fund analysis and is included in Attachment D. The participation level is assumed to be 100%, instead of the 90% used in the state fund analysis. Otherwise all other calculations are identical.

Total Savings (Attachment E)

The estimated consumer savings by state for both the state and national funds is included in Attachment E. In addition, we have estimated the number of residential dwellings in each state from census data. The total savings is divided by the number of dwellings to calculate an average savings per consumer in each state.

OTHER STATES AND CATASTROPHE FUND STRUCTURES

As discussed earlier in this report many variations of catastrophe fund structures are possible. The attachment point of a state fund would be established by legislation. Several states were not included in our original analysis because the projected 1 in 250 year event was less than $2 billion. This was done for convenience and simplicity of the analysis and is not intended to imply that states with smaller amounts of potential loss from natural catastrophe cannot establish a state catastrophe fund and benefit from a national backstop mechanism.

We have included an example of how a state catastrophe fund with a national backstop mechanism could be structured for the state of Rhode Island, one of the states excluded from our analysis because the 1 in 250 year event was less than $2 billion. The attachment points and limits were selected based on the potential state losses from hurricanes. In our example, the state catastrophe fund would cover industry losses between $321 million and $686 million. The national backstop would provide coverage for industry losses from $686 million to $1.96 billion. The potential consumer cost savings was derived in the same manner as for other states included in our analysis and is shown on Attachment I.

We assumed that the Rhode Island fund would attach at a much lower probability of occurrence (2%) and the upper limit of the national backstop would be extended to the 1 in 500 year event. This fund would operate the same as state funds illustrated in our original analysis, but would have the advantage that a major event in the initial years of the fund would be less likely in Rhode Island than in other states.

A similar state fund/national backstop structure could be used in Pennsylvania, Maryland, Delaware, New Hampshire, Maine, Missouri, Arkansas, Tennessee and Kentucky.

HOW DOES A CONSUMER SAVE?

The premiums charged by the primary insurers should be lower if catastrophe coverage is available from a state fund and a national backstop as opposed to retaining the risk or purchasing private reinsurance. Primary insurers file rates with state regulatory agencies in each state. Although the methodology used varies by company, rate filings follow the ratemaking principles established by the Casualty Actuarial Society ("CAS") -- most importantly, the principle that the rate include all costs associated with the transfer of risk. In the case where a primary insurer purchases reinsurance, the cost of reinsurance in excess of the pure premium is built into ratemaking methodology. Also, a relatively small number of companies do not buy catastrophe reinsurance; however, in such cases these companies retain the risk of exposing their surplus to catastrophic events and this additional risk is generally built into their rates. The risk of providing homeowner insurance in catastrophe prone areas is the same whether it is reinsured or retained by the primary insurer. The reinsurers include a provision in the reinsurance premiums to cover the risk of exposing their capital to large catastrophic events. In our analysis, we assumed that the risk margin included by reinsurers in their reinsurance premiums is an estimate of the additional risk retained by the primary insurers that do not buy catastrophe reinsurance for the layers included in our analysis.

We have reviewed recent rate filings made by primary insurers in catastrophe prone states. Although the exact methodology varies by company, almost all filings include provisions for the additional risk associated with large catastrophic events in the higher layers of coverage. Using the risk load inherent in reinsurance premiums is a reasonable proxy for the cost that will be paid by consumers in their homeowners premiums in the long term.

When legislation creating a state catastrophe fund or the national backstop is enacted, primary insurers could be required to make rate filings to reflect the changes to their expected costs. The costs of the reinsurance premiums and additional risk associated with catastrophe events are replaced by the reinsurance premiums charged by the state fund and national backstop. Our analysis calculates the difference in these costs on a statewide basis, and this represents an estimate of the aggregate statewide long term premium difference for consumers when a state catastrophe fund and national backstop mechanism is implemented in a state. Ratemaking methodologies usually account for variable expenses (such as premium tax and commissions) by applying a multiplicative factor to the loss and non-variable expense provisions. Consumers will potentially realize more reduction in their premiums than contemplated in our calculations since variable expenses will be reduced in the same proportion as the decrease in the cost of reinsurance and risk charge for the layers reinsured by the catastrophe funds.

The pure premiums associated with catastrophes vary significantly by geographic location of the dwelling. Insurance rates also vary by geographic location based on the methodology used by the primary insurers in the ratemaking process. Ultimate premium savings will therefore vary for individual consumers in proportion to the underlying costs of catastrophe coverage included in their current premiums. We have provided estimated average premium savings per consumer on a statewide basis in this report. We have not attempted to estimate the cost savings in a finer geographic breakdown because of the complexity of such calculations. On average, consumers that live in coastal counties should realize the largest savings, while consumers that live in inland counties should realize less savings.

CONCLUSIONS OF DIRECT SAVINGS

A summary of the potential consumer savings resulting from creation of a state catastrophe fund with a national backstop mechanism is included in Attachment E. If a national backstop mechanism is enacted and a state catastrophe fund is created in all the states included in our analysis, the aggregate reductions consumers can realize in their homeowners premiums would be in excess of $11 billion. The estimated savings amounts do vary by state in proportion to the underlying average loss costs for the natural disaster perils. The largest impact would be the creation of a national backstop mechanism for Florida and California.

OTHER POTENTIAL CONSUMER COSTS

It is true that the cost of replacing buildings and contents damaged in a natural catastrophe event does not change as a result of simply enacting legislation described in this report. Under this type of legislation, a layer of the losses from large events are covered by the state catastrophe funds and the national backstop mechanism instead of by the surplus of direct insurers and private reinsurers. The risk under a state catastrophe fund and national backstop structure is the potential for a large event to occur early in operation of the new mechanisms, when there are not enough accumulated funds to pay for covered losses.

Currently, the FHCF legislation covers this risk by allowing the fund to issue bonds. The bonds are backed by future assessments on Florida insurance policyholders for most property/casualty insurance policies. The Florida law limits the annual assessment to 10%. The surcharge mechanism is what enables the fund to secure financing through bond issuance.

As mentioned previously, theoretically in the long run, you would not need to surcharge other policyholders[15]. However, the long term is over thousands of years and there is a probability that a large natural disaster in the early years of the legislative structure will occur and will need to be funded. There are options on how to structure the funding mechanism of the state catastrophe funds. The probability that a state catastrophe fund will not have enough funds to pay losses in a covered layer can be reduced by state contributions to the fund, by including a

[15] In the long run, the investment income in years when the fund has a positive balance will be offset by interest paid on bonds when the fund is in a deficit position. This conclusion depends on several conditions including the assumptions of perfect capital markets (i.e., entities can borrow and lend at the same interest rate) and complete participation by all entities in all years.

rapid cash build up factor in the state catastrophe premium, and by effectively using appropriations for mitigation to reduce the damage to buildings from future natural disasters.

The national backstop can be structured to provide financing to state catastrophe funds, and eliminate or reduce the need for bonding and assessments by the state catastrophe fund. If the national backstop were functioning in all the states included in our analysis, the probability of the national backstop operating in a deficit position would be reduced because of the pooling across all states of the higher layer of coverage. An event would be funded by national backstop funds collected from all states, and paid back over time. In the long run the consumers who benefit from the coverage would pay the costs of the coverage, but the costs of the coverage would be lower than if insurers purchased catastrophe coverage from the private reinsurance market.[16]

[16] Milliman is available to work with ProtectingAmerica.org to assist policymakers in quantifying and understanding any potential structural options for state catastrophe funds or the national backstop mechanism.

INDIRECT SAVINGS OF LEGISLATION

As noted earlier, an important component of the proposed legislation is the allocation of funds to support various forms of catastrophe preparedness, including strengthening first responders, improving prevention and mitigation programs, and mandating continuous improvement in consumer education. These activities are intended to reduce the real societal costs of catastrophic events, as opposed to just reducing the cost of insuring against the losses from such events. This approach is consistent with basic theories of insurance economics, which identify loss prevention, loss mitigation and the purchase of insurance (in effect, loss transfer) as different methods of managing risk. Obviously, it is in society's interest to incur the smallest aggregate cost possible to control the risks it faces from natural catastrophes.

To that end, the legislation mentions certain specific measures, as shown below:

- Instilling a new culture of preparedness
- Funding new research and development for better prevention and mitigation including retrofitting, helping consumers build stronger and safer homes;
- Achieving a new level of public education and making sure consumers not only know how to be better prepared but also how to make sure they have adequate insurance;
- Mandating more appropriate land use management;
- Advancing improved construction standards;
- Mandating stronger, modern building codes; Enforcing those codes; and
- Developing new building materials and/or building techniques.

Any of these measures that can be undertaken at a cost less than the loss cost savings resulting from the initiative should clearly be encouraged; in the long run the social costs of catastrophic events will be lower as a result. Therefore, to the extent that these measures are demonstrated to produce aggregate cost savings, the legislation will provide a mechanism for implementing such measures on a broad scale.[17]

[17] There is another important consideration relating to this aspect of the legislation that should be noted. Since the primary purpose of the state and national legislation is to reduce the cost of insurance, there is a legitimate concern that the program could reduce the incentives to undertake loss prevention and control activities. Generally speaking, the lower are insurance costs, the more consumers will prefer the purchase of insurance to other forms of risk management such as mitigation. To minimize this possible problem, it is useful to specifically target measures such as these.

LIMITATIONS AND QUALIFICATIONS

LEGEND: This work product was prepared solely to provide assistance to ProtectingAmerica.org. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends a third party recipient be aided by its own actuary or other qualified professionals when reviewing the Milliman work product.

Data Reliances:

In performing this analysis we have relied on data and other information provided to us by AIR Worldwide Corporation, Benfield, Inc., and reports publicly available produced by Guy Carpenter and Lane Financial. We have not audited or independently verified this data and information for accuracy. Such a review is beyond the scope of our assignment. If the underlying data or information is inaccurate or incomplete, our analysis may likewise be inaccurate or incomplete.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency. We did not find material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or relationships that are materially inconsistent. Such a detailed review was beyond the scope of our assignment.

Our estimates of cost savings derived in this report are based on a specific fund structure and the assumptions described in the report. Actual savings may differ due to different fund structure and market conditions at the time a fund or national backstop is introduced.

Distribution:

Milliman's work is prepared solely to provide assistance to ProtectingAmerica.org. Milliman does not intend to benefit and assumes no duty or liability to other parties that receive this report. In the event this report is distributed to third parties, the report must be provided in its entirety. We recommend that any such party have its own actuary review this report to ensure that the party understands the assumptions and uncertainties inherent in our estimates. This report may not be filed with the SEC or other securities regulatory bodies.

It has been our pleasure to assist ProtectingAmerica.org on this important project. If you have any question please call us to discuss. We would be glad to assist you with any further analysis.

Sincerely,

David R. Chernick, F.C.A.S., M.A.A.A.
Consulting Actuary

David Appel, PhD
Principal and Director – Economics Consulting

DRC/DA/sbs

May 14, 2007

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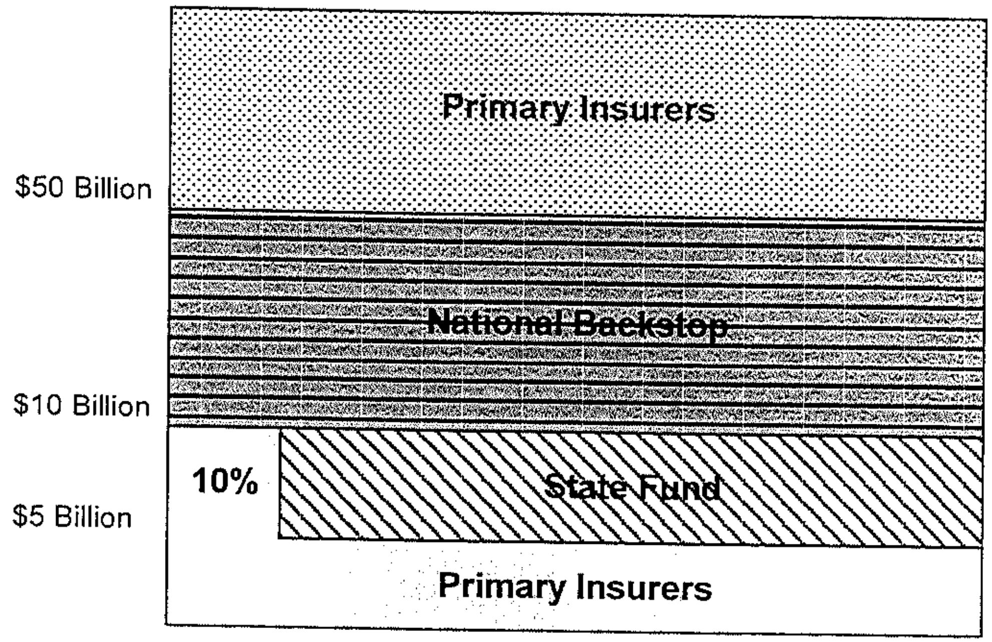
Hypothetical State X
Illustration of Layers of Catastrophe Coverage



90% Participation Level for State Fund

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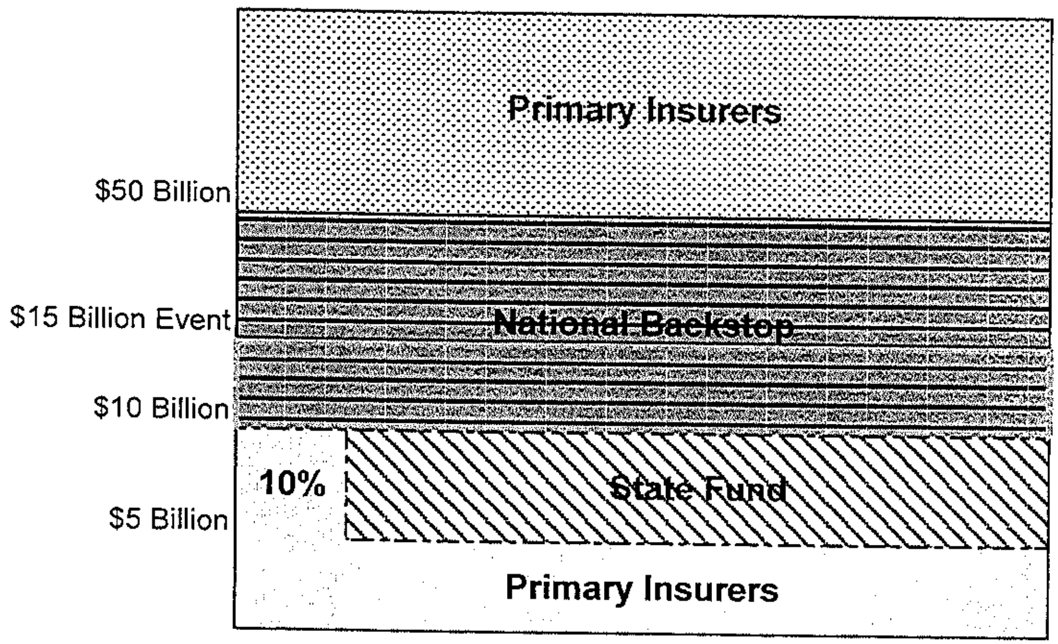
Hypothetical State X
$15 Billion Event Example



Event Losses	
Primary	$5.5 Billion
State	$4.5 Billion
National	$5.0 Billion

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Cat Fund Coverage Assumptions

State	State Fund Attachment Point	State Fund Limit/National Fund Attachment Point	National Fund Limit (1 in 250)
Texas	$2,000,000,000	$7,000,000,000	16,000,000,000
Louisiana	2,000,000,000	7,000,000,000	8,400,000,000
Mississippi	2,000,000,000	4,500,000,000	5,600,000,000
Alabama	2,000,000,000	4,500,000,000	5,900,000,000
Florida	5,800,000,000	27,800,000,000	73,100,000,000
Georgia	2,000,000,000	3,200,000,000	
South Carolina	2,000,000,000	7,000,000,000	12,700,000,000
North Carolina	2,000,000,000	7,000,000,000	9,800,000,000
Virginia	2,000,000,000	4,000,000,000	
New Jersey	2,000,000,000	4,500,000,000	7,200,000,000
New York	2,000,000,000	10,000,000,000	12,000,000,000
Connecticut	2,000,000,000	3,500,000,000	
Massachusetts	2,000,000,000	4,500,000,000	6,400,000,000
Washington - EQ	2,000,000,000	7,000,000,000	19,600,000,000
Oregon - EQ	2,000,000,000	7,000,000,000	9,600,000,000
California - EQ	5,000,000,000	12,000,000,000	59,800,000,000

States Not Included in the Analysis - 1 in 250 Year Aggregate Annual Losses Less Than (or Close to) $2 Billion

State	1 in 250 Year Loss
Missouri - EQ	1,300,000,000
Arkansas - EQ	1,700,000,000
Tennessee - EQ	2,100,000,000
Kentucky - EQ	700,000,000
Pennsylvania	1,900,000,000
Maryland	1,200,000,000
Delaware	300,000,000
Rhode Island	1,400,000,000
New Hampshire	500,000,000
Maine	700,000,000

Attachment C

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Consumer Savings From Formation of New State Funds

		(1)	(2)	(3)	(4) = [(2)-(1)]*(3)*.9	(5)	(6) = (5)+expenses	(7) = (4)-(6)
State	Peril	State Fund Attachment Point	State Fund Limit	Selected Rate On-Line	Estimated Annual Reinsurance Premium for Layer	Modeled Pure Premium for Layer	Estimated State Cat Fund Premium	Estimated Cost Savings
Texas	HU	2,000,000,000	7,000,000,000	14.6%	658,968,750	165,835,151	168,835,151	490,133,599
Louisiana	HU	2,000,000,000	7,000,000,000	10.5%	470,571,429	71,125,889	74,125,889	396,445,539
Mississippi	HU & EQ	2,000,000,000	4,500,000,000	3.5%	78,750,000	18,014,402	21,014,402	57,735,598
Alabama	HU	2,000,000,000	4,500,000,000	7.9%	177,187,500	25,476,969	28,476,969	148,710,531
Florida	HU	5,800,000,000	27,800,000,000	23.6%	3,534,413,829	844,790,883	853,238,792	2,681,175,037
Georgia	HU	2,000,000,000	3,200,000,000	1.8%	19,938,462	5,565,876	8,565,876	11,372,585
South Carolina	HU & EQ	2,000,000,000	7,000,000,000	10.5%	472,500,000	69,187,537	72,187,537	400,312,463
North Carolina	HU	2,000,000,000	7,000,000,000	11.0%	496,323,529	73,129,130	76,129,130	420,194,399
Virginia	HU	2,000,000,000	4,000,000,000	4.0%	72,000,000	11,819,001	14,819,001	57,180,999
New Jersey	HU	2,000,000,000	4,500,000,000	5.0%	113,303,571	18,544,658	21,544,658	91,758,914
New York	HU	2,000,000,000	10,000,000,000	6.3%	453,600,000	61,587,831	64,587,831	389,012,169
Connecticut	HU	2,000,000,000	3,500,000,000	3.3%	45,041,667	7,416,716	10,416,716	34,624,951
Massachusetts	HU	2,000,000,000	4,500,000,000	6.1%	137,812,500	24,524,530	27,524,530	110,287,970
Washington	EQ	2,000,000,000	7,000,000,000	7.0%	313,333,333	56,870,701	59,870,701	253,462,632
Oregon	EQ	2,000,000,000	7,000,000,000	3.5%	157,500,000	28,156,656	31,156,656	126,343,344
California	EQ	5,000,000,000	12,000,000,000	31.0%	1,956,048,387	435,428,405	439,782,689	1,516,265,698
Total					9,157,292,957	1,917,474,334	1,972,276,527	7,185,016,430
Total Excluding FL & CA*					3,666,830,741	637,255,046	679,255,046	2,987,575,695

(1), (2) State Fund covers 90% of the layer
(5) Layer Pure Premium obtained from AIR
(4), (5) Assumes participation level is at 90%
(6) Expense = maximum of 1% pure premium or $3 million

* State Fund savings for Florida and California are not included since those State Funds already exist.

Attachment D

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Consumer Savings From Formation of National Backstop

		(1)	(2)	(3)	(4) = [(2)-(1)]*(3)	(5)	(6) = (5) * 1.01	(7) = (4)-(6)
State	Peril	National Fund Attachment Point	National Fund Limit	Selected Rate On-Line	Estimated Annual Reinsurance Premium for Layer	Modeled Pure Premium for Layer	Estimated National Backstop Premium	Estimated Cost Savings
Texas	HU	7,000,000,000	16,000,000,000	3.6%	327,487,500	81,503,186	82,318,218	245,169,282
Louisiana	HU	7,000,000,000	8,400,000,000	3.3%	45,750,000	6,797,203	6,865,175	38,884,825
Mississippi	HU & EQ	4,500,000,000	5,600,000,000	2.2%	24,062,500	4,830,697	4,879,004	19,183,496
Alabama	HU	4,500,000,000	5,900,000,000	3.3%	45,937,500	7,383,871	7,457,710	38,479,790
Florida	HU	27,800,000,000	73,100,000,000	10.1%	4,560,025,647	424,084,627	428,325,473	4,131,700,174
Georgia	HU	3,200,000,000	N/A		-	-	-	-
South Carolina	HU & EQ	7,000,000,000	12,700,000,000	3.5%	199,500,000	31,964,448	32,284,092	167,215,908
North Carolina	HU	7,000,000,000	9,800,000,000	3.1%	86,470,588	15,133,484	15,284,819	71,185,769
Virginia	HU	4,000,000,000	N/A		-	-	-	-
New Jersey	HU	4,500,000,000	7,200,000,000	2.5%	67,982,143	13,530,802	13,666,110	54,316,033
New York	HU	10,000,000,000	12,000,000,000	3.6%	72,000,000	8,539,573	8,624,969	63,375,031
Connecticut	HU	3,500,000,000	N/A		-	-	-	-
Massachusetts	HU	4,500,000,000	6,400,000,000	3.1%	58,187,500	9,573,135	9,668,866	48,518,634
Washington	EQ	7,000,000,000	19,600,000,000	3.3%	411,250,000	66,543,673	67,209,110	344,040,890
Oregon	EQ	7,000,000,000	9,600,000,000	3.1%	79,625,000	11,612,456	11,728,581	67,896,419
California	EQ	12,000,000,000	59,800,000,000	8.6%	4,090,846,328	796,633,383	804,599,717	3,286,246,611
					10,069,124,706	1,478,130,538	1,492,911,844	8,576,212,863

(5) Layer Pure Premium obtained from AIR
(6) = Expense = 1% of pure premium

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Total Consumer Savings Resulting from State Cat Fund and National Backstop Mechanism

State	Peril	Estimated State Fund Savings	Estimated National Fund Savings	Total Estimated Cost Savings	Estimated Housing Units	Savings per Household
Texas	HU	490,133,599	245,169,282	735,302,881	8,563,822	$85.86
Louisiana	HU	396,445,539	38,884,825	435,330,364	1,939,171	224.49
Mississippi	HU & EQ	57,735,598	19,183,496	76,919,094	1,219,818	63.06
Alabama	HU	148,710,531	38,479,790	187,190,322	2,061,504	90.80
Florida	HU	-	4,131,700,174	4,131,700,174	7,666,634	538.92
Georgia	HU	11,372,585	-	11,372,585	3,445,168	3.30
South Carolina	HU & EQ	400,312,463	167,215,908	567,528,371	1,841,003	308.27
North Carolina	HU	420,194,399	71,185,769	491,380,169	3,699,436	132.83
Virginia	HU	57,180,999	-	57,180,999	3,048,821	18.76
New Jersey	HU	91,758,914	54,316,033	146,074,947	3,475,127	42.03
New York	HU	389,012,169	63,375,031	452,387,201	8,061,736	56.12
Connecticut	HU	34,624,951	-	34,624,951	1,454,997	23.80
Massachusetts	HU	110,287,970	48,518,634	158,806,603	2,752,564	57.69
Washington	EQ	253,462,632	344,040,890	597,503,522	2,573,139	232.21
Oregon	EQ	126,343,344	67,896,419	194,239,764	1,525,054	127.37
California	EQ	-	3,286,246,611	3,286,246,611	12,822,834	256.28
Total		2,987,575,695	8,576,212,863	11,563,788,558	66,150,828	$174.81

Note: State Fund savings for Florida and California are not included in the total since those State Funds already exist.

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Sample of Post-Katrina Catastrophe Bonds Covering U.S. Earthquakes & Windstorms

Security	Amount of Coverage ($ Millions)	Issue Date	Issuer	Covered Losses	Exposure Term (Months)	Probability of 1st $ Loss	Expected Annual Loss (% of Layer)	Risk Premium Above LIBOR	**Equivalent Rate on Line**
Arbor I - X	18	Dec-05	Swiss Re	Multi-peril (primarily Wind)	12	6.0%	4.9%	14.50%	**14.70%**
Atlantic & Western Re A	100	Oct-05	PXRE	Wind: East Coast & Europe	60	1.2%	1.0%	5.75%	**5.83%**
Atlantic & Western Re B	200	Oct-05	PXRE	Wind & California EQ	60	3.4%	2.5%	10.00%	**10.14%**
Atlantic & Western Re II A	125	Dec-05	PXRE	2nd event - Wind & EQ	12	0.7%	0.7%	6.00%	**6.08%**
Atlantic & Western Re II B	125	Dec-05	PXRE	2nd event - Wind & EQ	36	0.7%	0.7%	6.25%	**6.34%**
Champlain Ltd A	75	Dec-05	Montpelier Re	U.S. & Japan EQ	36	3.4%	3.4%	13.50%	**13.69%**
Champlain Ltd B	75	Dec-05	Montpelier Re	2nd event - Wind or EQ	36	4.0%	3.6%	12.75%	**12.93%**
Foundation Re Ltd D	105	Feb-06	Hartford	Wind: Gulf & East Coast; EQ	48	1.6%	1.2%	7.25%	**7.35%**
Redwood VII	160	Feb-06	Swiss Re	California EQ	24	0.7%	0.6%	5.25%	**5.32%**
Redwood VIII	65	Feb-06	Swiss Re	California EQ	24	0.8%	0.6%	5.25%	**5.32%**

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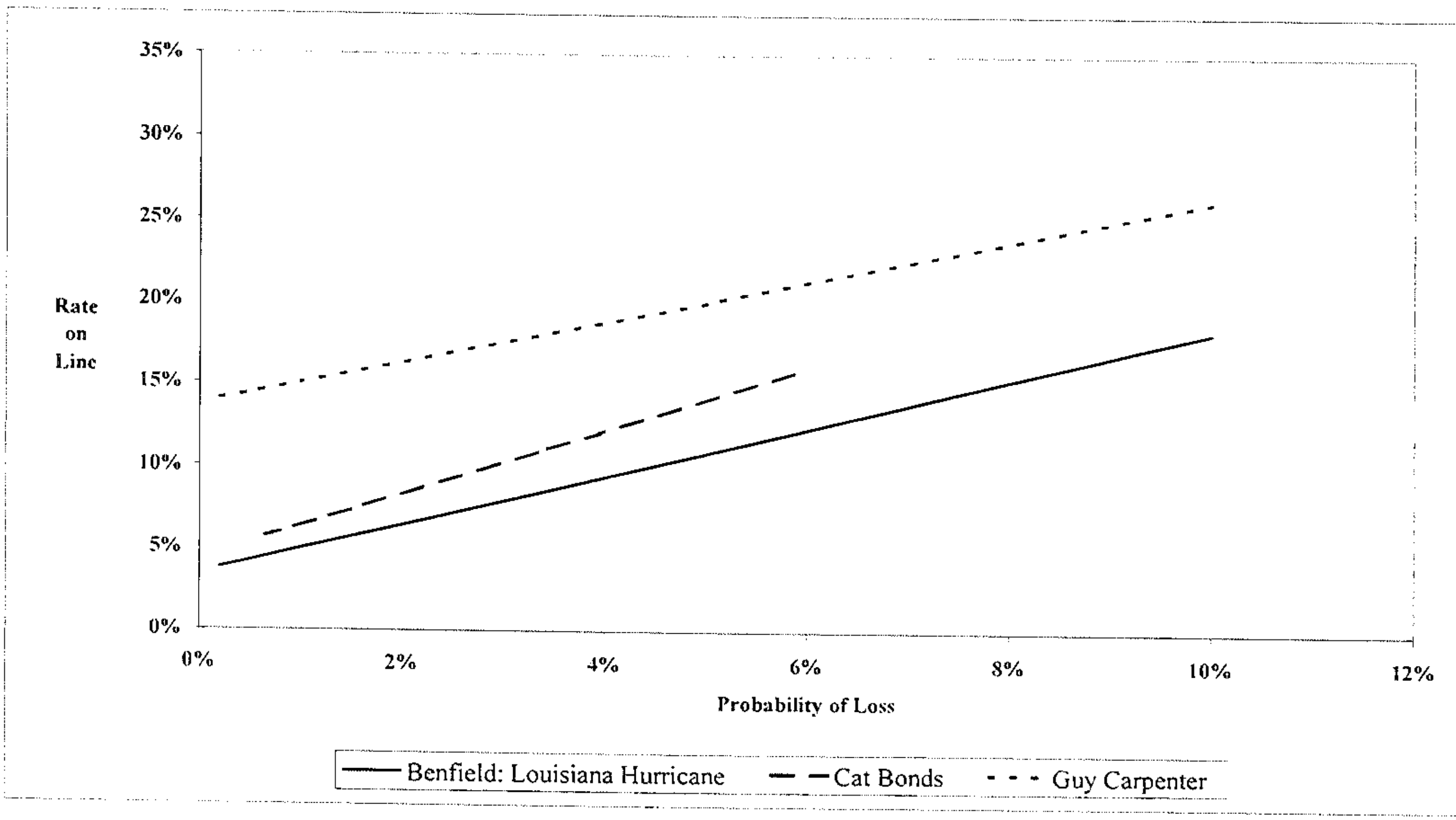
Summary of Rates on Line from 3 Different Sources



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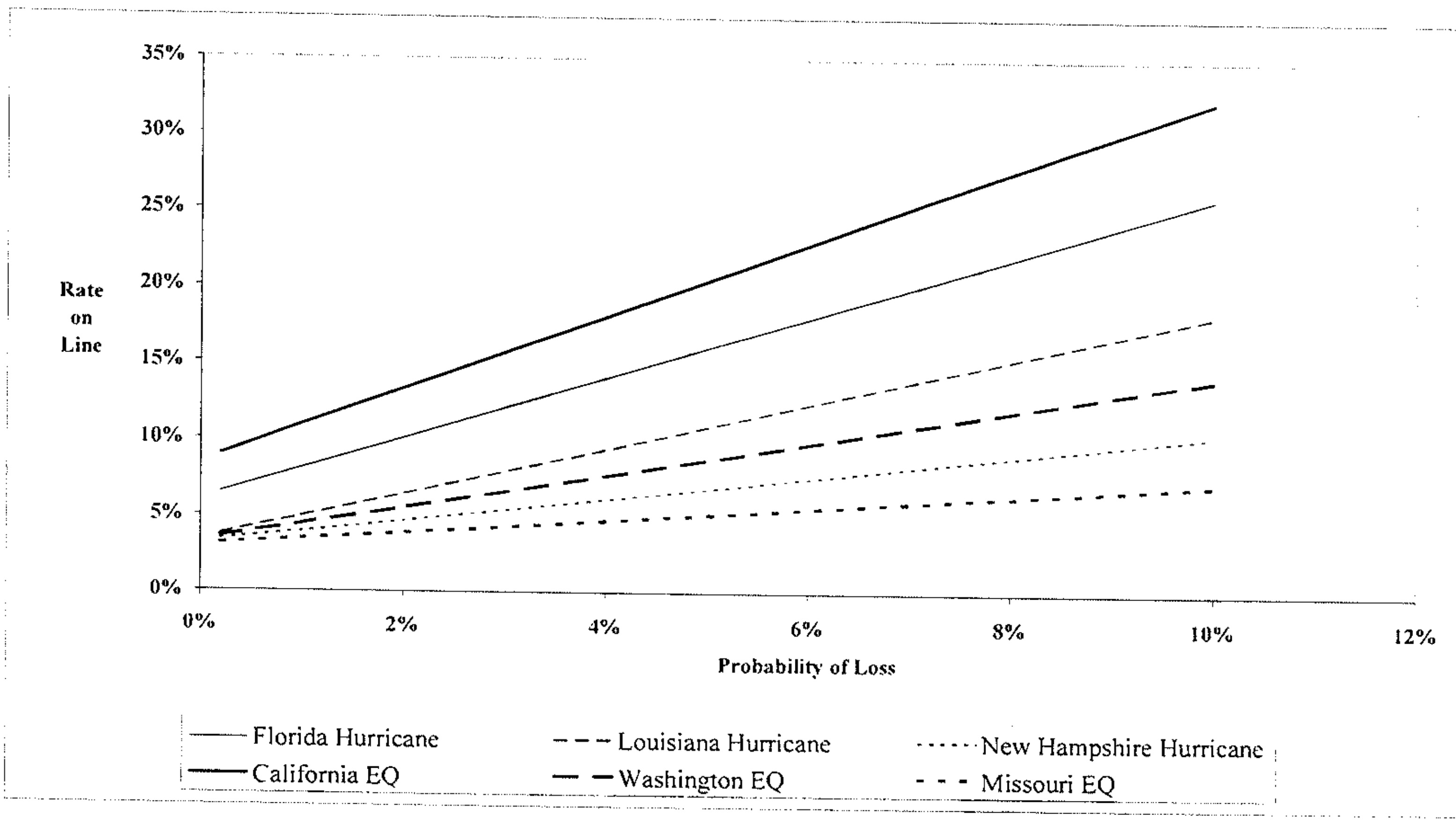
Rates on Line by State and by Coverage



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Estimated Savings for Rhode Island

State Fund Savings

State Fund Attachment Point	State Fund Limit	Selected Rate On-Line	Estimated Annual Reinsurance Premium for Layer	Modeled Pure Premium for Layer	Estimated State Cat Fund Premium	Estimated State Fund Savings
321,000,000	686,000,000	7.2%	23,652,000	4,592,427	5,051,670	18,600,330
(1 in 50)	(1 in 100)					

National Backstop Savings

National Fund Attachment Point	National Fund Limit	Selected Rate On-Line	Estimated Annual Reinsurance Premium for Layer	Modeled Pure Premium for Layer	Estimated National Backstop Premium	Estimated National Fund Savings
686,000,000	1,960,000,000	3.1%	39,494,000	6,170,237	6,231,939	33,262,061
(1 in 100)	(1 in 500)					

Total State and National Fund Savings

Estimated State Fund Savings	Estimated National Fund Savings	Total Savings	Estimated Housing Units	Savings per Household
18,600,330	33,262,061	51,862,391	461,741	$112.32

State Fund expenses are 10% of premium
National Fund expenses are 1% of premium

About Catastrophe Models

Natural catastrophes such as earthquakes, hurricanes, tornadoes and floods can jeopardize the financial well-being of an otherwise stable, profitable company. Hurricane Andrew, in addition to causing more than $16 billion in insured damage, left at least 11 insurers insolvent in 1992. The 1994 Northridge earthquake caused more than $12 billion in insured damage in less than 60 seconds.

Fortunately, these sorts of occurrences are rare. But it is exactly their rarity that makes estimating losses for future such catastrophes so difficult. Standard actuarial techniques are insufficient because of the scarcity of historical loss data. Furthermore, the usefulness of the loss data that does exist is limited because of the constantly changing landscape of insured properties. Property values change, along with the costs of repair. Building materials and designs change, and new structures may be more or less vulnerable to natural catastrophes than were the old ones. New properties continue to be built in areas of high hazard. For all of these reasons, the limited historical loss information that is available is not suitable for directly estimating future catastrophe losses.

AIR Worldwide Corporation was the first company to develop catastrophe modeling as an alternative to the traditional actuarial and "rule of thumb" approaches that had previously been used for estimating potential catastrophe losses. AIR's highly trained staff of seismologists, meteorologists, hydrologists, wind and earthquake engineers, mathematicians, statisticians, actuaries, and computer technology specialists is augmented by the many years of experience that the company has accumulated in this field. The result is the delivery of reliable and credible loss estimates needed to make informed risk management decisions.

How are Catastrophe Models Constructed?

In 1987, AIR developed the first catastrophe model for use by the insurance industry. The model relied on sophisticated simulation techniques and powerful computer programs of how natural catastrophes behave and impact the man-made environment. Today, AIR offers models for 50 countries and a wide variety of perils. Over the course of the last 20 years, the models have undergone a continual process of review, refinement, enhancement, and validation. New models continue to be developed for new perils and regions of the globe. Ongoing research ensures that the models incorporate the latest advances in the science and engineering.

Catastrophe models are complex computer programs that mathematically represent the physical characteristics of natural catastrophes. Large catalogs of simulated catastrophes are generated, representing the entire spectrum of plausible events. For each simulated event, the model calculates the intensity at each location within the affected area. For hurricanes, intensity may be expressed in terms of wind speed or the height of the storm surge; for earthquakes, intensity may be expressed in terms of the degree of ground shaking or the number and intensity of fires spawned by the earthquake.

These measures of intensity are then applied to highly detailed information about the properties that are exposed to them. Mathematical equations called damage functions calculate the level of damage and monetary loss for different types of construction and occupancy (building usage). Losses are calculated for the structure, its contents and for the loss of use (such as lost business income). These damage functions are developed by wind and earthquake engineers and incorporate a wide body of published literature and the results of laboratory tests.

Models produce the full range of potential outcomes expressed in terms of monetary loss. Probabilities are assigned to each level of loss. This loss distribution, called an exceedance probability curve, reveals the probability that any given level of loss will be surpassed in a given time period. The probabilities can also be expressed in terms of return periods. For example, the loss associated with a return period of twenty years is likely to be exceeded only 5% of the time or, on average, in one year out of twenty. Loss probabilities can be provided at any geographic resolution for the entire insurance industry, for a particular portfolio of buildings, or for an individual property.

How are Catastrophe Models Used?

The purpose of catastrophe modeling is to help companies (or public entities) anticipate the likelihood and severity of potential future catastrophes *before they occur* so that they can adequately prepare for their financial impact. Catastrophe models can be used to address a number of questions, such as: Where are future catastrophes likely to occur? How big are they likely to be? How often are they likely to occur? What level of loss can my company expect to incur on average each year over the long term? What is the probability of incurring a large loss this year?

Insurers and reinsurers employ catastrophe models to estimate the loss potential to their books of business and to give them the tools and information they need to choose between alternative strategies for managing that risk. Model output is used to develop appropriate insurance rates and underwriting guidelines, analyze the effects of different policy conditions, and make sound decisions regarding the purchase of reinsurance. "What if" analyses can be performed to measure the impact on loss potential of various mitigation strategies, such as adding storm shutters or retrofitting with cross bracing in earthquake-prone areas. In addition to estimating potential future property damage and losses, models can be used to estimate the number of insurance claims, and the number of injuries and fatalities.

Increasingly, organizations outside the insurance industry are employing catastrophe models to assess and manage their catastrophe risk, including government agencies, mortgage lending and other financial services companies, risk pools, and corporations and other owners of high-value real estate.

Catastrophe modeling offers enormous value—value that continues to increase as the technology continues to evolve. Catastrophe modeling enables proactive decision-making and strategic planning and is an essential component to any company's or organization's efforts to assess and manage risk.

The Limitations of Catastrophe Models

Although AIR's simulation methodology is a superior technique for estimating potential catastrophe losses, the methodology does have certain limitations. It is based on mathematical/statistical models that represent real-world systems. As with all models, these representations are not exact. The simulated events generated by the AIR models do not represent catastrophes that have occurred, but rather events that could occur. The AIR models rely on various assumptions, some of which are subject to uncertainty. Accordingly, the loss estimates generated by the models are themselves subject to uncertainty. As a result of its ongoing process of internal review, AIR refines and updates model assumptions in light of new research findings as such information becomes available. Such refinements and updates may materially alter the loss estimates generated by the AIR models.

The loss estimates and their associated probabilities are estimates of the magnitude of losses that may occur in the event of natural and man-made hazards; they are not factual and do not predict future events. Actual loss experience can differ materially. Also, they are intended to function as one of several tools for use in analyzing estimated expected and potential losses from such hazards. The assumptions that AIR uses in generating loss estimates may not constitute the exclusive set of reasonable assumptions and methodologies, and different assumptions and methodologies could yield materially different results.

Modeling Assumptions and Conditions

The loss estimates contained in this report reflect industry loss estimates for the United States. These estimates are dependent upon the data used in the analysis, the assumptions and conditions applied in the analysis, and the models and perils used in the analysis. Details outlining these factors as they relate to the loss estimates contained herein are outlined below.

Modeled Data

The exposure data used in the analysis is the AIR database of industry exposures and associated policy conditions as of December 31, 2005. The AIR database of industry exposures is compiled from a variety of sources, which include the U.S. Census Bureau, U.S. Bureau of Economic Analysis, Dun & Bradstreet, R.S. Means, American Housing Survey, CLARITAS, and HAZUS®. In addition, the industry exposure data also leverages the detailed data available in ISO HomeValue™ for residential structures and, for commercial structures, the ISO's SPI℠ database.

AIR generated industry loss estimates for the perils of U.S. hurricane, U.S. earthquake, and U.S. fire following earthquake by modeling the database of industry exposures at a postal-code centroid level against the 10,000-year standard stochastic hurricane catalog, and the 10,000-year earthquake and fire following earthquake catalog. The resulting industry losses include losses to residential, commercial, mobile home, and auto lines of business for on-shore building, appurtenant structure, contents, and direct business interruption coverages. These postal-code centroid level losses by line of business and coverage are then aggregated into a single combined coverage loss estimate by county and line of business.

The loss estimates contained in this report represent only the residential and mobile home lines of business. The losses exclude commercial and auto lines of business. For the hurricane and fire following earthquake perils, the loss estimates reflect insured losses. For the earthquake peril, the loss estimates reflect insurable losses net of average policy conditions before the application of take-up rates.

Modeling Assumptions

Storm Surge

All hurricane loss estimates in this report include storm surge. AIR loss estimates include 10% of the losses generated from its storm surge model. For residential lines of business, it is assumed that 10% of the storm surge loss is paid as wind losses.

Demand Surge

All loss estimates in this report include aggregate demand surge. The AIR aggregate demand surge function reflects increases in labor and materials prices as a result of the aggregation of catastrophic events that occur in close proximity of both space and time.

Model Details

The following models were used in to produce these loss estimates:

Perils/Regions:	U.S. Hurricane (Atlantic and Gulf Coasts)
Models:	2006 Atlantic Hurricane Model, v 8.0
Catalogs:	10,000-year standard catalog (based on the long-term view of expected risk)

Perils/Regions:	U.S. Earthquake and Fire Following (48 contiguous states)
Models:	2006 U.S. Earthquake Model, v 7.2
Catalogs:	10,000-year catalog

All loss estimates were generated using the 10K World All Perils (10K Hybrid) event set in CATRADER version 8.0

Probabilities of Exceedance

The estimates contained in this report reflect the estimated probability distributions of annual aggregate losses. These distributions represent the range of possible losses and the relative likelihood of various levels of loss.

An annual aggregate loss is the sum of the losses caused by all simulated events in a given single year. The probability distribution of annual aggregate losses displays the probability of experiencing aggregate losses of specified amounts resulting from all events in a given single year.

Probabilities of exceedance are stated in this report as return periods, which represent the inverse of the probabilities of exceedance. As an example, the 250-year return period loss equates to a .4% probability of exceedance: this mean that there is a .4% chance that this loss amount will be equaled or exceeded in any given year. State level return period losses are calculated independently for each state.

Unless otherwise indicated, all loss estimates in this report are annual aggregate losses.