



# EERI Policy White Paper

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## National Earthquake Hazards Reduction Program

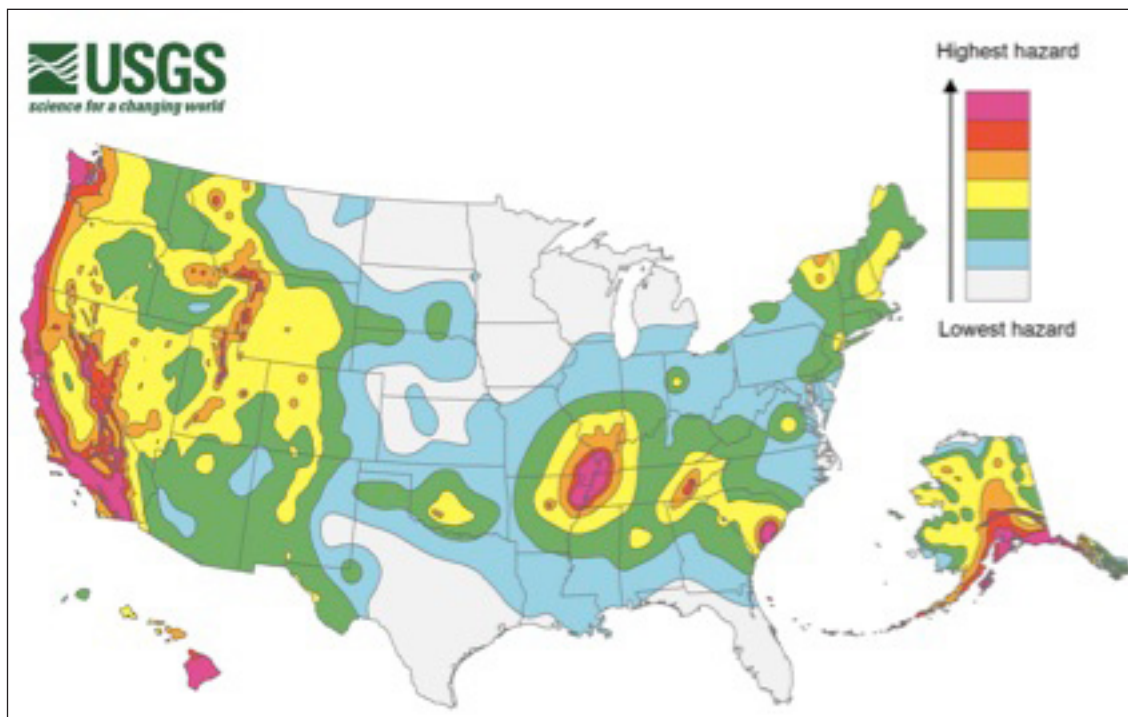
Adoption date by EERI Board of Directors: April 5, 2016

### EERI Policy Position

Congress should direct the National Earthquake Hazards Reduction Program (NEHRP) to accomplish the tasks called for in the 2011 National Research Council report on earthquake resilience, the President should request the needed funding, and Congress should provide the subsequent appropriation.

### Background

Earthquakes have the power to devastate communities, destroy buildings and infrastructure, kill and injure residents, without warning. Over 85 million Americans live in areas with significant earthquake risk (Jaiswal, et al., 2015). Nearly all states have some degree of seismic hazard.



USGS Hazard maps show that nearly all states have some degree of seismic hazard (USGS, 2014)

In the decades since it was created, NEHRP has been effective at reducing the nation’s earthquake risk, but much work remains to be done. As US cities grow larger, denser, and more complex, the impacts of potential earthquakes also grow. Unfortunately, NEHRP program funding has been in continuous decline because Presidential requests and the appropriations granted by Congress have failed to meet program needs.

NEHRP improves the nation’s earthquake resilience by coordinating and supporting the work of key federal agencies that address earthquake-related issues: the Federal Emergency Management Agency

(FEMA), the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the US Geological Survey (USGS). It focuses the efforts of these agencies on the activities the nation needs most to improve its earthquake resilience. NEHRP activities emphasize pre-event planning and mitigation, to reduce the amount of damage that inevitable future earthquakes will cause.

The National Research Council (NRC) was commissioned by NIST to develop a roadmap for earthquake hazard and risk reduction in the United States that would be based on the goals and objectives for achieving national earthquake resilience described in the 2008 NEHRP Strategic Plan. Their report was published in 2011 and called for work in 18 tasks focused on research, preparedness and mitigation and annual funding of approximately 300 million dollars per year for 20 years.

The authorization for NEHRP funding expired in 2009, but the President continues to request and the Congress has continued to appropriate funds for the program. However, funding requests fall below the levels called for in the NRC report. Congressional directives would improve program implementation.

**Needed Action**

1. Congress should authorize NEHRP funding for the 18 tasks called for in the 2011 NRC report;
2. Presidential budgets should request the needed 300 million dollars per year to support this critical work; and
3. Congress should appropriate the funds needed to carryout the tasks in the NRC report, based on budget requests.

The NRC report identified the following 18 tasks needed to realize the NEHRP Strategic Plan. They cover the broad range of needs in all fields related to Earthquake Science and Engineering. The tasks and estimated average annual funding are listed below.

<b>Task</b>		<b>Average Annual cost (million \$)</b>
1.	Physics of Earthquake Process	27
2.	Advanced National Seismic System	67
3.	Earthquake Early Warning	21
4.	National Seismic Hazard Model	50
5.	Operational Earthquake Forecasting	5
6.	Earthquake Scenarios	10
7.	Earthquake Risk Assessments and Applications	5
8.	Post-Earthquake Social Science Response and Recovery Research	2
9.	Post-Earthquake Information Management	1
10.	Socioeconomic Research on Hazard Mitigation and Recovery	3
11.	Observatory Network on Community Resilience and Vulnerability	3
12.	Physics-based Simulations for Earthquake Damage and Loss	6
13.	Techniques for Evaluation and Retrofit of Existing Buildings	23
14.	Performance Based Earthquake Engineering for Buildings	47

15.	Guidelines for Earthquake Resilient Lifeline Systems	5
16.	Next Generation Sustainable Materials, Components and Systems	8
17.	Knowledge, Tools, and Technology Transfer to Public and Private Practice	8
18.	Earthquake Resilient Communities and Regional Demonstration Projects	16

### **Additional Resources**

Kishor S. Jaiswal, Mark D. Petersen, Ken Rukstales, and William S. Leith, 2015, "Earthquake Shaking Hazard Estimates and Exposure Changes in the Conterminous United States," *Earthquake Spectra*, December 2015, Vol. 31, No. S1, pp. S201-S220.

National Research Council (NRC), 2011, *National Earthquake Resilience: Research, Implementation, and Outreach*, The National Academies Press.

NEHRP Interagency Coordinating Committee (ICC), 2008, *Strategic Plan for the National Earthquake Hazards Reduction Program: Fiscal Years 2009 – 2013*.

The Advisory Committee on Earthquake Hazard Reduction (ACEHR) oversees the effectiveness of NEHRP in performing its statutory duties. ACEHR regularly reports on the NEHRP program. Its reports are available at: <http://nehrp.gov/committees/reports.htm>

More information on this policy and EERI's Public Policy and Advocacy at: <https://www.eeri.org/advocacy-and-public-policy/>