Glenn Pomeroy
Chief Executive Officer
California Earthquake Authority

Janiele Maffei
Chief Mitigation Officer
California Earthquake Authority
Earthquake Insurance and Mitigation.
1994 Northridge Earthquake Led to CEA Creation

• California requires insurance companies selling homeowners insurance to offer a separate earthquake insurance policy.

• The Northridge earthquake created significant losses for insurance companies in California.

• After Northridge, companies stopped writing homeowners policies due to perceived future earthquake losses.

• This resulted in a near shutdown of the residential real estate market.
CEA was created in 1996 in order to:

• Ensure homeowner insurance availability in California.

• Restore real estate market by assuring availability of homeowners insurance.

• Enable CEA “participating insurers” to satisfy the mandatory offer requirement by offering a CEA policy – for which CEA bears the risk.
CEA Today

- CEA insures more than 1.1 million residences or about 10 percent of the homes in California.

- In certain high-risk zones, CEA insures 20% – 30% of homes in the area.

- CEA accounts for 66% of the residential earthquake policies in the state.
CEA Participating Insurers
Residential Earthquake Insurance
- 1.1 Million Policyholders
- Publicly Managed/Privately Financed/Not for Profit
- $19 Billion in Claim Paying Capacity

Residential Earthquake Mitigation Grants
- Pre-1980 Homes/$3,000 Grant
- Retrofits to date: 16,000
- New Supplemental Grant for Low Income

California Wildfire Fund
- Coverage for Wildfires Caused by Investor-Owned Utilities
- Overseen by California Catastrophe Response Council
- $21 Billion in Claim Paying Capacity
Today CEA has $19.8 billion in claim-paying capacity – more than enough for a 1 in 400 year loss.

The probability that CEA will not have enough capacity to pay 100% of all covered claims is about ¼ of 1%.

A reoccurrence of the most destructive earthquake in California history (San Francisco 1906) would result in about $12 billion in CEA loss.

To meet the 1 in 400 year benchmark CEA purchases “reinsurance” – insurance for insurance companies.

CEA will spend approximately $500 million on reinsurance this year, equal to nearly 60% of amount of premium paid by CEA policyholders.
### United States: Top 10 Writers of Earthquake Insurance

<table>
<thead>
<tr>
<th>Rank</th>
<th>Group/company</th>
<th>Direct premiums written</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>California Earthquake Authority</td>
<td>$843.7 million</td>
</tr>
<tr>
<td>2</td>
<td>FM Global</td>
<td>$341.8 million</td>
</tr>
<tr>
<td>3</td>
<td>Zurich Insurance Group</td>
<td>$284.4 million</td>
</tr>
<tr>
<td>4</td>
<td>State Farm</td>
<td>$284.0 million</td>
</tr>
<tr>
<td>5</td>
<td>Chubb Ltd.</td>
<td>$187.6 million</td>
</tr>
<tr>
<td>6</td>
<td>Palomar Specialty Insurance Co.</td>
<td>$183.3 million</td>
</tr>
<tr>
<td>7</td>
<td>Travelers Companies Inc.</td>
<td>$156.7 million</td>
</tr>
<tr>
<td>8</td>
<td>American International Group (AIG)</td>
<td>$141.4 million</td>
</tr>
<tr>
<td>9</td>
<td>Sompo Holdings Inc.</td>
<td>$122.1 million</td>
</tr>
<tr>
<td>10</td>
<td>AXA SA</td>
<td>$119.6 million</td>
</tr>
</tbody>
</table>

- 2020 data based on U.S. total, includes territories.
- Before reinsurance transactions. Includes state funds and commercial insurance premium.
- Source: NAIC data, sourced from S&P Global Market Intelligence, Insurance Information Institute.

*CEA writes more than twice as much as the second largest writer*
## California: Top 10 Writers of Earthquake Insurance

<table>
<thead>
<tr>
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<th>Direct premiums written</th>
</tr>
</thead>
<tbody>
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<td>California Earthquake Authority</td>
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</tr>
<tr>
<td>2</td>
<td>FM Global</td>
<td>$180.6 million</td>
</tr>
<tr>
<td>3</td>
<td>Palomar Specialty Insurance Company</td>
<td>$135.2 million</td>
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<tr>
<td>4</td>
<td>Zurich Insurance Group</td>
<td>$106.7 million</td>
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<td>5</td>
<td>Chubb Ltd.</td>
<td>$78.2 million</td>
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<td>GeoVera Holdings</td>
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<td>7</td>
<td>American International Group (AIG)</td>
<td>$61.8 million</td>
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<td>8</td>
<td>AXA SA</td>
<td>$58.9 million</td>
</tr>
<tr>
<td>9</td>
<td>Golden Bear Insurance Company</td>
<td>$50.6 million</td>
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<tr>
<td>10</td>
<td>Travelers Group</td>
<td>$43.2 million</td>
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</tbody>
</table>

- 2020 data based on California total
- Before reinsurance transactions; includes commercial premium
- Source: NAIC data, CDI website
### CEA Growth: 2010 – 2020

<table>
<thead>
<tr>
<th>Category</th>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies in Force:</td>
<td>Up 40%</td>
<td>811,000</td>
</tr>
<tr>
<td>CEA Policyholder Premium:</td>
<td>Up 40%</td>
<td>$603 Million</td>
</tr>
<tr>
<td>Total Insured Value:</td>
<td>Doubled</td>
<td>$288 Billion</td>
</tr>
<tr>
<td>Claim Paying Capacity:</td>
<td>Doubled</td>
<td>$9.8 Billion</td>
</tr>
<tr>
<td>Reinsurance Purchased:</td>
<td>Tripled</td>
<td>$3 Billion</td>
</tr>
</tbody>
</table>
Prioritizing Strategic Options

**Policyholder Rates**
Should CEA prioritize rate stability or rate reductions?

**Size of CEA’s book of business**
Should policyholder growth be a top priority?

**Coverage options**
Could CEA coverage promote greater equity and/or manage growth?

**Financial Strength**
How much claim-paying capacity should CEA maintain?

**CEA’s Sustainability**
Should CEA seek a more sustainable financial structure?
Earthquake Insurance and Mitigation.
CEA Mitigation

Standards • Research • Incentives
Mitigation Standards

CEA has funded and managed the development of:

- FEMA P-1100 – Vulnerability Based Assessment and Retrofit of One and Family Dwellings
- CEA EDA 02 – Earthquake Damage Assessment and Repair Guidelines (Replacement for CUREE document)
Guidelines and Standards Development

CEA Mitigation Research

Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings
FEMA P-1100 – Assessment and Retrofit

Earthquake Damage Assessment and Repair Guidelines for Residential Wood-Frame Buildings
CEA EDA 02 – Earthquake Damage Assessment and Repair
Earthquake Vulnerabilities

Cripple Wall

Living-space-over garage

Hillside House

Chimney
Cripplewall and Unbraced Water Heater Vulnerability

2014 M6.0 South Napa Earthquake
Cripplewall Vulnerability

2014 M6.0 South Napa Earthquake
M 7.0 Scenario Earthquake in SF: Retrofitted two-story house with wood siding would have $200,000 less damage (based on $200/SF replacement cost)
CEA has jointly managed the California Residential Mitigation Program (CRMP) with CalOES through a Joint Powers Agreement (JPA). CRMP manages the Earthquake Brace + Bolt program (EBB)
Earthquake Brace + Bolt Program:

- Retrofits crawlspace with plywood bracing and new bolting
- Provides up to $3,000 grant
- Currently requires owner-occupied
- In select ZIP Codes with high seismic hazard
- Has collected important data:
  - Retrofit averages $5,200 in CA
  - More expensive in Northern CA
  - Number of retrofitted houses in a City
Earthquake Brace + Bolt
Short Cripple Wall Requires Framing Clips, Foundation Plates, and Plywood

Crawlspace Before Retrofit

Crawlspace After Retrofit

Plywood brace

Anchor bolt behind plywood
Earthquake Brace + Bolt
Short Cripple Wall Requires Framing Clips, Foundation Plates, and Plywood

Crawlspace Before Retrofit

Plywood brace

Foundation plate

Crawlspace After Retrofit
Earthquake Brace + Bolt
Stem Wall (No Cripple Wall) Requires Framing Clips and Foundation Plates

Crawlspace Before Retrofit

Crawlspace After Retrofit
Earthquake Brace + Bolt
A Growing Program

- 2014: 9 homes
- 2015: 528 homes
- 2016: 1,639 homes
- 2017: 2,182 homes
- 2018: 7,621 homes
- 2019-2021: FEMA funding $24M
- 2022: Additional FEMA funding
# Earthquake Brace + Bolt

**ZIP Codes Selection – 50% Hazard and 50% Vulnerability**

<table>
<thead>
<tr>
<th>Rank</th>
<th>City Name</th>
<th>Zip</th>
<th>Hazard</th>
<th>Vulnerability</th>
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<tr>
<td>1</td>
<td></td>
<td></td>
<td>2.89</td>
<td>3,709</td>
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<tr>
<td>25</td>
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<td></td>
<td>2.52</td>
<td>2,317</td>
</tr>
</tbody>
</table>

No. of Pre-1940 houses: 1763

CREW mind the Gap, March 28, 2022
The following retrofit incentive grant programs are under development:

- Earthquake Soft-Story (ESS)
- Soft-Story Retrofit of Multi-Family (5-10 unit) Structures
The “Soft-Story” was created when the garage doors were installed in 1920s.
Earthquake Soft-Story (ESS)

Living-Space-Over-Garage (Soft-Story) Found in Pre-2000 Houses

1971 San Fernando EQ

1989 Loma Prieta EQ

1994 Northridge EQ

2014 Napa EQ
Earthquake Soft-Story (ESS)

- Plywood or OSB on first-floor walls
- New steel shear walls either side of garage door opening
Multi-Family Soft-Story Retrofit Program

Northridge Meadows Apartments –
Northridge M6.7 Earthquake 1994

Photo credits: LA Times
Multi-Family Soft-Story Retrofit Program

Steel frame around garage door opening

Photo credit: Janiele Maffei
For 8 years the CRMP has leveraged the CEA Loss Mitigation Fund with State and Federal Mitigation Funding
CRMP Mitigation Funding

RETROFIT FUNDING TYPE BY YEAR COMPLETED
AS OF 5/18/2021

NUMBER COMPLETED RETROFFITS


CEA BB 403 285 1,006 1,199 24 205 465 1,415
FEMA 24 40 73 3,242 933 216 3,911 3
LMF 44 44
State 8

CREW mind the Gap, March 28, 2022
2021 EBB Program will include supplementary grants specifically aimed at underserved neighborhoods.

The supplementary grant:

- Will provide, in most cases, **100% OF THE FUNDS** needed
- Will be marketed widely and offered in all EBB ZIP Codes
- Will include a pilot outreach program in a few areas to identify successful communication strategies
Thank You.

StrengthenMyHouse.com