

State of California
Seismic Safety Commission

Memo

To: Seismic Safety Commissioners

From: **Richard McCarthy**
Seismic Safety Commission
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Subject: California Earthquake Early Warning System Benefit Study
Final Report

Update

The California Governor's Office of Emergency Services (Cal OES) in partnership with the Alfred E. Alquist Seismic Safety Commission (SSC) engaged the Pacific Earthquake Engineering Research Center (PEER) to independently explore the anticipated value of a statewide earthquake early warning system (EEWS). In a six-month investigation, researchers conducted 18 semi-structured interviews with 24 organizations representing 14 important sectors of the state's infrastructure and economy. Information from the interviews was then consolidated and interpreted into a summary report. The study provides an important step forward in understanding the main types and avenues of benefits for a statewide EEWS and issues that need to be confronted for them to be realized. The study also elaborates on the recommended next steps for expanding a cost-benefit study.

The study found that organizations unanimously perceived the overall societal benefits from having a statewide EEWS as very high. A few seconds to tens of seconds of advance warning time could help thousands to possibly millions of people to take precautionary actions and Drop, Cover, and Hold On before strong shaking begins. Other major benefits may also be provided by raising the level of personal and organizational awareness and preparedness for earthquakes, and reducing anxiety and the surprise nature of earthquakes. Overall societal value can also result from different sectors of the state's economy and infrastructure having access to and making concrete use of a statewide EEWS. This benefit value comes first and foremost from those potential applications that provide for occupational safety, public safety in a particular facility, and general public safety.

The interviews also provided rich information on crucial conditions and constraints that will need to be addressed in order for these benefits to be fully realized. Many of the insights underscore and strengthen the objectives for a statewide EEWS as specified in the 2013 State

legislation, as well as the California Earthquake Early Warning System Implementation Steering Committee and the USGS implementation plans. However, in some instances, these insights challenge and necessitate a second look at some of fundamental objectives and plans for system performance standards and protocols, development timeframes, governance and funding structures, education and training, and implementation timeframes, costs and feasibility. One of the most important next steps is to foster more systematic, varied, and deeper involvement with organizations that will be at the front lines of EEWS use. Collaborative study of system uses will in fact help create, shape and bring both the applications and benefits of a statewide EEWS into reality.

Recommendation

Staff recommends that the Commissioners listen to the presentations of Commissioner Tina Curry, CalOES, and Dr. Laurie Johnson, PEER, and be prepared to ask questions and take possible action.