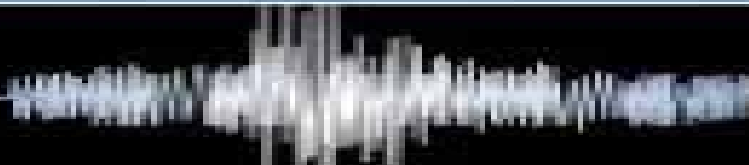
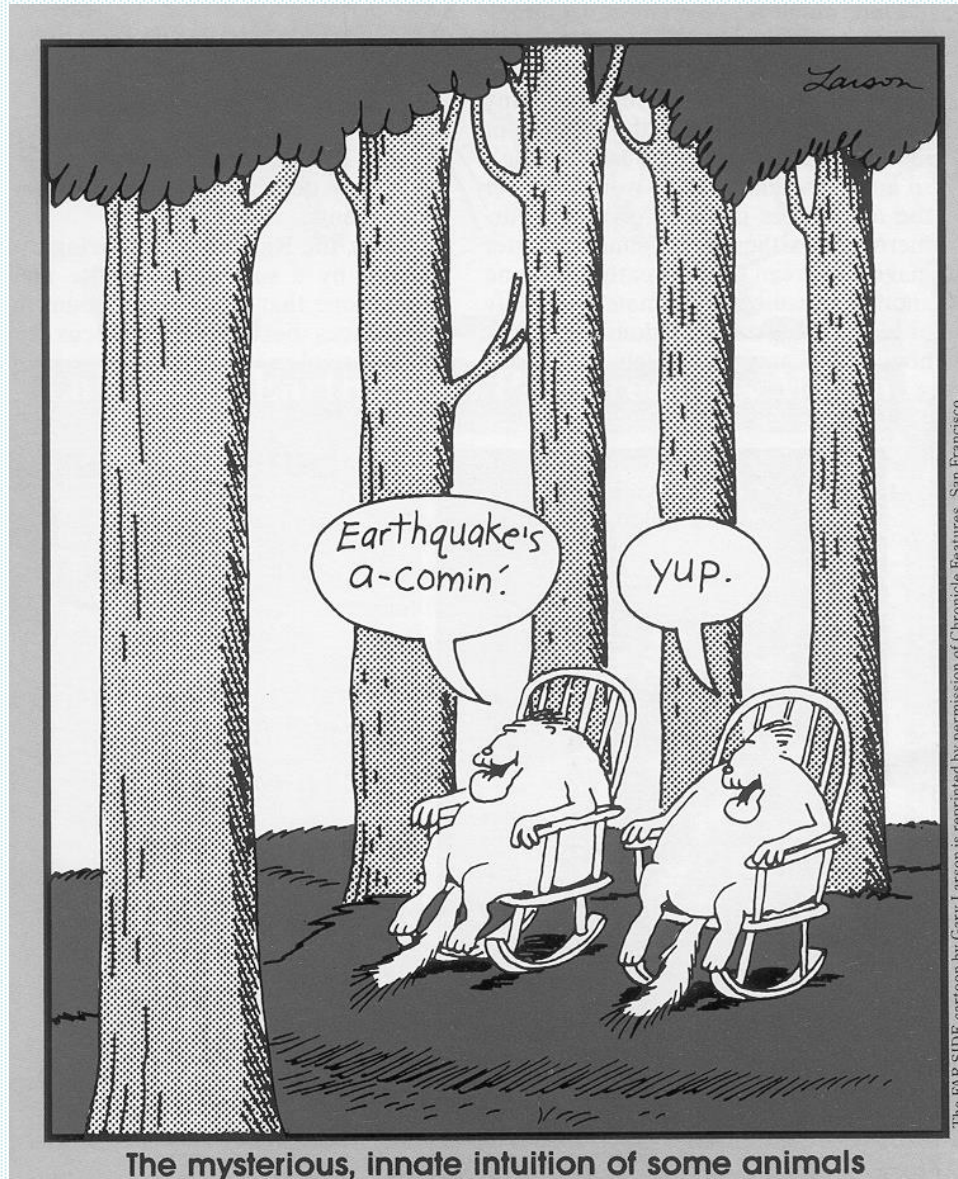
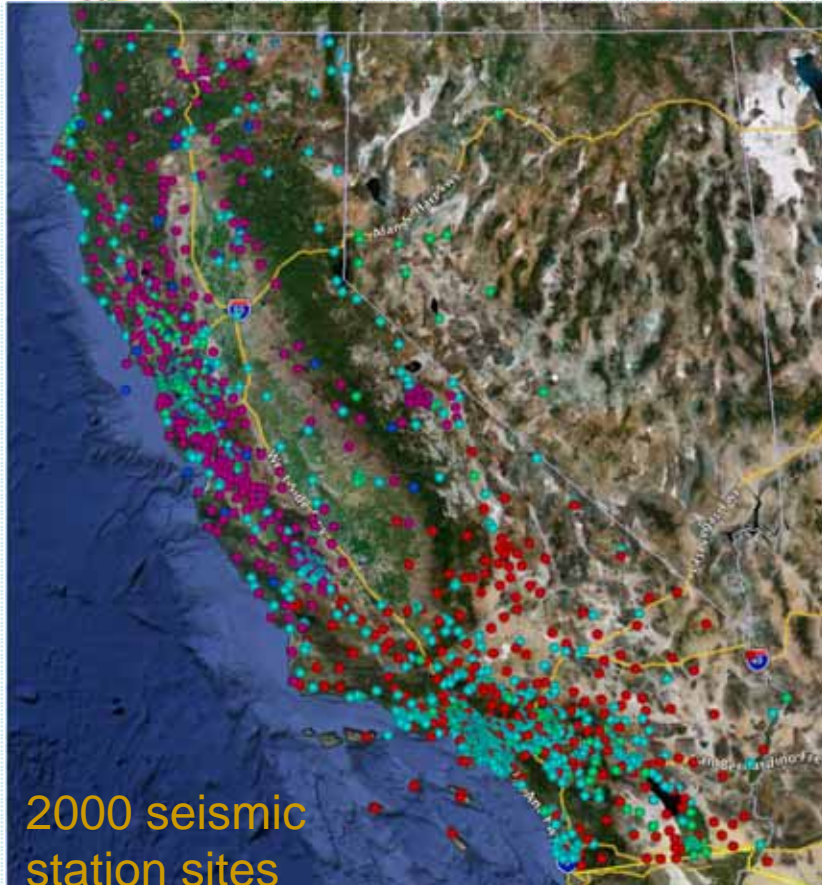
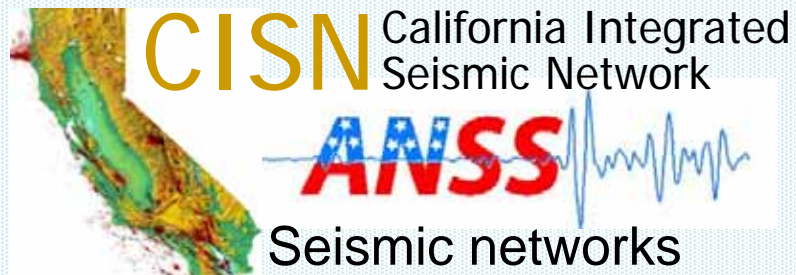


# Earthquake Early Warning





## Information products

### Real-time/rapid products

- Detections, locations, magnitudes
- ShakeMaps – shaking distribution
- Causative Fault and mechanism
- **Earthquake early warning** (a demonstration project)

### Derivative products

- PAGER – impacts
- HAZUS loss estimation
- Aftershock probabilities
- Engineering response data
- Scientific assessment

### The archive

- Waveform data from past earthquakes
  - Earthquake catalogs
- ➔ The basis of all scientific research into future earthquake impacts



CGS



USGS



OES



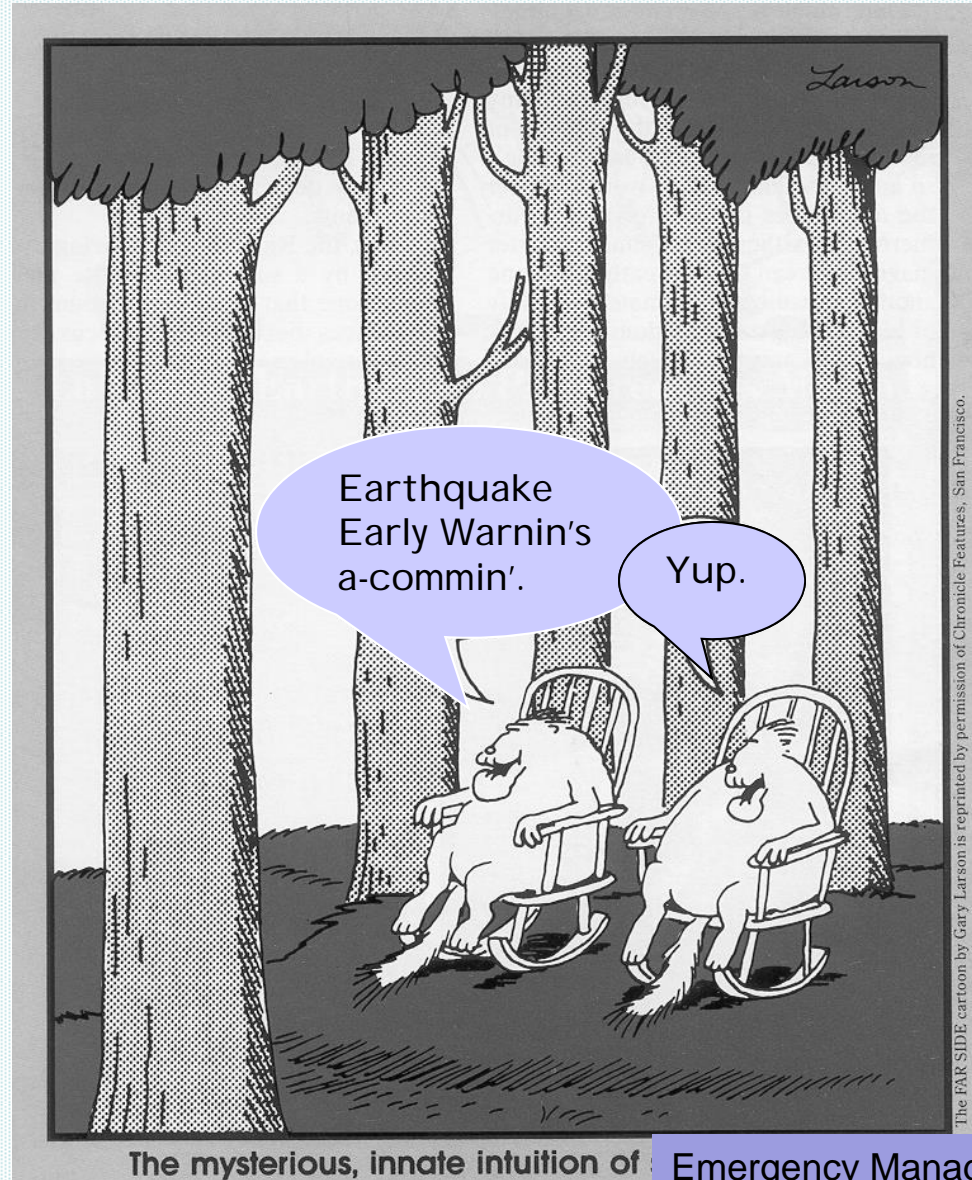
Caltech



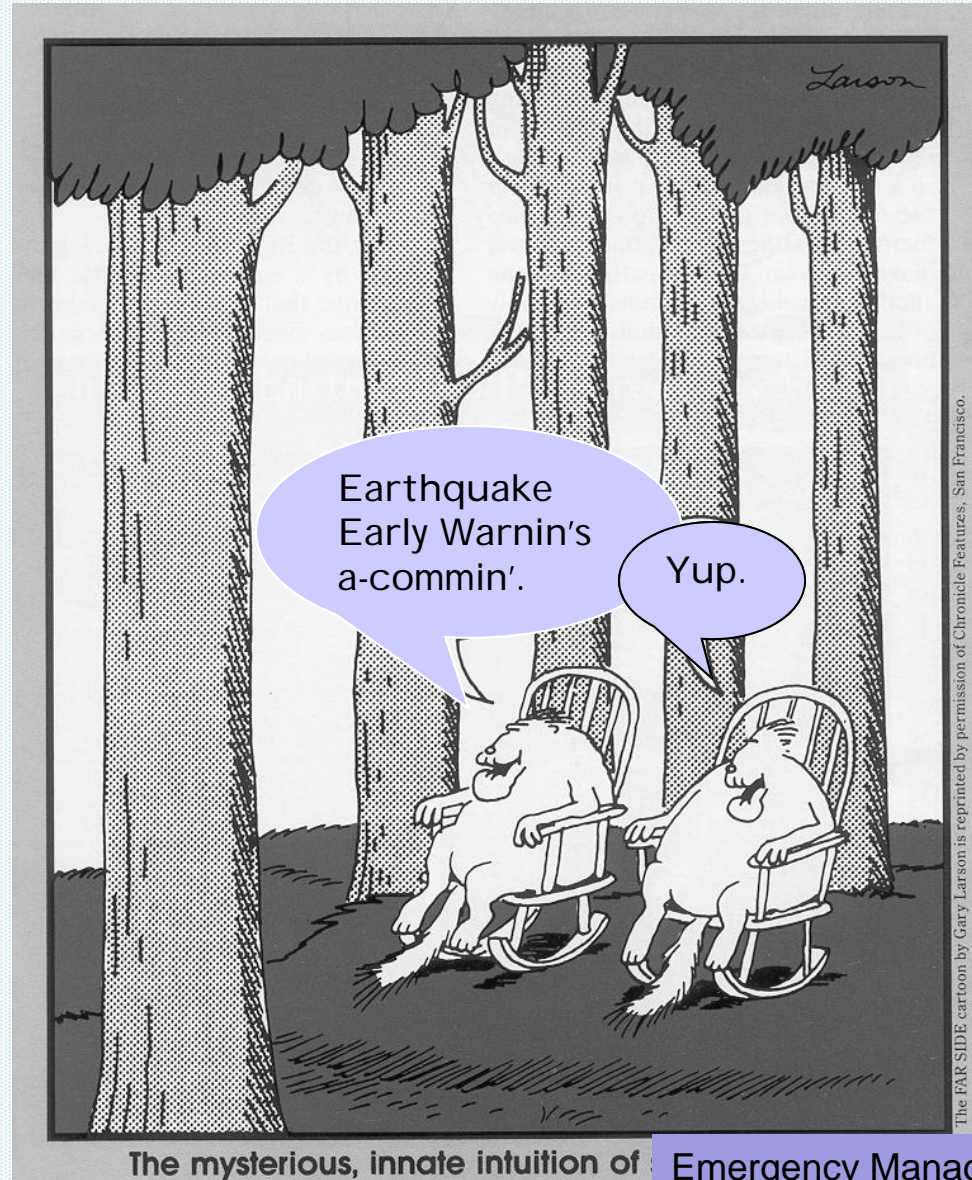
UC Berkeley



# California's Earthquake Early Warning System (CEEWS)



# California's Earthquake Early Warning System (CEEWS)



# SB135 – Padilla

“Implement a comprehensive statewide earthquake early warning system in California.”

- \$\$....
- Appropriations Committees



# SB135 – Padilla

- Government Code Section 8587.8  
Signed into law by Governor Brown September 24, 2013
- **Cal OES** will **Develop** a comprehensive statewide earthquake early warning system in California through a **public private partnership**.
- **Excludes** funding from CA's General Fund
- Identify funding sources by **January 1, 2016**

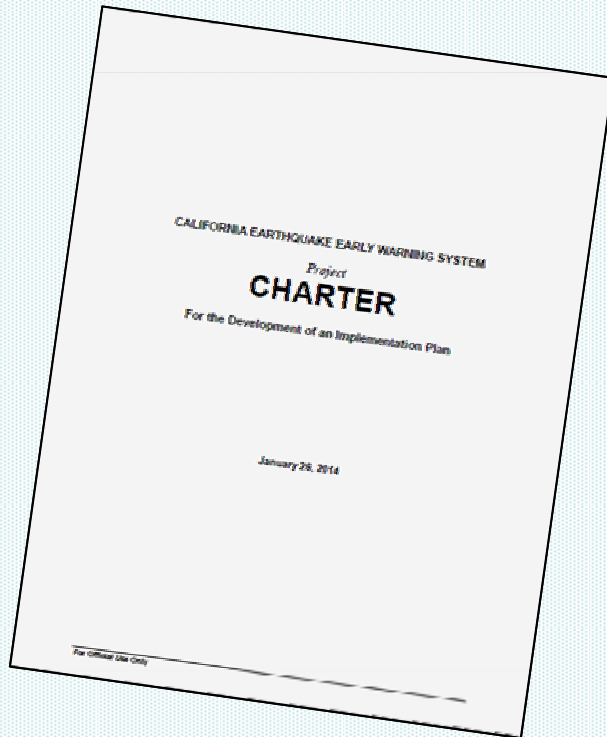


# Objectives

(Meets the intent of SB135)

- 1. Funding:** Cal OES will develop a distributed funding model.
- 2. Model:** The state shall develop an EEW model that represents a public/private partnership, and a cost effective and reliable system.
- 3. Management:** The state shall formalize an EEW organization structure that incorporates existing roles and responsibilities, such as the CISN.
- 4. Standards:** The state shall have an approval mechanism to ensure appropriateness of EEW standards, how they apply to various EEW components, compliance and participation criteria.
- 5. Education and Training:** Cal OES shall convene a group of subject experts and stakeholders to develop and implement California's EEW education and training.

# Concept Development



1. *Build Upon CISN*
2. *Build Upon ShakeAlert*
3. *Define System Scope*
4. *Draft the System Description*
5. *Prepare Implementation Plan*
6. *Identify Funding Sources*

**STEP 1**  
Form a  
Collaborative  
Planning Team

**STEP 2**  
Understand  
the  
Situation

**STEP 3**  
Determine  
Goals &  
Objectives

**STEP 4**  
Develop the  
Concept and  
ID Funding

**STEP 5**  
Approve and  
Socialize the  
Plan

**STEP 6**  
Implement  
and Maintain  
the System



# Stakeholder Communities

- **Macro Level**
  - Government
  - Science Community
  - CISN and ShakeAlert Partner Agencies
- **Meso Level**
  - Public-Private Infrastructure
- **Micro Level**
  - Private Sector Application
  - End Users

# CEEWS Planning Committees



# Education = User Actions

**SYSTEM  
OUTPUTS**

**Alerts**

(manual decision functions)

**Data Streams**

(for automated use)

**USES**

Life Safety

Continuity

Tailoring

Infrastructure  
Protection

**USERS**

**Public**

**Organizations**

**Private  
Service  
Providers**

**"Technical" Users**

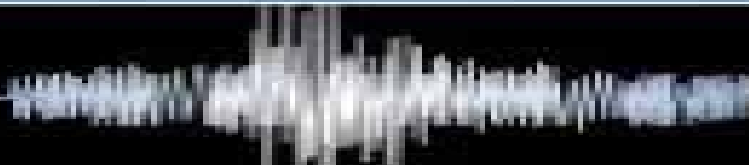
Protective actions  
Hazards education

Procedures  
Decision modules  
Protective actions

User-specific  
automated decision  
modules/applications

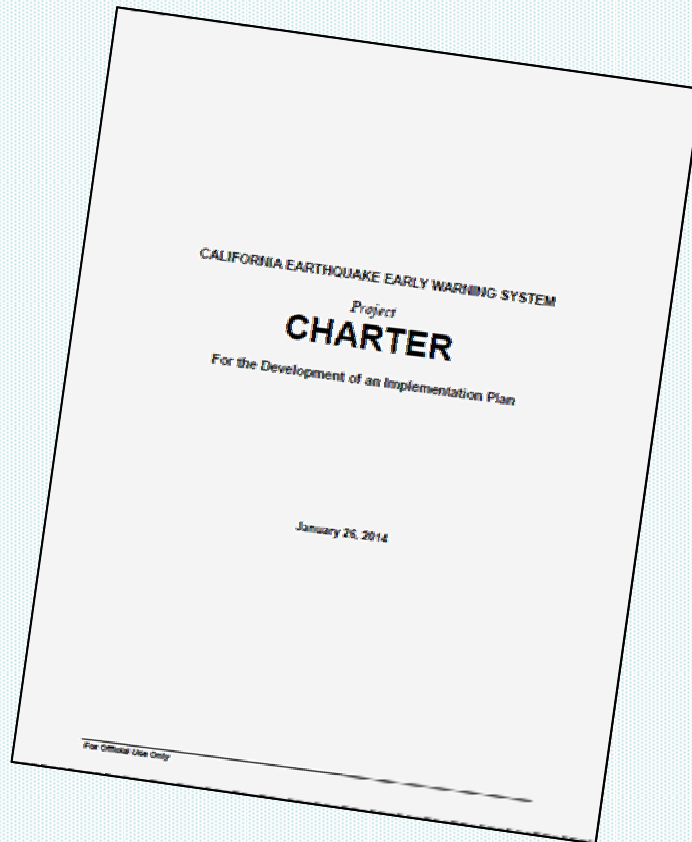
**ACTIONS**

Value-added user-driven applications, products, education, consulting





# Next Steps



## Jan 2014

- Project Charter Approved
- Committees Formed

## Jul 2014

- Steering Committee Meeting
- System Description Drafted

## Jan 2015

- Steering Committee Meeting
- Committee Progress Reports

## Jul 2015

- Steering Committee Meeting
- Committee Reports Due

## Sep 2015

- Steering Committee Meeting
- Committee Progress Reports

## Jan 2016

- Implementation Decision Made

# Committees

**COME JOIN THE FUN!  
RIDDLES GAMES!  
CASH PRIZES!**



***For more information:***

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*Earthquake and Tsunami Program*

**Governor's Office of Emergency Services**

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