

**The Economic Effects of Proposals for Federal
Natural Catastrophe Reinsurance and New Loan Programs:
Who Pays and Who Benefits?**

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S O N E C O N

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Executive Summary

- Congress is considering proposals to create new federal reinsurance and loan programs for states with natural catastrophe funds. Our analysis of the terms and costs of these proposals finds that they would impose very large costs on taxpayers in most states and unnecessarily displace private insurance and reinsurance arrangements which have worked well.
- These new proposals include:
 - Legislation passed by the House that would direct the treasury to provide loans to state “qualified reinsurance programs” for natural disasters, especially hurricanes.
 - Legislation passed by the House to create a Federal Natural Disaster Reinsurance Fund to provide direct federal reinsurance to states for most of a state’s insured losses.
 - Legislation passed by the House, and rejected by the Senate, to expand the National Flood Insurance Program to cover damage from winds in hurricanes.
- We estimate that the losses which would be covered by the federal government under these proposals, if a hurricane season comparable to 2005 occurred again, would reach \$140 billion to \$161 billion in 2009, \$197 billion to \$230 billion in 2013, and \$278 billion to \$332 billion in 2017, depending on the approach used to set premiums for state programs.
- These losses would be borne by federal taxpayers, and we have estimated the distribution of these costs based on the share of federal revenues provided by each state. If hurricanes comparable to 2005 struck again in 2009, taxpayers in at least 20 states would face new, multi-billion burdens, including burdens of *at least* \$19 billion for Californians, \$11 billion for New Yorkers, \$7 billion for Illinoisans, \$6 billion for taxpayers in Pennsylvania and New Jersey, \$5 billion for those in Ohio, \$4 billion each from the taxpayers of Massachusetts, Michigan, and Virginia, and at least \$3 billion for those in Connecticut, Indiana, Maryland, Minnesota, North Carolina, and Washington State.

- These proposals would displace private capital deployed in insurance and reinsurance companies, and in its place create enormous transfers from taxpayers in most states to some businesses and residents in Gulf states, especially Florida and Louisiana.
- These measures are unnecessary, because the private insurance and reinsurance sectors have the capacity to handle even very large claims arising from unusually severe natural catastrophes. Despite huge claims arising from the 2005 hurricane season (Katrina, Rita, Wilma and Dennis), insurers covered the claims easily, with foreign and U.S. based reinsurers absorbing 60 percent of the costs. Throughout 2005 and 2006, the amount of capacity supplied by reinsurers and the capital markets for natural disasters continued to expand despite the record losses of 2004 and 2005, and the capital base of the U.S. property and casualty insurance industry continued to expand.
- These proposals are targeted especially at assisting Florida, which while especially prone to frequent and severe hurricane damage, nevertheless imposed regulations that have deterred many private insurers from expanding there. Florida legislators also created a subsidized state reinsurance system for natural disasters that has largely displaced private reinsurance. This program is currently the nation's only "qualified reinsurance program" under the terms of the proposed federal program.
- Other states in the Gulf and Atlantic seaboard would likely follow Florida's lead in this regard if the proposed federal legislation is approved, since it would allow a state that offers highly-subsidized coverage to its residents and private businesses to then shift to the Federal Treasury the cost of large claims from a bad hurricane season. In order to give other states time to follow Florida's lead, in the first five years states could qualify for the new federal loans and reinsurance by simply providing "last-resort" natural disaster coverage for high-risk people and businesses. Such programs of state-subsidized coverage have become the "first choice" for many homeowners in many states, and the programs have grown significantly in recent years.
- The availability of state-funded, natural disaster insurance at below market rates also will increase the liabilities of these programs by reducing the incentives for firms and people to locate in safer areas or to harden their homes and other buildings against damage. When private insurance premiums rise to reflect new risks and preclude coverage for lower-income people and some small firms, states could provide financial assistance to that subset without disabling the private insurance and reinsurance industry.

**The Economic Effects of Proposals for Federal
Natural Catastrophe Reinsurance and New Loan Programs:
Who Pays and Who Benefits? ¹**

Robert J. Shapiro and Aparna Mathur

I. Introduction

Hurricane Katrina, the Oakland, California earthquake and other, large natural disasters inflict tragic human and economic costs on thousands of people, and often large and sudden financial burdens on governments, their taxpayers and private insurance companies. Markets and governments are powerful; and while they cannot prevent natural disasters, certain political and economic arrangements can limit the losses and subsequent burdens. Many governments restrict development in very vulnerable areas and apply strict hurricane and earthquake standards to the construction which is permitted. Similarly, insurance premium rates that directly reflect the potential costs and probabilities of loss and damage also will tend to channel development away from the most vulnerable places and encourage businesses and homeowners to take steps to limit their potential losses. Finally, reinsurance arrangements limit the disaster losses of individual insurers, enabling them to maintain coverage in markets prone to natural disasters at premium rates within the reach of most businesses and homeowners.

The strength of these arrangements is evident in the results of the hugely destructive 2005 hurricane season, when Hurricanes Katrina, Rita, Wilma, and Dennis together produced more than \$56 billion in privately-insured losses and \$16 billion in claims under the National Flood Insurance Program (NFIP), plus another \$44 billion in uninsured losses. The private insurance and reinsurance industries smoothly absorbed their covered losses, with foreign and U.S.-based reinsurers covering some 60 percent of insurers' liabilities and drawing on industry-wide policyholder surpluses of \$427 billion for the rest. Nor did the payouts produce any discernable contraction in the industry: During 2005, 12 new insurers and reinsurers opened for business with initial total capitalization of nearly \$9 billion, 19 existing insurers announced plans to raise another \$10 billion in new capital, and the worldwide capacity of the reinsurers grew by 7 percent. Given the destruction of the 2005 season, losses under the NFIP program also were relatively contained, and uninsured losses were just over one-third of total losses.

Legislation currently before the Congress would unravel these arrangements and vastly expand the liability of the federal government and taxpayers when the next natural catastrophes strike the Gulf states. Combined with new laws recently enacted in Florida, under which a new state fund is rapidly replacing private insurance coverage, the proposed federal legislation would shift the reinsurance and ultimate liability for

¹ This study was supported by grants from the Reinsurance Association of America and the Association of Bermuda Insurers and Reinsurers. The views and analysis presented are those solely of the authors.

hurricane damage in the state to the U.S. Treasury, through new federal “loans” to the state’s reinsurance fund, which are unlikely to ever be repaid, and a new federal reinsurance program. With such compelling inducements to shift costs, other Gulf states almost certainly will follow Florida’s lead. In addition, other proposed legislation would bring many currently uninsured losses under the NFIP, further expanding the liability for the next round of Gulf hurricane damage to all U.S. taxpayers.

These proposed laws, if enacted, could expand these future liabilities even more by removing existing economic disincentives to expanded development in the most hurricane damage-prone areas. State governments would have little reason to discourage homeowners and businesses from building in such places, since most of the costs of a natural disaster would fall to the federal government and taxpayers in other parts of the country. Similarly, current market-based discipline on development in hurricane-prone areas, under which homeowners and business owners have to purchase private insurance at rates reflecting the actuarial likelihood of losses or risk losing everything, would be largely gone. The likely result is that the potential losses and general taxpayer exposure from natural catastrophes will rise sharply as development and property values continue to increase in coastal areas, perhaps even more rapidly than in recent years.

In this report, we estimate the potential liabilities that for the federal government and taxpayers if the proposed bills are enacted. We found that in the event of another hurricane season comparable to the terrible events of 2005, these legislative changes could cost the federal government some \$140 billion to \$161 billion in 2009, \$197 billion to \$230 billion in 2013, and \$278 billion to \$332 billion in 2017.

These costs would involve large-scale transfers from taxpayers in 44 non-Gulf states to the homeowners, business owners and taxpayers in the six Gulf states that suffer most hurricane damage. Our analysis found that if a hurricane season in 2009 produced damages comparable to what happened in 2005, the proposed legislation could cost taxpayers in New York, for example, some \$11.2 billion to \$12.7 billion, California taxpayers would pay \$19.2 billion to \$22.1 billion, taxpayers in Iowa would be responsible for \$1.2 billion to \$1.4 billion, and taxpayers in Missouri would pick up \$2.4 billion to \$2.7 billion. The analysis below will provide estimates for each state.

When natural catastrophes such Hurricane Katrina strike, the federal government always provides substantial assistance. The government provided some \$10 billion in Federal Emergency Management Agency (FEMA) disaster relief to states in 2005, on top of more than \$16 billion paid out to individuals under the NFIP. Congress also appropriated more than \$88 billion for disaster relief and recovery operations following the 2005 hurricanes.² However, private insurers and their reinsurers have traditionally and effectively provided most of the resources for most people’s recovery and rebuilding. Replacing this system with new federal guarantees would raise basic issues of both

² U.S. Government Accountability Office (2007). “Public Policy Options for Changing the Federal Role in natural Catastrophe Insurance.”

efficiency and fairness. The director of the Georgetown Environmental Law and Policy Institute, John Echeverria, recently told Congress,

In approaching the issue of coastal disaster insurance ... citizens and communities should generally bear the costs associated with their decisions and other citizens and communities should not be asked to subsidize these costs ... (and) society as a whole will be better off if citizens and communities make decisions that take full account of the private and public costs of their choices.

Our analysis of the effects of the proposed legislation strongly supports the conclusion that a new and substantial role for the federal government in the market for coastal disaster insurance would be both wasteful and unfair.

II. Economic Benefits of Reinsurance

The reinsurance industry provides “insurance for insurance companies,”³ so that primary insurers can offer coverage for unpredictable events and still limit their exposure when large losses occur. In effect, reinsurance enables a society to live with large but unlikely risks—earthquakes and huge hurricanes, for example—by distributing the exposure to those best able to bear them.⁴ Reinsurers played a major role in responding to such recent natural catastrophes in the United States as Hurricanes Katrina, Rita and Wilma in 2005, paying out roughly one-half of some \$100 billion in insurance claims from those three catastrophes. The economic viability of these arrangements is apparent in the market’s response to those events: Despite these huge payouts, 10 new reinsurance companies entered the market in the three months following Katrina; and in 2006, reinsurers attracted and raised some \$27 billion in new capital.⁵

The growth of private reinsurance reflects the increased need and expanding opportunities to diversify or spread out large, “correlated” risks. An insurer providing homeowner’s coverage for a house fire can diversify its risk by simply insuring many homes, since the house fire risk for one home is uncorrelated to the fire house risk for other homes. But a major hurricane in Florida or an earthquake or wildfire in California may damage or destroy thousands of homes and businesses at once, straining the resources of a major insurer for the area. Moreover, trying to diversify that risk by adding more houses to the pool may only increase that strain. In such circumstances,

³ Reinsurance Association of America. “RAA Fundamentals of Property Casualty Insurance,” available at <http://www.reinsurance.org/files/public/07fundamentalsandglossary1.pdf>.

⁴ Cutler, D. M., and Zeckhauser R. J. (1997). “Reinsurance for Catastrophes and Cataclysms,” NBER Working Paper 5913.

⁵ Testimony of Franklin W. Nutter, President, Reinsurance Association of America, before the Subcommittee on Housing and Community opportunity and the Subcommittee on Capital Markets of the House of Representatives Committee on Financial Services (September 6, 2007). In addition, the insurance and reinsurance industry contributed almost \$70 billion toward rebuilding and recovery efforts for policyholders. Also see, The Wharton Risk Center (2007). “Managing Large-Scale Risks in a New Era of Catastrophes, Draft Report.”

reinsurance is often the only way that an insurer will be able to pay its claims and stay in business when a major natural disaster strikes. The Insurance Services Office, for example, estimates that without reinsurance, natural disasters causing damages of \$50 billion to \$100 billion—the 2005 hurricane season fell within that range—could bankrupt one-third of all insurers.

The role of reinsurance is expanding, because studies have found that the incidence of natural disasters producing damages of \$5 billion or more is increasing.⁶ The result is that high-liability events are now reasonably probable, with the likelihood of a hurricane that causes at least \$20 billion in damages more than 5 percent in any given year. Facing a higher probability of catastrophic damages, primary insurers respond by seeking reinsurance, as well as by adjusting their premium rates and narrowing the scope and life of their policies to reflect the actuarial likelihood of their liabilities. Reducing the lifespan of an insurance policy also allows insurers to raise or lower their premiums as additional information becomes available and estimates of possible damages change, providing those carrying the insurance information and rates that more accurately reflect the actual loss exposure.

Some state governments have used their authority to regulate insurance rates within their states to limit or reduce premium increases following natural disasters; and if those limits are not based on actual losses and actuarially-based pricing, insurers may not be able to afford reinsurance. And if such political decisions effectively prevent private insurers from taking steps to cover their risks, they may withdraw from markets restricted in this way. For example, following such regulation in Florida in recent years, many insurers and reinsurers pulled out of the homeowner's market in that state. These responses have led some people to call on government to assume greater, direct responsibility as insurer or reinsurer. When this happens, whether at a state or national level, it is important to recognize that that it is not in response to a traditional market failure. There may be temporary market dislocations, often created by state government actions; but insurers and reinsurers left to themselves can adequately price their own risks. Further, data show that premium increases following a major catastrophe attract more insurers and reinsurers and new investment in insurance and reinsurance capacity, which in turn drive prices back down in a self-regulating way. Moreover, when government provides insurance at subsidized rates, without consideration to the adequacy of the premiums to cover the losses from a major natural disaster, it usually means that taxpayers will have to cover the shortfall. In the following two sections, we will analyze the implications of the government acting as insurer or reinsurer, as well as private sector solutions to ensure broad coverage for damages from natural disasters.

III. Government Interventions in Insurance and Reinsurance

Economists generally agree that the federal government's essential role in insurance markets is to correct genuine market failures. For example, adverse selection can limit the availability of insurance as insurers strive to cover those least likely to make

⁶ Cutler, D. M., and Zeckhauser R. J. (1997) examined Property Claim Service data from 1949 to 1994.

claims—a problem most common in health insurance and which government addresses in part (only in part) by barring employers from discriminating among employees in providing tax-preferred health insurance. A different form of adverse selection can occur in the reinsurance market, since the primary insurer has more knowledge about the risks it underwrites than would a reinsurer with a more diversified portfolio, so that insurers bearing the highest risks are most likely to seek reinsurance.⁷ In addition, the government periodically acts effectively as a reinsurer of last resort in cases of cataclysmic loss, usually without contracting to do so beforehand. For example, the government spent hundreds of billions of dollars beyond its prior legal obligations covering depositor losses from failed savings and loan associations, and the federal government normally provides substantial general assistance to states when hurricanes, floods or other natural disasters occur.⁸

Governments also historically have intervened at times when primary insurance has been available only at rates beyond those considered publicly acceptable. The creation of Medicare acknowledged that the private market was pricing medical insurance for older people, who incur most of the society's healthcare costs, beyond the means of large numbers of the elderly. However, in cases involving behavior subject to more discretion than growing old—for example, a decision to build or purchase a home on a flood plain—issues of moral hazard suggest that if the government chooses to offer insurance, it should price it at actuarially-based rates. For this reason, economists generally argue that government subsidies in such cases should be strictly limited to those most in need, such as low and moderate income homeowners already living in coastal areas where private coverage would be high-priced or unavailable.⁹

Market Solutions to Cataclysmic Risk

In the aftermath of Hurricane Katrina, some policymakers and financial analysts questioned the capacity of private insurers and reinsurers to cover the losses and move on successfully. The data show, however, that despite enormous payouts following the hurricanes of 2005, private insurers managed the financial impact effectively. In 2004, U.S. personal-line insurers had accumulated policy holder surpluses—a standard measure of their claims-paying capacity—adequate for almost any foreseeable catastrophic event. That year, the industry increased its policyholder surplus by 13.6 percent or \$46.5 billion, to a record level of \$393.5 billion.¹⁰ Moreover, these policyholder surpluses rose 9.2 percent more in 2005 and reached \$427.1 billion by the end of that year, enabling the industry to absorb the record claims and liabilities of 2005, including more than \$55

⁷ Akerlof, G. (1970). "The Market for Lemons." *Quarterly Journal of Economics* 84, 488-500.

⁸ As noted earlier, in addition to FEMA payments, the federal government appropriated more than \$88 billion for disaster relief and recovery operations following the 2005 hurricanes. U.S. Government Accountability Office (2007). "Public Policy Options for Changing the Federal Role in natural Catastrophe Insurance."

⁹ Litan, R.E., Nutter, F., and Racicot M. (2007). "Easing the Homeowners' Insurance Crisis on the Atlantic and Gulf Coasts." http://www.reinsurance.org/files/public/Easing_the_Homeowners_Insurance_Crisis.pdf.

¹⁰ King, R.O. (2005, September 15). "CRS Report for Congress: Hurricane Katrina: Insurance Losses and National Capacities for Financing Disaster Risk." Congressional Research Service, <http://www.au.af.mil/au/awc/awcgate/crs/rl33086.pdf>.

billion in 2005 catastrophe losses.¹¹ Nearly nine months after Katrina, the property casualty industry reported continuing strong returns on its surplus, averaging 9.5 percent or only modestly less than the 10.5 percent average reported for 2004.¹²

The insurance industry's extensive use of reinsurance is a major source of its financial stability in the face of unexpectedly large claims. Many major insurers, particularly those with major commercial line operations, cede 10 to 30 percent of their premiums to reinsurers; and the shares ceded by those most liable for large-scale catastrophes and smaller insurers are often larger. These market arrangements spread the liabilities when the 2005 hurricanes ravaged the Gulf and Southeast Atlantic coasts, with reinsurers covering as much as 60 percent of the liabilities of some property and casualty companies. Overall, reinsurers will absorb more than half of the losses associated with Hurricane Katrina. Moreover, according to ISO, Ltd., which tracks insurance-industry data and developments, foreign-based reinsurers, which account for much of the reinsurance protection sold in the United States, plus state-provided coverage, reduced the \$47.6 billion in gross catastrophe losses for the first nine months of 2005 by between \$27 billion and \$32 billion, or by at least 43 percent. A significant share of the liabilities for the storm season of 2005 ultimately will end up on the balance sheets of reinsurers in Switzerland, Germany, Great Britain, France, and Bermuda.

The property and casualty insurance industry also entered the 2005 hurricane season in a strong underwriting position. Since 2001, major insurers had undertaken a major effort to reassess their risks, producing better matches between the risks they assumed and the prices they charged, as well as more strictly-drawn terms and conditions for coverage. The result in 2004 was the industry's first underwriting profit in 26 years. This underlying performance was sufficiently strong to achieve modest underwriting profits in 2005, even with the record catastrophe losses.¹³ Analysts estimate that had the industry's losses in 2004 and 2005 been at typical levels, the industry's return on equity in both years would have been 13 percent to 15 percent, on par with the Fortune 500.

As a result, the abnormally large 2005 catastrophe liabilities did not materially affect the financial market's confidence in the insurance and reinsurance industries. In December 2005, 19 insurers announced plans to raise \$10 billion in fresh capital. Throughout 2005, 12 new insurers and reinsurers were established with capitalization of some \$8.7 billion; and global reinsurance capacity rose by 7 percent, despite the storms.¹⁴

While public subsidies may be required for certain limited and specific risks which cannot be reliably modeled, such as nuclear or biological terrorism, the private insurance and reinsurance markets can effectively cover nearly all instances of cataclysmic risk. Natural catastrophes may involve costs that would overwhelm the resources of a single company, but they are small compared to the U.S. and global capital markets, which can securitize the risks of much greater losses. Earthquake losses of \$100

¹¹ *Ibid.* (Updated on 2008, January 31), http://assets.opencrs.com/rpts/RL33086_20080131.pdf.

¹² Hartwig, R.P. (2005, December 27). "2005 – First Nine Months Results." Insurance Information Institute, <http://www.iii.org/media/industry/financials/2005firstninemonths/>.

¹³ *Ibid.*

¹⁴ *Ibid.*

billion would represent less than 1 percent of U.S. capital markets; and those markets have developed instruments to further spread such unlikely but large risks. There has been significant growth in the market for “catastrophe bonds,” which pay off when a natural disaster strikes.¹⁵ The Chicago Board of Trade also has traded catastrophe options since 1992. With these options, a reinsurer can purchase a call that pays off if its’ aggregate losses exceed a specified level such as \$1 billion or \$5 billion, based on how much the losses exceed that level—and these calls are sold by businesses which expand when natural catastrophes strike, such as builders, or by investors seeking to diversify beyond traditional securities.¹⁶ To date, such securitization of cataclysmic risk has been limited, and it is still unknown whether the market for such derivative instruments will achieve the size and liquidity to compete with the traditional private reinsurance market.

IV. Current Legislation

Congress is currently considering several proposals that would significantly affect these private markets for hurricane insurance and reinsurance. Here, we examine three such proposals, H.R. 3121, H.R. 3355, and S.2310, and analyze the economic implications of each for taxpayers, homeowners and property developers, as well as premium payers and the insurance and reinsurance industries.

These proposals arose directly from developments following the 2005 hurricanes. Insurance rates in Florida rose sharply as companies adjusted their risk assessments of future hurricanes and related events, based on the actual losses during 2004 and 2005 and increases in home prices averaging more than 30 percent in coastal cities such as Miami and Tampa. Insurance rates are subject to state regulation, and the Florida state legislature responded to these premium increases with new regulation and subsidies: The legislature rolled back the actuarially-based increases already in place, froze premium rates at these new reduced levels, and eliminated the legal requirement that premiums be sufficient to cover estimated maximum losses. By setting premium rates below the true risk levels assessed by private insurers, the state effectively has encouraged—or, at a minimum, has failed to discourage—further development in the areas most vulnerable to hurricanes and floods. As a result, the new regulations actually increase the state’s vulnerability to huge losses when the next major hurricane strikes the state. Accordingly, the legislature also substantially expanded the state-run Citizens Property and Casualty Insurance Company. The legislature also expanded the state’s capacity to reinsure itself by increasing the maximum coverage of the state’s Florida Hurricane Catastrophe Fund from \$16 billion to \$28 billion and authorizing the State Board of Administration to raise those levels further to \$32 billion. The State Board promptly did so.

¹⁵ One industry observer notes that 2007 “was the most active in the history of the cat [catastrophe] bond market, shattering all previous issuance records with USD 7 billion in publicly disclosed transactions, up 49 percent from [2006’s] record at USD 4.7 billion and a 251 percent increase over the USD 2 billion placed during 2005.” Guy Carpenter Securities (2008). “The Catastrophe Bond Market at Year End 2007.”

¹⁶ Other such instruments include contingent surplus notes, which guarantee buyers for debt issued by insurers facing catastrophic losses, and catastrophe bonds that pay off when natural disaster strike.

The unsurprising results have been sharp reductions in private coverage; and the Florida government itself has become the largest insurer and reinsurer in the state, with enormous potential liabilities. With about \$3 billion in current reserves, the state's future exposure is estimated at more than \$400 billion today and, according the Insurance Information Institute, could reach \$4 trillion by 2014.¹⁷ A major hurricane, therefore, would raise the prospect of very large tax increases or state borrowing to finance these obligations and avoid state bankruptcy. Under another provision of the 2006 law, however, the state also can impose an "assessment" on all property & casualty insurance premiums through 2010, including personal auto insurance premiums (but not premiums for Workers' Compensation, Federal Flood and Accident and Health, and medical malpractice), in effect applying years of the premium increases proposed by private insurers, to those insuring their automobiles as well as homes, after-the-fact and all at once. If Floridians have to finance these obligations, such assessments are virtually unavoidable as the state currently imposes no income tax. Moreover, lower-income households most likely would bear a disproportionate share of such assessments, since they already pay larger shares of their incomes for insurance than higher-income people.

In the face of the new law and these prospects, Florida representatives in Congress have introduced three proposals that would shift the burden of these costs from Floridians to the federal government and the taxpayers in other states.

The first proposal, "The Homeowners Defense Act" (H.R. 3355), was introduced August 3, 2007, passed by the House of Representatives in November 2007, and is currently under consideration in the Senate. (The Senate version is S. 2310.) The House-approved version directs the U.S. Treasury to provide "liquidity loans" and "catastrophic loans" to states with "qualified reinsurance programs" in certain loosely defined circumstances.

A second proposal, added as an amendment to H.R. 3355 during consideration by the House, directs the Treasury to also create a new Federal Natural Catastrophe Reinsurance Fund. This fund would sell federal reinsurance to "qualified states" covering up to 90 percent of a state's insured losses exceeding those projected for a catastrophic event with a 0.5 percent probability of occurring in any year. (The Treasury's total reinsurance liability would be limited to \$200 billion.)

The third proposal, "The Multiple Peril Insurance Act of 2007" (H.R. 920; also Section 7 of the House-passed H.R. 3121), would expand the current National Flood Insurance Program (NFIP) to also cover damages to personal and commercial properties from windstorms. A similar proposal offered as an amendment to NFIP legislation in the Senate, however, was rejected 74-19.

While these proposals cover every state--and if approved also would effectively transfer the burden of hurricane insurance for Louisiana, Texas, Alabama, Mississippi,

¹⁷ Boles, T. (2007, November 12). "The Florida Property Market." Casualty Actuarial Society Presentation.

Georgia and the Carolinas to the taxpayers of other states—its provisions are targeted to Florida and the prospects its government faces under its recent legislation. For now, Florida is the only state with the “qualified reinsurance program” required to receive the proposed new Treasury loans and federal reinsurance coverage, although others will almost certainly follow if the federal program is approved.¹⁸ Moreover, the legislation also includes a provision which would cover state programs for “residual” or “involuntary” markets, comprised of high-risk people and businesses unable to secure standard coverage in the private market. Thirty-one states operate programs of this type, often called Fair Access to Insurance Requirements Plans, or FAIR plans; and their use increased sharply after the 2004 and 2005 hurricane seasons. For example, in Massachusetts, which is also subject to hurricanes and “nor’easter” storms, some 9 percent of insured property comes under the state’s FAIR program. As these programs are state-run, their premiums are typically set too low to finance large payouts; and state FAIR programs ran deficits of \$1.5 billion in 2004 and \$1.9 billion in 2005, often resulting in higher premiums in the following years. Under the proposed federal legislation, states facing such losses could qualify for the new federal loans, here again shifting the cost to other federal taxpayers. There is little doubt that enactment of such an arrangement would lead many states to expand their FAIR programs. However, this study focuses on the costs of a future hurricane season comparable to 2005, in which the damages were concentrated primarily in Florida, Louisiana, and Mississippi.

These prospects ultimately arise from the decisions of state governments, especially Florida, to forgo subsidizing disaster insurance for low-income homeowners in catastrophe-prone areas, and instead intervene in a well-functioning, overall private market by rescinding rate increases that reflect actual risk, capping those rates into the future, and offering highly-subsidized state coverage for all residents regardless of need. These interventions have prevented private insurers in catastrophe prone areas from charging the rates that reflect the real risks and purchasing reinsurance to cover future claims—a view affirmed by a General Accounting Office report in 2007—with the result that private insurance and reinsurance capital has fled Florida, thousands of policies have been cancelled, and catastrophe risk and liability are increasingly concentrated in the state’s own programs. The legislation currently before Congress would effectively shift much of the risk and liability created by these Florida programs from its state government to the federal government and the taxpayers in every other state.

Some other states that also face a prospect of major natural disasters have approached these issues much more sensibly. For example, California, which faces significant earthquake risk, has created a state consumer earthquake insurance program that aggregates the risks and reduces its liability by purchasing private reinsurance from U.S. and foreign reinsurers. The California Earthquake Authority (CEA) is a privately funded, publicly managed and actuarially sound earthquake insurance provider founded

¹⁸ According to the “Additional Views” provided in the Committee Report on H.R. 3355, “the [Florida Catastrophe Fund] is currently the only pure reinsurance fund and thus the only “qualified reinsurance fund” as described by the bill, although as we will see, state “FAIR” plans for those who cannot secure private coverage are also included. The legislation also includes a five-year transition period intended to give other states time to adopt reinsurance funds.

in 1996. The CEA currently has more than \$8 billion in claims-paying capacity, which it maintains through premiums, assessments on participating insurance companies, borrowed funds, reinsurance, and the return on its invested funds. For each premium dollar that CEA receives, 26 percent is used to purchase reinsurance coverage and 47 percent is used to build capital.¹⁹

South Carolina, whose coastal residents and businesses also face significant hurricane risk, also tried a different approach: It has enhanced its hurricane-mitigation regulations and *reduced* its insurance rate regulation, attracting insurers while reducing their exposure, and providing tax credits for South Carolinians to purchase coverage. South Carolina also created the Wind and Hail Underwriting Authority (SCWHUA), a state-mandated “wind pool” as a last resort for property owners unable to obtain private wind and hail insurance, with rates set above those in the private market and deductibles based on a property’s proximity to high-risk hurricane zones.

The potential costs to the federal government and to taxpayers in all states could be very large if the proposed legislation were approved and another serious hurricane struck Florida and other Gulf states. This liability arises, first, from the broad sweep of the loan provisions of the legislation, which effectively would cover any of the costs of any serious natural disaster in any state with a reinsurance program or FAIR program. Yet, as noted earlier, the data and analysis show that new federal loans should not be necessary, as capital in the private market is available in a variety of forms. Further, the availability of these proposed new federal loans after a hurricane may create a disincentive for states to use private reinsurance, bonding and options before it occurs. The legislation stipulates that whenever the state reinsurance program “cannot access capital in the private market at a reasonable commercial rate,” “liquidity loans” would be available for losses that exceed 150 percent of direct state written premiums -- a low threshold (in the case of Florida, this threshold would be approximately \$5 billion). The legislation also provides that these loans would be provided on non-commercial terms, with below-market interest rates and lengthy repayment periods. For example, the “catastrophic loans” would involve interest set at the Treasury rate plus 0.20 percent, with a repayment period of at least 10 years.

These liabilities would very likely fall ultimately on federal taxpayers, as there are serious questions about whether such loans would ever have to be repaid. Although the legislation requires the Secretary of the Treasury determine that the loan *can* be repaid, there are no enforcement mechanisms. If the Secretary subsequently determines that full repayment is not likely, he or she would merely have to submit a report to Congress explaining why that was the case.²⁰ Moreover, the legislation does not even require that

¹⁹ California Earthquake Authority (updated 2007). “Financial Strength: Pro-Forma Allocation of Premiums.” <http://www.earthquakeauthority.com/index.aspx?id=10#c384>.

²⁰ These proposals contrast sharply with special loans provided to the state of New York. In 2003, New York State borrowed \$400 million from the federal government to keep its unemployment insurance system solvent in the wake of the surge of layoffs following the 9/11 attacks. Federal law provided two years for repayment before a *mandatory* federal FUTA tax assessment would be levied to provide repayment. In November 2004, New York State defaulted on the loan. As a result, New York state employers were required to pay additional FUTA contributions, amounting to a 46 percent increase.

a state pledge its “full faith and credit” to repay the loans. Even if a state did so pledge, the federal government has rarely, if ever, sued a state to recover on such loans.²¹

In this regard, the federal government’s actual experience with repayment of disaster assistance and loans is instructive. For example, the U.S. Treasury has loaned the NFIP some \$18 billion for flood claims, because the program had not collected sufficient premiums to cover its liabilities. While the NFIP is supposed to repay these loans,²² legislation passed by the Senate this year to reauthorize the NFIP includes a provision forgiving that debt.²³ Similarly, Congress has expressly forgiven most Community Disaster Loans administered by FEMA: A study by the Congressional Research Service reported that over a 29 year period, 97 percent of the funds provided through these loans were effectively forgiven.²⁴

In December 2007, the Florida Catastrophe Fund held some \$3 billion in reserves, as against \$32 billion in liabilities, so that if a Katrina-level hurricane had struck at that time, Florida could have demanded nearly \$30 billion in federal loans under this legislation, at below market rates with little prospect for repayment. It is unlikely that that Florida’s legislature would have capacity or will to raise the funds needed to repay such loans, as the state has no income tax and has been unwilling to allow insurers to set premiums that reflect market risk or even to allow surcharge assessments to make up the shortfalls.²⁵

Similarly, in 1975, when the federal government agreed to loan New York City up to \$2.3 billion in each of the next three years, to avert bankruptcy, the agreement not only required that the city repay any loan within one year, it also stipulated that the city significantly increase its tax revenues, that municipal workers’ unions invest in municipal securities, and that private New York banks increase their loans to the city.

²¹ The federal government does sue states on occasion over their administration of federal programs such as Medicaid or food stamps, or to collect federal taxes. However, suits to recover federal loans to states or cities are rare. The federal government did sue several cities, with mixed results, to recover loans provided under the War Mobilization Act of 1944 for public works; but when Congress passed the Housing and Community Development Reconciliation Amendments of 1985, it waived repayment of outstanding loans to public housing agencies.

²² 42 U.S.C 4016(a)(2), 4017(a)(3) (2008).

²³ A report by the Congressional Research Service concluded that Treasury loans to the NFIP to cover Hurricane Katrina-related claims are not likely to be repaid. King, R.O. (2005, September 15, updated on 2008, January 31). “CRS Report for Congress: Hurricane Katrina: Insurance Losses and National Capacities for Financing Disaster Risk.” The Senate-passed bill would forgive these debts, and many observers expect that this position will prevail in conference. Flood Insurance Reform and Modernization Act of 2008, H.R. 3121, 109th Cong. § 112 (2008) (as passed by the Senate).

²⁴ The Community Disaster Loan program authorized by Section 417 of the Stafford Act and administered by FEMA was intended to assist local governments which experienced revenue losses and/or increased municipal operating expenses as a result of a presidentially-declared major disaster. The Congressional Research Service reviewed loans made under the program from August 1976 through September 30, 2005. Although 65 percent of the loans were paid back in part or in full, most were for small amounts, and together they accounted for only 2 percent of the principal amount advanced. Noto, N.A., and Maguire S. (2006, February 21). “CRS Report for Congress: FEMA’s Community Disaster Loan Program.” Congressional Research Service.

²⁵ Insurance Information Institute (2008, May). “Report on Residual Market Property Plans.” *From Markets of Last Resort to Markets of First Choice*, 18-19 and 23-25.

Moreover, Title III of this bill, added on the House floor, further requires that the Treasury reinsure the Florida program and any other “qualified reinsurance program” for losses arising from huge, catastrophic events of magnitudes expected no more than once every 200 years. This provision would obligate the federal government and taxpayers to cover 90 percent of the costs, up to a total federal liability of \$200 billion. If the federal government estimates that the expected losses from a once-in-200-years storm striking Florida are \$20 billion, and actual losses are \$32 billion, the federal government would be required to provide the Florida state fund \$10.8 billion, with no interest or obligation for repayment.

A third proposal, passed by the House but rejected by the Senate, would expand the National Flood Insurance Program (NFIP) to cover “multiple perils,” including damage from windstorms. While the proposal stipulates that this coverage should be actuarially-priced, the same stipulation covers the current NFIP; and under public pressure, its’ actual rates have been set significantly below those actuarial prices. One result is a current deficit for the NFIP estimated by the Congressional Budget Office at \$17.5 billion and increasing by an average of \$900 million per year.²⁶ Further expansion of the NFIP to cover wind losses almost certainly would substantially increase the program’s future shortfalls: One recent analysis estimated that catastrophic wind events could cost the program as much as \$100 billion to \$200 billion in a single year, depending on the extent to which the new coverage replaced private coverage.²⁷

The federal government always assumes a large financial role in responding to major natural disasters, but these payments normally are in addition to those provided by private insurers. Following Hurricane Katrina, the federal government provided \$18 billion for infrastructure repairs, \$17 billion in block grants, \$13 billion for temporary housing, and \$6 billion for other disaster-related loans. The federal government also paid \$18 billion in claims under the NFIP. All of these payments came on top of more than \$70 billion in claims paid by private insurance and reinsurance companies. The combination of Florida’s new laws and the proposed federal legislation would displace most private insurers and reinsurers from the Florida market for future natural disaster coverage—and from other states that follow Florida’s lead. Moreover, increased development and the appreciation of property values in coastal areas will dramatically increase the value of the property at risk for the federal government, while forecasters have raised their estimates of the likelihood of future catastrophic hurricanes.²⁸

Yet, the Georgetown Environmental Law and Policy Institute, along with both industry and academic experts, have concluded that the private insurance market is fully capable of covering these risks, if it is allowed to operate freely—as it did in the 2005

²⁶ Congressional Budget Office (2007, June). “Value of Properties in the National Flood Insurance Program,” Pub.. No. 2925.

²⁷ Towers Perrin (2007). “Analysis of H.R. 920, Multiple Peril Insurance Act of 2007.”

²⁸ Scientists now believe that we have entered a twenty-to-forty year cycle of increased hurricane frequency and intensity with the result that “in the coming decades the United States is likely to be hit by more frequent hurricanes than it experienced in preceding years.” Pidot, J. R. (2007). “The Case For Relying on the Private Market,” Georgetown Environmental Law and Policy Institute.

hurricane season. Moreover, the private insurability of property at risk of hurricane damage is actually increasing with advances in forecasting and the development of sophisticated, risk-spreading instruments such as catastrophe bonds and reinsurance pools for natural disaster risks of varied types, such as hailstorms, tornados and earthquakes. These developments also have been lowering premiums rates: As new insurance companies and capital have entered the market, reinsurance rates have fallen since mid-2006 by 10 percent to 15 percent in most areas and by nearly 25 percent in other areas

The most effective way for government to provide relief to homeowners facing sharp premium increases, while limiting other taxpayers' potential liabilities and allowing the private insurance and reinsurance markets to work, is to expand mitigation programs with tax incentives, direct grants and loans to encourage property owners to harden their homes and businesses against hurricanes and other natural disasters.²⁹ States also can play an important role mitigating the losses from natural disasters. For example, South Carolina combines risk-based premium pricing, which encourages policyholders to harden their homes and businesses, with a state "wind pool" that offers "last resort" coverage. Louisiana also has eliminated its state insurance rating commission, the last in the country required to approve all rate increases above 10 percent, to attract more insurers to the state market and encourage them to offer a wider range of products.

V. The Costs of Proposed Legislation to the Federal Government

It is clear that the proposed legislation will shift substantial costs from the private insurance and reinsurance industries to the federal government and taxpayers. Here, we analyze those costs and estimate the impact on the federal government and taxpayers in each state, if natural disasters of the scale and distribution experienced in 2005 occur again under the terms of the proposed legislation. While other natural-disaster scenarios are possible, large hurricanes striking the Gulf Coast states are most likely.³⁰ We begin with the known, insured losses arising from the 2005 hurricane season, including Hurricanes Katrina, Rita, Wilma and Dennis, by state, which totaled more than \$56 billion.

²⁹ Current proposals include H.R. 6424 (The Property Mitigation Assistance Act), S.930 (The Hurricane and Tornado Mitigation Investment Act), S.2327 (Homeowners Insurance Assistance Act) and S.2328 (The Property Mitigation Act). H.R. 6424 would create a new FEMA program of grants to states for loans or grants to lower-income homeowners to reduce their hurricane risks by, for example, adding storm shutters or safe rooms. S. 930 would provide tax credits equal to 25 percent of the cost of hurricane and tornado mitigation expenditures, up to \$5,000, for homes valued at less than \$1 million and for businesses valued at less than \$5 million. S. 2328 would authorize the FEMA to assist states in providing loans to property owners to cover elevation and other mitigation expenses. S. 2327 would provide a tax credit equal to 50 percent of a taxpayer's qualified homeowners' insurance premiums, up to a maximum credit of \$250, based on the taxpayer's adjusted gross income. Moreover, these credits would be available only to those who already live in these areas, so as not to encourage further development in high risk areas

³⁰ According to A. M. Best, nine of the 10 largest hurricanes reaching land in the United States struck the Southeast Atlantic/Gulf area, especially Florida. According to the National Hurricane Center (2007), Florida also accounts for 60 percent of the expected estimated average U.S. wind risk, and has experienced 50 percent of the most expensive hurricanes on record and 40 percent of the worst hurricanes, measured in intensity.

Table 1: Insured Losses from 2005 Hurricanes, By State (\$ million)³¹

States	Katrina	Rita	Wilma	Dennis	Total
Louisiana	\$25,275	\$2,912.5	--	--	\$28,187.5
Mississippi	\$13,605	\$34	--	--	\$13,639
Alabama	\$1,032	\$13	--	--	\$1,045
Florida	\$572	\$23	\$9,350	\$1,100	\$11,045
Tennessee	\$59	\$10	--	--	\$69
Georgia	\$36	--	--	--	\$36
Texas	--	\$1,970	--	--	\$1,970
Arkansas	\$13.7	--	--	--	\$13.7
Total	\$40,592.7	\$4,962.5	\$9,350	\$1,100	\$56,005.2

To estimate the corresponding insured losses from a comparable hurricane season in some future year, we take account of the likely path of future property development and property values. Under current conditions, the population of coastal areas will continue to increase, requiring that more homes and other structures be built there, and the value of property there, as elsewhere, also should generally continue to rise.

We use the expected rate of growth in coastal population projected by the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce, as a proxy for the rate of growth of property development, since the higher the population density in these areas, the greater the number of structures that can be affected by terrible storms.³² Using NOAA data for the years 2003-2008, we derive estimates of the average annual rate of growth of population for the coastal areas.

We also derive estimates of future increases in the value of insured property in coastal areas, since as the value of property rises, the value of claims for damage to the property also increases. The Insurance Information Institute provides data on the current value of insured coastal property but does not provide estimates of expected property value increases.³³ Therefore, we use data on average property prices for the affected states over the years 2003-2008 collected by the Office of Federal Housing Enterprise Oversight (OFHEO), calculate the average annual price increase, and apply it to the estimates of current property values in the coastal areas. Since the value of a state's coastal properties generally rises more rapidly than the value of other property in the

³¹ Insurance Information Institute, "Hurricane Katrina Fact File,"

http://server.iii.org/yy_obj_data/binary/759496_1_0/Hurricane%20Katrina%20Fact%20File.pdf.

³² Crosset, K.M., Culliton, T.J., Wiley, P.C., and Goodspeed, T.R. (2004, September). "Population Trends Along the Coastal United States, 1980-2008). National Oceanic and Atmospheric Administration, http://oceanservice.noaa.gov/programs/mb/pdfs/coastal_pop_trends_complete.pdf.

According to NOAA, almost 53 percent of the nation's population lived in 673 coastal counties in 2003, and their populations are expected to grow by more than 7 million by 2008. However, the NOAA analysis includes as "coastal counties" areas bordering the Great Lakes; when the Great Lakes are excluded from these calculations, 30 percent of the nation's population lives in coastal counties. See Crowell, M. (2007). "How Many People Live In Coastal Areas?" *Journal of Coastal Research*. 23 (5).

³³International Information Institute,

http://www.iii.org/media/facts/statsbyissue/catastrophes/?table_sort_746383=3.

state, our estimates of projected property values in coastal areas should be conservative.³⁴ Moreover, even if property values increase less rapidly in the future than the recent past, the impact on the overall cost of the legislation would be modest. Further, inflation will increase the replacement costs of homes and offices for insurance purposes.³⁵

Finally, we limit our estimates of insured losses from a future hurricane season comparable in force to 2005 to the six coastal states most affected in that year (see Table 1), and so exclude Tennessee and Arkansas, where the storms had relatively modest effects and projections of total population growth could produce an overestimate of insured losses. As noted earlier, we also do not attempt to estimate the costs to federal taxpayers of large storms striking other East Coast states which have or could enact state programs to take advantage of a new federal benefit, including the Carolinas, Maryland, Delaware, New Jersey, New York and Massachusetts.

We use these data, first, to estimate the average annual growth rates in coastal population and insured property values in the six coastal states affected in 2005 over the next decade. The results, in Table 2, below, show that property values grew at an average annual rate of between 4.9 percent (Georgia) and 14.5 percent (Florida).

Table 2. Average Annual Rates of Growth in Population and Insured Property Values, Selected Coastal States, 2003-2008

State	Growth in Population	Growth in Property Values
Louisiana	0.8%	7.6%
Mississippi	1.2%	6.4%
Alabama	1.3%	6.4%
Florida	1.5%	14.5%
Georgia	1.0%	4.9%
Texas	1.2%	5.0%

While these estimates of future annual growth in coastal property values are derived from five years of a major housing boom there, they are also consistent with longer-term growth in property values in these states, with the possible exception of Florida at 14.5 percent increases per-year. To ensure that this projection does not distort the results of our analysis, we also calculated the cost projections assuming increases in

³⁴ The U.S. General Accounting Office (2007) reports that the states with the most housing units in coastal counties were California, Florida and New York, which together account for 41 percent of the total housing supply in all coastal counties. AIR Worldwide Corporation (2008) estimates that the insured value of property in coastal counties in states bordering the Atlantic Ocean and the Gulf of Mexico was \$8.9 trillion in December 2007, with the value of residential and commercial coastal property in Florida accounting for \$2.5 trillion.

³⁵ AIR Worldwide Corporation notes, “From December 31, 2004 through December 31, 2007, the insured value of properties in coastal areas of the United States continued to grow at a compound annual growth rate of just over 7 percent. Despite the recent weakening of the real estate market in many areas, the insured value – or the cost to *rebuild* properties – has maintained an annual growth rate that will lead to a doubling of the total value every decade.” See AIR Worldwide Cooperation (2008, June 11). “The Coastline at Risk: 2008 Update to the Estimated Insured Value of U.S. Coastal Properties.”

Florida coastal property values of 7.25 percent per-year, instead of 14.5 percent, or half as large. The change had a very modest effect on the final estimates: The federal taxpayers' burden for hurricane payments in the event of a hurricane season comparable to 2005 would be reduced by less than 3 percent.³⁶

Next, we use these estimates to project the insured losses, per state, if natural disasters on the scale of those in 2005 occurred again, for each year over the next decade. This analysis suggests that the insured losses in the six states would reach more than \$81 billion in 2009, nearly \$120 billion in 2013, and more than \$180 billion in 2017 (Table 3, below)

Table 3. Projected Insured Losses, By State, 2005-2017, \$ million

	Louisiana	Mississippi	Alabama	Florida	Georgia	Texas	Total
2005	\$28,187.5	\$13639.0	\$1,045.0	\$11,045.0	\$36.0	\$1,970.0	\$55,922.5
2006	30,569.1	14684.0	1125.3	12814.8	38.2	2093.9	\$61,325.3
2007	33152.0	15809.1	1211.7	14868.2	40.5	2225.5	\$67,307.0
2008	35953.1	17020.3	1304.7	17250.5	42.9	2365.5	\$73,937.0
2009	38990.9	18324.4	1404.9	20014.7	45.5	2514.2	\$81,294.6
2010	42285.3	19728.4	1512.8	23221.7	48.3	2672.3	\$89,468.8
2011	45858.1	21239.9	1628.9	26942.6	51.2	2840.3	\$98,561.0
2012	49732.8	22867.3	1754.0	31259.7	54.4	3018.9	\$108,687.1
2013	53934.8	24619.4	1888.7	36268.6	57.6	3208.7	\$119,977.8
2014	58491.9	26505.7	2033.7	42080.0	61.0	3410.4	\$132,582.7
2015	63434.0	28536.5	2189.9	48822.7	64.7	3624.9	\$146,672.7
2016	68793.7	30722.9	2358.1	56645.7	68.6	3852.8	\$164,441.8
2017	74606.3	33076.8	2539.1	65722.3	72.8	4095.1	\$180,112.4

Next, we estimate the total costs to the federal government for claims under the National Flood Insurance Program (NFIP) of a future hurricane season comparable to 2005, by applying the same population and property value growth rates to the NFIP payments made to each state for damages incurred in the 2005 hurricane season. (The data on NFIP payments by state are collected by the Insurance Information Institute.) This analysis shows that the claims for damages under the NFIP for a future hurricane season comparable to 2005 would reach more than \$22 billion in 2009, more than \$31 billion in 2013, and nearly \$44 billion in 2017 (Table 4).

³⁶ The shortfall would be cut from \$160.9 billion to \$156.3 billion assuming premiums based on the NFIP and from \$139.8 billion to \$137.2 billion assuming premiums of 80 percent of private sector levels.

Table 4. Projected Claims Under the NFIP, By State, 2005-2017, \$ millions

	Louisiana	Mississippi	Alabama	Florida	Texas	Total
2005	\$12,996.2	\$2,362.2	\$257.4	\$464.4	\$46.9	\$16,127.1
2006	14094.3	2543.2	277.2	538.8	49.9	\$17,503.3
2007	15285.1	2738.0	298.5	625.2	53.0	\$18,999.8
2008	16576.6	2947.8	321.4	725.3	56.3	\$20,627.5
2009	17977.2	3173.7	346.0	841.5	59.9	\$22,398.4
2010	19496.2	3416.9	372.6	976.4	63.6	\$24,325.6
2011	21143.4	3678.6	401.2	1132.8	67.6	\$26,423.8
2012	22929.9	3960.5	432.0	1314.4	71.9	\$28,708.7
2013	24867.3	4263.9	465.2	1525.0	76.4	\$31,197.8
2014	26968.4	4590.6	500.9	1769.3	81.2	\$33,910.5
2015	29247.0	4942.4	539.4	2052.8	86.3	\$36,867.9
2016	31718.2	5321.0	580.8	2381.7	91.7	\$40,093.5
2017	34398.2	5728.7	625.4	2763.4	97.5	\$43,613.2

One of the current proposals before Congress, H.R. 3121, would expand the NFIP to cover losses from high winds, which currently are generally covered through private insurance and therefore included in our estimates of insured losses (Table 1, above). If the federal government steps into the wind market, as the proposal would involve, it will disrupt the private insurance market in this area as well, because private insurers with actuarially-based rates will not be able to match the lower, subsidized premium levels traditionally maintained by the NFIP.³⁷ If the NFIP applied such subsidized pricing to wind coverage, it would crowd out and ultimately displace actuarially-priced private coverage, and the wind-related claims included in our projections for insured losses would shift to the NFIP. The total hurricane-related claims on the NFIP, therefore, would be the sum of its hurricane-related flood coverage plus the new, proposed coverage for wind damage.

In addition to the losses currently insured through private coverage or the NFIP, Hurricane Katrina also produced major damage from storm surges, most of which were uninsured, as well as uninsured flood damage. Some of this damage also was ultimately covered through the NFIP in 2005.³⁸ Under the proposed legislation, however, the federal government would provide loans to states when their governments or catastrophe funds do not have the resources to meet their obligations, and these loans are unlikely to be repaid. Given the limited reserves in current state catastrophe funds, noted earlier, the responsibility for these uninsured losses also would likely fall to the federal government and its taxpayers. Table 5, below, provides estimates of those uninsured storm surge losses by state, for the four states affected by Hurricane Katrina and for which we have

³⁷ About one quarter of NFIP policies pay about 40 percent of the risk-based rate (GAO, 2007). See also Marron, D. (2006, May 31). "Letter to Chairman Judd Gregg, Committee on the Budget." Congressional Budget Office, <http://www.cbo.gov/ftpdocs/72xx/doc7233/05-31-NFIPLetterGregg.pdf>.

³⁸Hartwig, R.P. (2005, October 18). "The Future of the National Flood Insurance Program." Testimony before the United States Senate Committee on Banking, Housing and Urban Development, http://server.iii.org/yy_obj_data/binary/745025_1_0/NFIP_Testimony.pdf.

data, collected by the Insurance Information Institute, adjusted again for increases in population density and property values. The projected uninsured losses from storm surges in a future hurricane comparable to Katrina, covering Louisiana, Mississippi, Alabama and Florida, would total nearly \$61 billion in 2009, nearly \$84 billion in 2013, and more than \$115 billion in 2017.

Table 5. Uninsured Losses from Flood and Storm Surge Damage, By State, Based on Hurricane Katrina, 2005-2017, \$ million

	Louisiana	Mississippi	Alabama	Florida	Total
2005	\$38,800.0	\$4,400.0	\$793.0	\$32.0	\$44,025.0
2006	42078.3	4737.1	853.9	37.1	\$47,706.5
2007	45633.6	5100.1	919.5	43.1	\$51,696.2
2008	49489.3	5490.8	990.1	50.0	\$56,020.2
2009	53670.8	5911.5	1066.1	58.0	\$60,706.4
2010	58205.6	6364.5	1148.0	67.3	\$65,785.3
2011	63123.5	6852.1	1236.1	78.1	\$71,289.8
2012	68457.0	7377.1	1331.0	90.6	\$77,255.7
2013	74241.1	7942.3	1433.2	105.1	\$83,721.7
2014	80513.9	8550.8	1543.3	121.9	\$90,729.9
2015	87316.7	9206.0	1661.8	141.5	\$98,326.0
2016	94694.3	9911.3	1789.4	164.1	\$106,559.2
2017	102695.3	10670.7	1926.8	190.4	\$115,483.2

Finally, the federal government provides additional public assistance to states suffering natural disasters, to help support reconstruction and rebuilding. The Federal Emergency Management Agency (FEMA) reports that the federal government has provided more than \$10 billion in such assistance to states, related to the 2005 hurricane season. Such public assistance also is likely to grow with the expected increases in population and property values in coastal areas, although these increases will likely occur whether or not the proposed legislation is approved.³⁹

The total cost to the federal government and taxpayers for a hurricane season in the future comparable to 2005, therefore, is the sum for each year of the insured losses that would be covered by federal payments under the proposed legislation, the losses covered by the NFIP, including its expansion under the proposed legislation, the uninsured flood and storm surge losses that would be covered under the catastrophe fund provisions of the proposed legislation, and reconstruction assistance (Table 6). Under the current proposals, the total projected, gross federal costs of a future hurricane season comparable to 2005 would total \$178 billion in 2009, more than \$253 billion in 2013, and nearly \$365 billion in 2017.

³⁹ Public assistance provided to each state reached \$6.37 billion for Louisiana, \$2.62 billion for Mississippi, \$115 million for Alabama, and \$925 million for Texas. We project increases based on each state's growth in population and property values.

**Table 6. Total Projected Federal Costs of a Hurricane Season
Comparable to 2005, 2006-2017, \$ billion**

	Insured Losses	NFIP	Uninsured Losses	Public Aid	Total
2005	\$55.9	\$16.1	\$44.0	\$10.0	\$126.1
2006	61.3	17.5	47.7	10.8	\$137.4
2007	67.3	19.0	51.7	11.7	\$149.7
2008	73.9	20.6	56.0	12.7	\$163.2
2009	81.3	22.4	60.7	13.7	\$178.1
2010	89.5	24.3	65.8	14.8	\$194.4
2011	98.6	26.4	71.3	16.0	\$212.2
2012	108.7	28.7	77.3	17.2	\$231.9
2013	120.0	31.2	83.7	18.6	\$253.5
2014	132.6	33.9	90.7	20.1	\$277.4
2015	146.7	36.9	98.3	21.8	\$303.6
2016	162.4	40.1	106.6	23.5	\$332.6
2017	180.1	43.6	115.5	25.4	\$364.6

Federal and state governments can offset or recover some of these costs through premium revenues. These premium revenues can be estimated in two ways. One method adjusts current NFIP revenues for the average growth rates in population and property values in the six states affected by the 2005 Hurricane season.⁴⁰ This approach is reasonable, since one of the proposals expands the NFIP to cover wind damages. A second approach used by some analysts projects future premium revenues based on rates equal to 80 percent of those currently charged by private insurers.⁴¹ For this approach, we collected data from the Insurance Information Institute on direct premiums written in 2006 for the states covered in this analysis and adjusted those data using the projected increases in those states' coastal populations and property values.⁴² We then aggregated the results for those states for each year and assume that the premiums collected by the government would equal 80 percent of those totals. (For projected increases in premiums for each state, see Appendix.)

Table 7A, below, provides estimates, year by year, of the total claims under the proposed legislation arising from a future hurricane season comparable to 2005, the total premiums collected based on NFIP premiums levels, and the consequent shortfalls for the federal government and taxpayers under the legislation—as well as the projected additional federal aid, by year. These estimates show that in the event of another hurricane season comparable to 2005, the projected federal shortfall under the proposed legislation—taking account of premium income based on current NFIP premiums, and not including normal federal assistance—would reach almost \$161 billion in 2009, \$230 billion in 2013, and more than \$332 billion in 2017.

⁴⁰ Note that these estimates represent an upper bound on the premium revenues, since governments are unlikely to actually allow steep increases in annual rates based on increases in values of coastal property.

⁴¹ This approach is used in the Towers Perrin study (2007).

⁴² The premium data sums across direct premiums written for homeowners' multiple peril, commercial multiple peril, earthquake and floods. We were unable to get premium data for 2005.

Table 7A. Federal Shortfalls for a Hurricane Season Comparable to 2005 under Proposed Legislation and Based on NFIP Premium Rates, 2005-2007, \$ billions ⁴³

Year	Total Claims	NFIP Premiums	Federal Shortfall	Additional Federal Aid
2005	\$116.07	\$2.50	\$113.57	\$10.03
2006	126.53	2.72	\$123.82	10.84
2007	138.00	2.95	\$135.05	11.71
2008	150.58	3.21	\$147.37	12.65
2009	164.40	3.49	\$160.91	13.67
2010	179.58	3.79	\$175.79	14.77
2011	196.27	4.12	\$192.15	15.96
2012	214.65	4.48	\$210.17	17.24
2013	234.90	4.87	\$230.03	18.63
2014	257.22	5.29	\$251.93	20.14
2015	281.87	5.75	\$276.11	21.76
2016	309.09	6.25	\$302.84	23.52
2017	339.21	6.80	\$332.41	25.42

Table 7B, below, provides comparable estimates, year by year, assuming that the premiums are based on 80 percent of the rates charged by private insurers, rather than NFIP premium rates. It shows that another hurricane season comparable to 2005 would produce projected federal shortfalls under the proposed legislation—again, not including normal federal assistance—that would reach nearly \$140 billion in 2009, almost \$197 billion in 2013, and nearly \$278 billion in 2017.

Table 7B. Federal Shortfalls for a Hurricane Season Comparable to 2005 Under Proposed Legislation, Based on Market Premiums with a 20 Percent Subsidy, 2005-2007, \$ billions ⁴⁴

Year	Total Claims	Premiums	Federal Shortfall	Additional Federal Aid
2005	\$116.07	NA	NA	\$10.03
2006	\$126.53	\$17.98	\$108.56	\$10.84
2007	138.00	19.93	\$118.07	11.71
2008	150.58	22.14	\$128.45	12.65
2009	164.40	24.63	\$139.77	13.67
2010	179.58	27.45	\$152.13	14.77
2011	196.27	30.64	\$165.63	15.96
2012	214.65	34.27	\$180.39	17.24
2013	234.90	38.38	\$196.51	18.63
2014	257.22	43.07	\$214.16	20.14
2015	281.87	48.40	\$233.46	21.76
2016	309.09	54.48	\$254.61	23.52
2017	339.21	61.43	\$277.78	25.42

⁴³ These estimates assume annual population growth averaging 1.19 percent and annual increases in property values averaging 7.5 percent.

⁴⁴ These estimates also assume annual population growth averaging 1.19 percent and annual increases in property values averaging 7.5 percent.

These estimates confirm that the annual damages of such a hurricane season would consistently exceed 150 percent of annual premiums, the condition established in the proposed legislation for much of the new federal assistance. These estimates also are consistent with a recent study by Towers Perrin, which estimated that if the NFIP were expanded to cover wind damage as currently proposed, and displaced private insurers, the program could run deficits ranging from \$23.4 billion to \$230 billion, depending on the severity of the hurricane season.

VI. The Costs of the Proposed Legislation for Taxpayers, by State

The shortfalls incurred by the federal government under these proposals would ultimately fall on taxpayers. Since the Florida state programs, combined with the proposed federal legislation, would largely displace private insurers and reinsurers from the hurricane damage market, and the legislation would almost certainly move other states to change their laws to take advantage of the large new federal subsidies, these proposals would create major transfers from taxpayers in other states to the homeowners, business owners, and taxpayers of the states in the normal path of major hurricanes.

To measure these transfers, we distribute the federal shortfall by state, for the year 2009, assuming a hurricane season in that year comparable to 2005 and the legislative proposals described earlier. The distribution of the shortfall is based on the current distribution of total federal tax payments by state. For each state, we multiply its percentage share of federal tax payments by the projected federal shortfall under these proposals in 2009 (total federal obligations, net of premium income), using both approaches to estimate premium income. We also distribute each state's share of the projected, additional federal disaster assistance, although that assistance is unrelated to the proposed legislation.

Table 8, below, shows that taxpayers in Montana, for example, would be responsible for \$350 million to \$400 million of the hurricane losses under the proposed programs, plus another \$30 million for federal disaster assistance; and Iowa's taxpayers would pick up \$1.2 billion to \$1.4 billion of the costs, plus another \$120 million for disaster aid. New York taxpayers would be responsible for \$11.2 billion to \$12.9 billion of the losses from such a hurricane season in 2009, plus another \$1.1 billion for disaster aid; and the share born by California's taxpayers would be \$19.1 billion to \$22.1 billion, on top of \$1.9 billion for disaster relief. If a hurricane season comparable to 2005 struck again in 2017, under the same legislative conditions, the federal shortfall and the consequent shares borne by the taxpayers in each of these states--and in all other states--would be more than twice as great as those estimated for 2009.

Table 8: Distribution of the Federal Disaster Shortfall under Proposed Legislation For a Hurricane Season in 2009 Comparable to 2005, By State, \$ billion

State	Share of Shortfall Based on NFIP Premiums	Share of Shortfall Based on Market Premiums, Less 20 Percent	Share of Federal Disaster Aid
Alabama	\$1.88	\$1.63	\$0.16
Alaska	\$0.37	\$0.32	\$0.03
Arizona	\$2.74	\$2.38	\$0.23
Arkansas	\$1.06	\$0.92	\$0.09
California	\$22.08	\$19.18	\$1.88
Colorado	\$2.74	\$2.38	\$0.23
Connecticut	\$3.07	\$2.67	\$0.26
Delaware	\$0.50	\$0.44	\$0.04
Florida	\$10.31	\$8.95	\$0.88
Georgia	\$4.27	\$3.71	\$0.36
Hawaii	\$0.65	\$0.56	\$0.06
Idaho	\$0.59	\$0.51	\$0.05
Illinois	\$7.61	\$6.61	\$0.65
Indiana	\$2.90	\$2.52	\$0.25
Iowa	\$1.36	\$1.18	\$0.12
Kansas	\$1.33	\$1.15	\$0.11
Kentucky	\$1.68	\$1.46	\$0.14
Louisiana	\$1.57	\$1.36	\$0.13
Maine	\$0.59	\$0.51	\$0.05
Maryland	\$3.75	\$3.26	\$0.32
Massachusetts	\$4.80	\$4.17	\$0.41
Michigan	\$5.06	\$4.39	\$0.43
Minnesota	\$3.09	\$2.69	\$0.26
Mississippi	\$0.95	\$0.82	\$0.08
Missouri	\$2.68	\$2.33	\$0.23
Montana	\$0.40	\$0.35	\$0.03
Nebraska	\$0.86	\$0.75	\$0.07
Nevada	\$1.54	\$1.33	\$0.13
New Hampshire	\$0.81	\$0.71	\$0.07
New Jersey	\$6.57	\$5.70	\$0.56
New Mexico	\$0.75	\$0.66	\$0.06
New York	\$12.86	\$11.17	\$1.09
North Carolina	\$4.01	\$3.48	\$0.34
North Dakota	\$0.29	\$0.25	\$0.02
Ohio	\$5.36	\$4.66	\$0.46
Oklahoma	\$1.49	\$1.30	\$0.13
Oregon	\$1.80	\$1.56	\$0.15
Pennsylvania	\$6.71	\$5.82	\$0.57
Rhode Island	\$0.61	\$0.53	\$0.05
South Carolina	\$1.73	\$1.50	\$0.15
South Dakota	\$0.37	\$0.32	\$0.03
Tennessee	\$2.74	\$2.38	\$0.23

Texas	\$11.20	\$9.73	\$0.95
Utah	\$1.00	\$0.87	\$0.09
Vermont	\$0.31	\$0.27	\$0.03
Virginia	\$4.59	\$3.99	\$0.39
Washington	\$3.79	\$3.29	\$0.32
West Virginia	\$0.67	\$0.58	\$0.06
Wisconsin	\$2.82	\$2.45	\$0.24
Total	\$160.91 billion	\$139.77 billion	\$13.67 billion

To measure and estimate the net costs to most states and the net benefits to the six states that would be affected most directly by a hurricane season comparable to 2005, we also estimate the payments which each state would receive under the proposed legislation. Table 9, below, shows the estimated payments to states affected by the hurricanes of 2005, arising from a comparable hurricane season in 2009. These payments include insurance claims by private policyholders, which would shift to the federal government under the proposed legislation; claims made to the NFIP, principally for flood damage, which would expand to include wind under the proposed legislation; and assistance provided to uninsured homeowners and business owners for storm and surge losses, which would be covered by the catastrophe-fund provisions of the proposed legislation. The largest payments here would go to Louisiana, because it was disproportionately affected by the most severe 2005 storm, Katrina. The distribution of the total payments provided here assumes that the next hurricane season comparable to the one in 2005 would follow the same paths, although the course of any hurricane cannot be known in advance. We have confidence in the overall levels of these estimates for a future hurricane season comparable to 2005, and that these six states would bear most of the damage and hence receive most of the payments under the proposed legislation. But the distribution of the damage and payments among these states will be different next time than it was in 2005. Next time, for example, Florida or Texas might bear more of the brunt and receive more of the payments, while Louisiana could be relatively spared. The distribution of these payments among these states, therefore, is illustrative.

**Table 9. Estimates of Payouts to States under Proposed Legislation
For a Hurricane Season in 2009 Comparable to 2005, \$ millions**

	Private Insurance Claims	Claims Under NFIP	Uninsured Storm and Surge Losses	Total Payments
Louisiana	\$38,990.9	\$17,977.2	\$53,670.8	\$110,638.9
Mississippi	\$18,324.4	\$3,173.7	\$5,911.5	\$27,409.6
Alabama	\$1,404.9	\$346.0	\$1,066.1	\$2,817.0
Florida	\$20,014.7	\$841.5	\$58.0	\$20,914.2
Georgia	\$45.5	--	--	\$45.5
Texas	\$2,514.2	\$59.9	--	\$2,574.1
Total	\$81,294.5	\$22,398.4	\$60,706.4	\$164,399.3

The final step in our analysis entails netting out these payments to the states affected directly by hurricanes, under the proposed legislation, in order to estimate the net transfers among the states arising from the combination of that legislation and another

severe hurricane season. Since only six states were significantly affected by the hurricanes and received assistance, every other state bears a burden equal to its share of the shortfall, which would become transfers to those states affected by the hurricanes. Setting aside federal disaster aid, which is not included in these estimates of net payments and net burdens, it is critical to recognize that these transfers would arise not from the hurricanes themselves, but from the provisions of the proposed legislation which would displace the private insurance and reinsurance industries with the new federal programs and guarantees.

The results, presented in Table 10, below, show massive transfers from taxpayers in 44 states to the taxpayers, homeowners, and business owners in the six states that lie in the paths of most hurricanes. If the distribution of hurricane damage in 2009 mirrored that in 2005, the net benefits to Louisiana would exceed more than \$109 billion, net of its share of the taxes to support the new programs; Mississippi would collect about \$26.5 billion in net benefits, the net payments to Florida would range from \$10.6 billion to \$12 billion, and Alabama would receive between \$940 million and \$1.2 billion in net payments. Using the pattern of hurricane damages from 2005, Texas and Georgia would pay more in taxes than they would receive in benefits; but the paths of future hurricanes could change that.

Regardless of the particular paths of future hurricanes, most states would end up providing very large net payments to displace the current private market arrangements with the provisions currently under consideration in the Congress. For the states cited as examples earlier, the analysis shows that taxpayers in Montana would be responsible for \$350 million to \$400 million of those six states' hurricane losses under the proposed programs; and Iowa's taxpayers would transfer \$1.2 to \$1.4 billion to those states for their hurricane damage. The taxpayers of New York would transfer \$11.2 billion to \$12.9 billion to supplant the current private arrangements with the proposed new federal programs, and the net cost to California's taxpayers would range from \$19.1 billion to \$22.1 billion. And once again, if a hurricane season comparable to 2005 struck in 2017 instead of 2009, under the same proposed legislative conditions the transfers from taxpayers in each of these states--and all others--would be more than twice as great as those estimated for 2009.

Table 10. Estimates of Net Payments to and from States under Proposed Legislation For a Hurricane Season in 2009 Comparable to 2005, By State, \$ billions

	Payments Received	Share of Shortfall (NFIP Premiums)	Net Payments	Share of Shortfall (Market Premiums Less 20 Percent)	Net Payments
<i>Alabama</i>	<i>\$2.82</i>	<i>\$1.88</i>	<i>\$0.94</i>	<i>\$1.63</i>	<i>\$1.18</i>
Alaska	0.00	0.37	- 0.37	0.32	- 0.32
Arizona	0.00	2.74	- 2.74	2.38	- 2.38
Arkansas	0.00	1.06	- 1.06	0.92	- 0.92
California	0.00	22.08	- 22.08	19.18	- 19.18
Colorado	0.00	2.74	- 2.74	2.38	- 2.38
Connecticut	0.00	3.07	- 3.07	2.67	- 2.67

Delaware	0.00	0.50	- 0.50	0.44	0.44
<i>Florida</i>	<i>20.91</i>	<i>10.31</i>	<i>10.61</i>	<i>8.95</i>	<i>11.96</i>
<i>Georgia</i>	<i>0.05</i>	<i>4.27</i>	<i>- 4.22</i>	<i>3.71</i>	<i>- 3.66</i>
Hawaii	0.00	0.65	- 0.65	0.56	- 0.56
Idaho	0.00	0.59	- 0.59	0.51	- 0.51
Illinois	0.00	7.61	- 7.61	6.61	- 6.61
Indiana	0.00	2.90	- 2.90	2.52	- 2.52
Iowa	0.00	1.36	- 1.36	1.18	- 1.18
Kansas	0.00	1.33	- 1.33	1.15	- 1.15
Kentucky	0.00	1.68	- 1.68	1.46	- 1.46
<i>Louisiana</i>	<i>110.64</i>	<i>1.57</i>	<i>109.07</i>	<i>1.36</i>	<i>109.28</i>
Maine	0.00	0.59	- 0.59	0.51	- 0.51
Maryland	0.00	3.75	- 3.75	3.26	- 3.26
Massachusetts	0.00	4.80	- 4.80	4.17	- 4.17
Michigan	0.00	5.06	- 5.06	4.39	- 4.39
Minnesota	0.00	3.09	- 3.09	2.69	- 2.69
<i>Mississippi</i>	<i>27.41</i>	<i>0.95</i>	<i>26.46</i>	<i>0.82</i>	<i>26.59</i>
Missouri	0.00	2.68	- 2.68	2.33	- 2.33
Montana	0.00	0.40	- 0.40	0.35	- 0.35
Nebraska	0.00	0.86	- 0.86	0.75	- 0.75
Nevada	0.00	1.54	- 1.54	1.33	- 1.33
New Hampshire	0.00	0.81	- 0.81	0.71	- 0.71
New Jersey	0.00	6.57	- 6.57	5.70	- 5.70
New Mexico	0.00	0.75	- 0.75	0.66	- 0.66
New York	0.00	12.86	- 12.86	11.17	- 11.17
North Carolina	0.00	4.01	- 4.01	3.48	- 3.48
North Dakota	0.00	0.29	- 0.29	0.25	- 0.25
Ohio	0.00	5.36	- 5.36	4.66	- 4.66
Oklahoma	0.00	1.49	- 1.49	1.30	- 1.30
Oregon	0.00	1.80	- 1.80	1.56	- 1.56
Pennsylvania	0.00	6.71	- 6.71	5.82	- 5.82
Rhode Island	0.00	0.61	- 0.61	0.53	- 0.53
South Carolina	0.00	1.73	- 1.73	1.50	- 1.50
South Dakota	0.00	0.37	- 0.37	0.32	- 0.32
Tennessee	0.00	2.74	- 2.74	2.38	- 2.38
<i>Texas</i>	<i>2.57</i>	<i>11.20</i>	<i>- 8.63</i>	<i>9.73</i>	<i>- 7.16</i>
Utah	0.00	1.00	- 1.00	0.87	- 0.87
Vermont	0.00	0.31	- 0.31	0.27	- 0.27
Virginia	0.00	4.59	- 4.59	3.99	- 3.99
Washington	0.00	3.79	- 3.79	3.29	- 3.29
West Virginia	0.00	0.67	- 0.67	0.58	- 0.58
Wisconsin	0.00	2.82	- 2.82	2.45	- 2.45
TOTAL	\$164.40	\$160.91		\$139.77	

VII. Conclusion

It is virtually certain that very serious hurricanes will strike the United States in the near future, as they have in the recent past; and the households and businesses that are most likely to be damaged in such natural disasters need reliable insurance. The private insurance industry has provided such coverage through decades of major hurricanes and other natural disasters, at rates that necessarily and appropriately reflect their policyholders' risks; and these property and casualty insurers have used private reinsurance to protect their policyholders and shareholders from exceptionally large claims arising from the most serious hurricanes, and so continue to offer coverage at rates most businesses and households can afford. The enormous losses from the 2005 hurricane season of Katrina, Rita, Wilma, and Dennis tested these arrangements. Private reinsurers, many based outside the United States, absorbed 60 percent of the insured losses; and by the end of 2005, the numbers and capital of U.S.-based insurers and reinsurers both had increased.

Legislation now under consideration by the U.S. Congress could unravel much of these arrangements by effectively making the U.S. Treasury the public reinsurer for state-run natural-disaster insurance and reinsurance operations. These changes would impose very large, new costs on federal taxpayers from states both close and distant from the hurricane-exposed areas of the U.S. eastern coast. Our analysis found that if these proposals are enacted and the Gulf states experience hurricanes in 2009 comparable to those in 2005, the Treasury be obliged to make payments of more than \$164 billion mainly to the state governments of Florida, Louisiana, Mississippi, Texas, Georgia, and Alabama; and taxpayers across the country would bear the burden of between \$140 billion and \$161 billion of that total. In such an event, taxpayers in at least 20 states would face new, multi-billion burdens, including burdens of *at least* \$19 billion for Californians, \$11 billion for New Yorkers, \$7 billion for Illinoisans, \$6 billion for taxpayers in Pennsylvania and New Jersey, \$5 billion for those in Ohio, \$4 billion each from the taxpayers of Massachusetts, Michigan, and Virginia, and at least \$3 billion for those in Connecticut, Indiana, Maryland, Minnesota, North Carolina, and Washington state.

Almost all of these projected, new taxpayer costs arise from interference in well-functioning insurance and reinsurance markets for natural disasters. The basic economics of insurance dictate risk-based rates and reinsurance for exceptionally large risks, both to ensure that the liabilities can be covered even in worst-case natural disasters, and to encourage businesses and households to weigh the risks of locating in coastal areas prone to large hurricanes and take measures to contain and manage their own financial risks. Despite the industry's record of meeting the liabilities of the terrible 2005 hurricane season, the legislature and regulators in Florida stepped in and directed that insurers in the state roll back rate increases and freeze those rates at pre-2005 levels into the future. The Florida state government further created a state-run reinsurance agency entity. Many insurers and reinsurers responded to these measures by leaving the Florida market, further increasing the burdens and liabilities of the state's own arrangements. Now the Florida congressional delegation has proposed that the Treasury and federal taxpayers

assume most of the new public burden which Florida created. This analysis finds that the most equitable and efficient course would be to allow private casualty and property insurers and reinsurers to operate without undue state intervention in Florida and other coastal states, and without new federal legislation to shift those burdens to all taxpayers.

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