



April 19, 2017

Honorable Jeb Hensarling  
Chairman  
Committee on Financial Services  
U.S. House of Representatives  
Washington, DC 20515

*Re: Preliminary Results From CBO's Analysis of the National Flood Insurance Program*

Dear Mr. Chairman:

The staff of the Committee on Financial Services has asked the Congressional Budget Office to provide any information it can about the soundness and affordability of the National Flood Insurance Program (NFIP)—before the agency releases the full report that you requested—to complement the committee's recent hearings on the subject. The major activities of the program, which is administered by the Federal Emergency Management Agency (FEMA), include collecting the premiums for flood insurance policies, paying claims for damage, mapping and mitigating flood risk, and promoting floodplain management. Current authorization for the NFIP expires on September 30, 2017.

To arrive at the preliminary findings reported here, CBO compared collections from premiums (the total annual amount that households pay for their insurance) with the expected costs for the 5 million policies that were in place under the NFIP in the 48 contiguous states on August 31, 2016. This analysis uses estimates of expected claims—the largest, but highly uncertain, component of the program's expected costs—produced by commercially available models. Those estimates are significantly higher than the estimates resulting from FEMA's approach to measuring expected claims.

CBO's findings thus far include the following:

- A variety of comparisons involving different components of the NFIP's expected costs and of premiums for insurance purchased under the program suggest that the premiums fall short of costs.
- Approximately 25 percent of NFIP policies are intentionally subsidized.
- On net, premiums fall well short of expected costs in coastal counties but slightly exceed them in inland counties.

- In the future, expected costs and premiums will probably differ from those estimated for policies in place in August 2016 because the composition of policies, insurance rates, and program costs unrelated to those rates continue to change.
- The estimates of the NFIP's average annual costs in CBO's 10-year baseline are lower than those suggested by this analysis in large part because the baseline reflects FEMA's lower estimate of expected claims.
- The median premium payment for residential coverage is roughly \$520 per year.

### **How Do Expected Costs Compare With Premiums?**

CBO found that for the 5 million policies active in August 2016 that it analyzed, the NFIP's expected costs, including expected claims and current spending for nonclaims costs, totaled \$5.7 billion. Those costs exceed the \$4.3 billion in premiums collected for those policies (see Table 1).

**Components of Costs.** Of the total costs of \$5.7 billion, \$5.0 billion is for expected claims and administrative expenses associated with writing and servicing policies. The remaining costs of \$0.7 billion are for interest on debt owed to the Treasury, the cost to prepare maps of flood zones, and grants to mitigate potential damage to properties from future flood events.

Expected claims total \$3.7 billion and are the single biggest component of expected costs. The magnitude of such claims depends on the flood risks faced by policyholders and the terms of their insurance contracts (such as coverage amounts and deductibles). Expected claims are an average of the claims that would result from all potential flooding events, weighted by the estimated probabilities of those events. Because expected claims include the small probability that very costly events would occur, they are higher than actual claims in most years. (That may not be the case, however, for the policies in place as of August 2016. Flooding caused by heavy rains in Baton Rouge combined with the flooding due to Hurricane Matthew produced claims of roughly \$3.3 billion between August and November 2016.<sup>1</sup> Some of the policies are still in effect, so additional losses are possible.)

Additional costs include expenditures that are not directly related to the writing and servicing of current policies. The largest component of those costs is interest on the program's debt to the Treasury (\$0.3 billion).

**Components of Premiums.** Of the \$4.3 billion in total premiums collected for the 5 million policies, about \$3.3 billion stems from the portion of policyholders' premiums based on the rates that FEMA charges for insurance coverage. A reserve fund assessment, surcharges, and a policy fee account for an additional \$1.1 billion.

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<sup>1</sup> This information was provided by FEMA on April 11, 2017.

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**Table 1. Expected Costs and Premiums for the National Flood Insurance Program,  
Based on Policies in Place as of August 31, 2016**

Billions of Dollars

<b>Expected Costs</b>	
Costs Associated With Writing and Servicing Policies	
Expected claims	3.7
Payments to firms selling and servicing policies	1.1
Salaries and operating expenses	<u>0.2</u>
Subtotal	5.0
Additional Costs	
Interest on debt	0.3
Mitigation action and assistance	0.2
Floodplain mapping and management	<u>0.2</u>
Subtotal	0.7
<b>Total</b>	<b>5.7</b>
<b>Premiums</b>	
Receipts Based on Coverage	3.3
Additional Charges	
Reserve fund assessment	0.5
Surcharges	0.4
Federal policy fee	<u>0.2</u>
Subtotal	1.1
<b>Total</b>	<b>4.3</b>

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Source: Congressional Budget Office, using data from the Federal Emergency Management Agency (FEMA).

Components may not add up to totals because of rounding.

The table reflects data on 5 million insurance policies that were in place in the 48 contiguous states on August 31, 2016, including the one-year premiums for those policies as well as estimates of the expected claims on those policies and of payments to the firms that sell and service them. The other costs indicated in the table reflect FEMA's 2017 budget.

Premiums do not include \$59 million collected for Increased Cost of Compliance (ICC) coverage. The coverage helps policyholders who have experienced significant or repetitive flood damage pay for mitigation measures that bring them into compliance with local regulations for floodplain management. CBO's estimate of expected costs and premiums is based on the expectation that receipts from the ICC coverage will roughly equal the amount paid to policyholders.

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**Examples of Comparisons of Costs and Premiums.** The size of the difference between the expected costs and premiums of the 5 million policies that CBO analyzed depends on which components of the two are taken into account; inclusion of different components may be relevant for different purposes. In the future, that size would be affected by changes in the components of costs and premiums included in it (as is discussed in more detail below). Three examples demonstrate some potential comparisons:

- Comparing total expected costs with total premiums indicates a shortfall of \$1.4 billion.
- Comparing only the expected costs associated with writing and servicing policies with total premiums indicates a shortfall of \$0.7 billion. Such a comparison would be particularly relevant if premiums remained the same but additional costs were eliminated.
- Comparing all costs with only the portion of the premiums based on coverage yields a shortfall of \$2.4 billion. Such a comparison would be particularly relevant if the NFIP maintained responsibility for all of its current activities but did not include in its premiums the current additional charges.

Other comparisons of costs and premiums could be relevant as well. A comparison that excluded interest costs would result in an estimate of the shortfall that focused on the costs of current policies and floodplain-related activities but did not account for costs from past policies. A comparison that did not count income from the reserve fund assessments toward the amount of premiums that were available to pay annual expected costs might better account for policymakers' goal of building up and maintaining a reserve fund in addition to covering those annual costs. And a comparison of costs associated with writing and servicing policies with rate-based receipts would provide an estimate of the shortfall in just the insurance operations of the program.

**Uncertainty in Expected Claims.** CBO's estimates of expected claims are based on estimates of flood risks developed by Guy Carpenter, a company that has advised firms and government agencies (including FEMA) about risk and insurance. Those estimates were themselves built on two models of property damage from coastal storm surges—one developed by AIR Worldwide and another by Risk Management Solutions—that yielded similar estimates, as well as on AIR Worldwide's model of property damage from inland flooding. Although those models are widely used in the public and private sectors, CBO has no basis for assessing their accuracy. It is clear, however, that modeled estimates of flood damage are highly uncertain. For example, on the basis of advice from Guy Carpenter, CBO reduced the modeled claims associated with inland flooding by 50 percent.

Using the original results produced by the model without making that adjustment would have increased the estimate of expected claims by \$1 billion (to \$4.7 billion). By contrast, using a measure of expected claims consistent with FEMA's method of setting rates would reduce

expected claims by \$1 billion, to \$2.7 billion.<sup>2</sup> In setting rates, FEMA does not currently use the results of the commercial storm surge and inland flooding models that CBO used in this analysis. Instead, it relies on other information and models.

### **How Do NFIP Rates Reflect Competing Program Goals?**

Since the NFIP's inception in 1968, lawmakers have struggled to find the appropriate balance among the program's competing goals. Those goals include applying actuarial principles (by linking the premium payments for properties with their expected claims) and preventing households from facing significant new costs or large rate increases, which could impose hardship, reduce the value of their homes, and cause some homeowners to drop coverage. In an effort to balance those goals, the program includes a mix of "full-risk" rates, which FEMA considers sufficient, on average, to cover (or more than cover) administrative costs and expected claims, and explicitly subsidized rates. About 20 percent of the 5 million NFIP policies examined here—mostly those that were in place before the development of flood maps—are explicitly subsidized.

In addition to the 20 percent of policies that are explicitly subsidized, CBO estimates that about 5 percent of policies are classified as full-risk even though the policyholders pay lower rates because of intentional "cross-subsidies." Cross-subsidies occur when some policyholders pay higher premiums than necessary to cover their full costs (that is, their expected claims plus their share of other program costs) to allow other policyholders to pay premiums that are below their full costs. FEMA established those intentional cross-subsidies so that insured properties whose estimated flood risks increased when a map was revised could continue to be covered at rates consistent with their previous mapping. Such "grandfathering" helps reduce local resistance to the adoption of revised maps, which provide more current information to guide future decisions about land use and floodplain management.

### **How Do Coastal and Inland Counties Contribute to the Difference Between Expected Costs and Premiums?**

CBO examined the contribution of coastal and inland counties to the \$1.4 billion difference between total expected claims and premiums. The agency estimates that the shortfall stems largely from premiums' falling short of expected claims in coastal counties, which represent roughly 10 percent of all counties but account for 75 percent of NFIP policies. Although some coastal counties generated surpluses of premiums over expected costs and some inland counties contributed to the aggregate shortfall, coastal counties as a whole generated a shortfall greater than the aggregate shortfall, and inland counties as a whole generated a small surplus.

One reason for the difference between coastal and inland counties is that most owners of homes that are subject to wave damage from storm surges do not pay higher premiums reflecting that

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<sup>2</sup> FEMA does not report this estimate of expected claims. CBO calculated it using the receipts based on coverage for the 5 million policies that the agency analyzed, FEMA's estimate of the percentage of those receipts that pay for writing and servicing policies (rather than for claims), receipts based on coverage for the subset of the 5 million policies that are subsidized, and FEMA's estimate (as of September 30, 2016) of the average percentage value of the subsidy for those subsidized policies.

additional risk; instead, they pay according to the same rate schedule that is used for homes that are not exposed to wave damage. The result is an implicit cross-subsidy from inland homes to coastal homes. (Unlike the intentional cross-subsidies described above, implicit cross-subsidies are not deliberately created to achieve a desired outcome.)

### **What Does This Analysis Imply About Future Comparisons of Costs and Premiums?**

The estimated costs and premiums identified above are based on the specific set of policies that CBO analyzed and on information about additional costs contained in FEMA's 2017 budget; thus, the estimates approximate expected costs and premiums for the NFIP as of fall 2016. Those costs and premiums will change over time, and consequently, the magnitude of expected shortfalls will change. Some changes will evolve slowly, whereas others could happen much more quickly.

**Potential Changes in Costs.** The single largest component of costs is the total dollar amount of the claims that are expected to be made under the program. The magnitude of expected claims is sensitive to the composition of the 5 million policies that CBO analyzed and will slowly change as that composition changes. The \$3.7 billion estimate of expected claims most closely approximates such claims in the near future, when the composition of policies is likely to be roughly the same as the composition of the set that CBO analyzed.

Other elements of costs will be affected by factors unrelated to the composition of policies and could change relatively quickly. For example, CBO expects that interest costs in future years will be higher than those indicated in Table 1—even if the amount that the NFIP owes to the Treasury remains the same—because interest rates are projected to increase.

**Potential Changes in Premiums.** CBO expects that premiums would be higher in the future for the same set of policies because FEMA is obligated under current law to phase out a large share of its subsidies (namely, those for properties that predate a community's first flood map). That phaseout will occur over a number of years: Some subsidized policies that are relatively low risk will reach their full-risk rates in a few years, while others that are very high risk may take 25 or more years to do so.<sup>3</sup> Premiums could change more rapidly if, on the basis of revised estimates of flood risk, FEMA adjusted its rate schedule upward.

### **How Does This Comparison of Expected Costs and Premiums Differ From CBO's Baseline Estimates?**

CBO makes baseline estimates of the NFIP's expenditures and receipts for each of the next 10 years to help estimate the overall federal budget deficit and the costs or savings of proposed legislative changes to the program. Those estimates differ from the one provided in this letter in at least two important ways.

First, the shortfall described above is based on a snapshot of the annual expected claims and premiums associated with the policies that CBO examined, as well as of the interest payments

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<sup>3</sup> See Government Accountability Office, *National Flood Insurance Program: Options for Providing Affordability Assistance*, GAO-16-190 (February 2016), p. 3, [www.gao.gov/products/GAO-16-190](http://www.gao.gov/products/GAO-16-190).

and other program costs at a particular point in time. In contrast, CBO's baseline takes into account factors that will affect the program's income and expenditures over time, such as changes in the number and composition of insured properties, changes to FEMA's method of setting rates, additional costs the program may incur, and any additional charges it might impose. The baseline also reflects the fact that claims from a flood event may be paid out over two or more fiscal years.

Second, the shortfall described in this letter is based on estimates of expected claims produced by commercially available models. In contrast, CBO's baseline reflects the estimates of expected claims implied by FEMA's full-risk rates and subsidy estimates. As noted above, on the basis of information provided by FEMA, CBO estimates that FEMA's estimate of expected claims for the 5 million policies that CBO analyzed would be roughly \$2.7 billion.

In its baseline, CBO projects that the NFIP will have insufficient receipts to pay the expected claims and expenses over the 2018–2027 period and that FEMA will need to use about \$1 billion of its current \$5.8 billion of borrowing authority from the Treasury to pay those expected claims. That estimate reflects all operating costs and interest payments of the National Flood Insurance Fund, as well as all the program's income, including the fees and assessments that it collects. CBO's 10-year baseline estimates also reflect projected growth in the number of policies written as well as projected increases in premiums set by FEMA—particularly increases in premiums for policies that are now explicitly subsidized.

As better information becomes available, CBO could change the way it estimates the cost of future NFIP claims in its baselines. To determine whether it will make such a change, CBO is examining the differences between the model that FEMA uses to calculate the expected cost of future claims and the commercially available models that underlie the estimates in this letter.

### **How Much Does Flood Insurance Cost?**

For the NFIP policies in place on August 31, 2016, the median amount paid for residential coverage was about \$520, and the central two-thirds of the distribution of payments ranged from \$420 to \$1,330. Premiums tend to be lower for primary residences than for nonprimary residences, in part because an annual surcharge required under current law is \$25 for primary residences but \$250 for nonprimary residences.

In the absence of data on the household income of individual NFIP policyholders, CBO analyzed premiums relative to income at the census-tract level. Specifically, the agency calculated the median premium payment for policies covering primary single-family homes in each tract as a percentage of the median income of single-family households in that tract. For census tracts that had at least 25 policies covering primary single-family homes, the median value of that ratio was 0.8 percent. For the central two-thirds of the distribution of tracts, the ratio ranged from 0.5 percent to 1.5 percent.

Honorable Jeb Hensarling  
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I hope that you find this information helpful. If you have any further questions, please contact me or my staff. The primary staff contact for this analysis is Terry Dinan.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith Hall". The signature is fluid and cursive, with the first name "Keith" and last name "Hall" clearly distinguishable.

Keith Hall  
Director

cc: Honorable Maxine Waters  
Ranking Member