



**Mark Ghilarducci**  
**Director, California Governor's Office of Emergency Services**  
**Governor's Homeland Security Advisor**

**STATEMENT FOR THE RECORD**

**Before the United States House of Representatives**  
**Committee on Oversight and Reform**  
**Subcommittee on Environment**

***Recovery, Resiliency and Readiness: Contending with Natural Disasters in the***  
***Wake of Climate Change***

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**2154 Rayburn House Office Building**  
**Washington, DC**



3650 SCHRIEVER AVENUE, MATHER, CA 95655  
(916) 845-8506 TELEPHONE (916) 845-8511 FAX  
[www.CalOES.ca.gov](http://www.CalOES.ca.gov)

Chairman Rouda, Ranking Member Comer, and members of the Subcommittee on Environment, thank you for inviting me to testify on California's recovery and emergency preparedness efforts. This testimony will focus on the recovery from California's 2017 and 2018 disasters and the state's emergency preparedness efforts going forward.

California has been severely impacted by the effects of climate change, which have manifested in the form of tree mortality, floods, severe storms, debris flows, and multiple major wildfires. During these last two years, more than 17,000 wildfires burned over 3 million acres, which is almost 3 percent of California's entire land mass. Wildfires burned down tens of thousands of homes and businesses and destroyed billions of dollars of property.

2017 ranks as the second most destructive year of wildfires in California's history, with particularly devastating fires in Napa, Sonoma, Ventura, and Santa Barbara counties. The rate of disasters was outpaced in 2018, when California experienced the deadliest and most destructive year of disasters in its history. In January 2018, following a severe storm, the burn scar from the Thomas Fire triggered a massive debris flow in Montecito. In November, the largest fire in the state's history, the Camp Fire, consumed the town of Paradise within hours. It destroyed 19,000 homes and businesses and displaced more than 50,000 people. When fire officials were able to access the area to make initial damage assessments, it was far easier to count the homes and businesses still standing than those that were lost. Millions of people throughout California were exposed to smoke that generated the worst air quality on the planet at that time. The Camp Fire cost hundreds of millions of dollars to suppress and caused tens of billions of dollars in damage. Insurance losses alone exceeded \$12 billion. Recovery efforts, particularly debris removal, have been the largest undertaking in the state's history. 125 people lost their lives in the 2018 disasters.

In the wake of extensive recovery efforts to help survivors of these major disasters, California continues to improve its preparedness and mitigation efforts for the 2019 fire season.

### **The Effects of Climate Change on California Disasters**

While wildfires are a natural part of California's ecology, the fire season is getting longer every year—with most counties now experiencing fire season from mid-May to mid-December and several counties facing fire danger year-round. Warmer temperatures, variable snowpack, and earlier snowmelt caused by climate change make for longer and more intense dry seasons, which leave forests more susceptible to severe fire.

Hotter and dryer weather over the last decade, underscored by California's most impactful drought in modern history between 2011 and 2017, has fueled an epidemic of bark beetle infestation that has killed 147 million trees across the Sierra Nevada mountains and other areas of the state. This massive tree mortality further compounds risks of large "mega" fires.

The trend toward these massive fires is indisputable: According to the California Department of Forestry and Fire Protection (CAL FIRE), 15 of the 20 most destructive wildfires in the state's history have occurred since 2000; 10 of the most destructive fires have occurred since 2015.

Climate change is acting as a force-multiplier that will increasingly exacerbate wildfires and other natural disasters over the coming decades. The state's most recent scientific initiative to understand climate impacts, *California's Fourth Climate Change Assessment*, projects that California's wildfire burn area will likely increase by 77 percent by the end of the century. This science tells us to expect longer fire seasons, increased frequency and severity of drought, greater acreage burned and related impacts such as widespread tree mortality and bark beetle infestation.

While our climate is changing and fueling the devastating force of wildfires, a century of fire suppression has left overly dense stands of forests across the state even as increased residential development in the wildland-urban interface has placed more residents in the potential path of destruction. Wildfires that have historically been relatively low burning fires that clear out the underbrush and leave healthy trees now result in high-intensity canopy fires that destroy trees, soil, and threaten lives and property.

Currently, more than 25 million acres of California wildlands are classified as under very high or extreme fire threat. While the state is working tirelessly to buy down these fire risks, much of the at-risk land is in federal responsibility areas. Solving this crisis requires solutions that transcend all levels of government and incorporates private sector ingenuity. Approximately 25 percent of the state's population – 11 million people – lives in that high-risk area. This includes thousands of communities, from small mountain towns to suburbs and large urban cities across the state. The wildfire danger we face is one of our gravest public safety threats.

### **2017 and 2018 Disaster Recovery**

California's recovery mission has been rigorously tested and its processes refined through the management of recent disasters. The breadth and scale of these disasters is unique in modern history – from flooding in 2017 that washed out

roadways and infrastructure throughout the state, to record-setting wildfires that left behind millions of tons of debris on public and private property and displaced tens of thousands of residents from their homes. Despite the wide breadth of these disasters, California's ability to rise to the recovery challenge has provided countless lessons learned.

### **FEMA's New Public Assistance Program**

In 2017, the Federal Emergency Management Agency (FEMA) rolled out a brand new Public Assistance program in California, which required the state to update its recovery workforce, provide local opportunities for training, and significantly increase its capacity to process recovery projects. In the last two years, 55 of the 58 counties in California have been included in a major disaster declaration and have needed to adapt to new federal processes and procedures. As most counties in California are recovering from disasters, Cal OES has employed field teams to train and educate local governments and organizations on the recovery reimbursement process and the new private property debris removal program.

In response to disasters in 2017 and 2018, Cal OES conducted numerous Applicant Briefings in local jurisdictions to provide information on Public Assistance program application procedures, cost eligibility, documentation requirements, payment processing, and deadlines specific to each federal declaration. These briefings are vital to ensuring that local governments have the tools they need to start the recovery process quickly and as efficiently as possible. In total, more than \$831 million in public assistance dollars have been obligated to local communities in California for disasters in 2017 and 2018.

### **Debris Removal**

Debris removal is the first step in the successful recovery and rebuilding of communities after a disaster. Since 2017, more than three million tons of debris have been removed from private property and public rights-of-way in an effort to kickstart the economic and overall recovery of local, disaster-affected communities. In 2017, the debris removal efforts for the October wildfires constituted the single largest debris removal effort since the 1906 San Francisco Earthquake. Ongoing debris removal for the 2018 Camp Fire represents an even greater effort as the single largest debris removal mission ever managed by the state. The debris removal mission in Butte County is estimated to cost more than \$2 billion to clear more than 22,000 sites. To date, nearly 50 percent of the Camp Fire sites have been cleared.

Debris removal in 2017 was accomplished through close coordination between the U.S. Army Corps of Engineers (USACE) and the California Department of

Resources, Recycling, and Recovery (CalRecycle). This operation revealed a number of opportunities for future growth. Objectives were challenged by process and contracting differences between USACE and the State of California. Additionally, the Incident Command System (ICS) was not utilized by USACE to organize at the field level. Given the large number of contractors and subcontractors involved, ICS was necessary to elevate and solve problems quickly with a singular point of contact. With assistance from CAL FIRE, USACE was able to successfully transition to an ICS organizational model, which increased the efficacy of operations. In 2018, debris removal operations were coordinated by Cal OES, and performed by CalRecycle and three prime contractors. This construct has simplified and expedited the overall debris removal process.

As wildfires become more destructive, the mission to remove hazardous materials and debris efficiently and swiftly becomes more imperative. Throughout the process of refining private property debris removal, California has implemented lessons learned from prior disasters – finding opportunities for improvements in contracting, public messaging, and operations.

### ***FEMA Individual Assistance***

In coordination with FEMA and local jurisdictions, Cal OES established Disaster Recovery Centers (DRCs) in central locations after the 2017 and 2018 disasters to assist victims in accessing resources and aid. Representatives from the California Department of Motor Vehicles, California Department of Insurance, California Contractors State License Board, U.S. Small Business Administration (SBA), insurance companies, and other local government, private sector, and community non-profit organizations were represented at the DRCs. They disseminated information and provided assistance with applying for state and federal aid. Cal OES also developed a website ([WildfireRecovery.org](http://WildfireRecovery.org)) in 2017 to serve as a central repository for evacuation shelter and repopulation information, contact information for various organizations, and details on upcoming public forums. Due to its success, Cal OES has continued to use this website in subsequent disasters.

Following the 2017 wildfires, over 28,000 households were approved for FEMA IA, totaling more than \$23 million dollars. For the July 2018 Lake and Shasta county wildfires and the November 2018 Camp, Hill, and Woolsey fires, more than 31,000 eligible IA registrations have been processed, of which more than 7,900 applicants have received housing assistance, and over 800 individuals and/or families are expected to be in direct housing units – manufactured housing units (MHUs) or travel trailers. Cumulatively, across the counties, more than 83,000 persons have been assisted by DRCs.

### **Long-Term Housing**

Housing availability is an ongoing crisis in California, notwithstanding disasters that have destroyed homes and rental properties. However, traditional short-term and long-term housing solutions have proven costly and are insufficient to universally address the needs of survivors that have lost their homes.

To help survivors navigate state and federal programs for the 2017 and 2018 disasters, Cal OES established a long-term housing task force with local, state, and federal partners to leverage all available programs and solutions. Post-disaster housing is complicated, and it is important to recognize that solutions need to be (1) scalable and flexible to diverse communities and topographies, (2) environmentally sustainable, and (3) cost-effective to control the financial impact to all levels of government.

FEMA's Direct Housing program revolves around the utilization of MHUs and travel trailers, which are an unideal large-scale solution in California. Given that local ordinances and public health and safety hazards can prevent survivors from placing MHUs or travel trailers on their own properties, selecting the location for, and securing the rights to, property that can accommodate group sites for these housing solutions is a time-consuming and costly process. Additionally, the overall cost to deliver MHUs or travel trailers ranges between \$100,000 and \$500,000 per unit. This cost is often an inefficient use of resources that could be better expended through more flexible, locally-oriented housing programs.

### **Small Business Administration Disaster Loan Program**

For the 2018 November fires, more than \$425 million in SBA Disaster Loan Program funding has been approved -- more than twice the value of funding approved for the 2017 October Wildfires at \$162 million. This low-interest loan program is central to the economic recovery of impacted regions and is a vital stopgap, ensuring businesses are not forced to close their doors permanently and the local economy is primed to recover as rebuilding begins. To best support a rapid economic recovery of impacted businesses and communities, it is imperative SBA disaster loans become available quickly in the immediate aftermath of a disaster.

However, current SBA policy prohibits authorization of the Disaster Loan Program until FEMA has made a decision on whether to authorize the Individual Assistance (IA) program. A state may have received a Major Disaster Declaration, but there is often significant delay in receiving an IA decision due to a lengthy Preliminary Damage Assessment, or because a state is in the process of appealing an IA denial from FEMA. In both cases, the region affected

by the disaster may have easily met the criteria for an SBA declaration, but essential aid is hindered by dependence on FEMA's IA decision.

During the time between when a disaster occurs and an SBA declaration is granted, some businesses are forced to close their doors. Ultimately, the economic recovery of the region is harmed. Given these challenges, the SBA Disaster Loan Program declaration process should be expedited to deliver essential funding to qualified individuals, households, and businesses as quickly as possible. The SBA Administrator should be unburdened from red tape preventing declaration when damages clearly meet the SBA criteria, regardless of a state's intent to request Stafford Act programs.

### ***Streamlining Federal Long-Term Recovery Programs***

Passage of the 2018 Disaster Recovery Reform Act enacted many crucial disaster recovery changes and enhancements. However, when vital federal programs are approved by Congress, they can take years to reach the disaster-affected communities for which they are intended. Further, these programs are spread out among 17 federal agencies, each with independent bureaucracies, policies, and staffing capabilities, which makes these programs difficult to access. The federal government should consolidate, simplify, and streamline the fragmented long-term recovery process.

## **2019 Emergency Preparedness**

### ***Statewide Emergency Preparedness***

Although the entire state has progressed significantly in its preparedness efforts, recent disasters have underscored the need for increased local government preparedness. Through recent disasters and proactive outreach, Cal OES has engaged with local leadership to provide formal and informal guidance, both during disasters and before they even occur. This includes guidance on the state and federal declaration processes, contracting, hazard mitigation, recovery operations, and more.

Since Governor Newsom took office earlier this year, he has taken decisive action to strengthen California's emergency preparedness and response capabilities to mitigate wildfires and build community resilience. On June 3, 2019 Cal OES and the Governor's Office hosted an Emergency Management Preparedness Summit to convene leadership from local government throughout the state to discuss best practices and lessons learned from recent disasters. Efforts like these will help to instill a consistent, baseline understanding of emergency management throughout the state.

Additionally, in the 2019-2020 Budget, Governor Newsom designated \$50 million for the California For All Emergency Preparedness Campaign. These funds will be allocated strategically in areas of greatest risk throughout the state to support California's diverse and vulnerable populations facing social isolation, poverty, language barriers, and other access and functional needs challenges. Funds will be distributed in the form of grants to community-based organizations to prepare all Californians for disasters.

In his second day in office on January 9, Governor Newsom issued two Executive Orders to accelerate the state's response to the wildfire challenge. Executive Order N-05-19 directed CAL FIRE to identify immediate actions to protect the most vulnerable communities, as well as longer term actions to address growing wildfire threats. Cal OES provided recommendations that were incorporated into the *Community Wildfire Prevention and Mitigation Report*. Among these recommendations was to expedite 35 critical fire break projects this year to protect 200 of California's most vulnerable communities and to work with Cal OES and the Standardized Emergency Management System (SEMS) Advisory Committee to develop robust local evacuation planning models for high or very high Fire Hazard Severity Zones based upon best practices from within California.

Governor Newsom will also continue to utilize the Governor's Forest Management Task Force, created under his predecessor Governor Brown, to effectively organize actions across state agencies and maintain close working relationships with other levels of government and non-governmental stakeholders. He recently appointed a new leader of this Task Force to reshape its work and ensure near-term outcomes from interagency collaboration.

### ***Improved Situational Awareness Tools for Responders***

The second Executive Order that the Governor issued on his second day in office spurred engagement from innovators in fire safety technologies to more effectively fight fires and modernize the state contracting process for goods and technology systems (Executive Order N-04-19). The "Innovation Procurement Sprint" will enable CAL FIRE to identify solutions to more effectively detect wildfire starts, predict the path of wildfires and better fight fire in the initial attack, with a focus on piloting these technologies this year.

The "Innovation Procurement Sprint" will complement the systems that the state currently uses to assist with wildfire detection and situational awareness during disasters. As an improvement in this capability, the U.S. Department of Defense has granted California, via the California National Guard, delegated authority to approve the use of drones for rapid deployment in wildfire response and



recovery operations. Additionally, Cal OES is working with CAL FIRE and other partner agencies to identify and implement improvements to situational awareness technology. Responders need standardized, centralized weather forecasting capabilities to enhance effective deployment strategies, and to allow for better fire spread projection modeling for quicker firefighting strategies.

### **Public Safety Power Shutoff**

At the direction of the California Public Utilities Commission, investor-owned utility companies are shutting off electric power during extreme fire conditions to reduce the risk of wildfires as part of an initiative called Public Safety Power Shutoff (PSPS). The decision to shut down power is determined based on a number of risk factors, including a red flag warning by the National Weather Service, low humidity levels, sustained winds, site-specific conditions, critically dry vegetation, and real-time observations from utility crews. All PSPS events are required to be closely coordinated with Cal OES, CAL FIRE, and other public safety agencies to provide situational awareness and proper planning for public health and safety during these events.

Cal OES partnered with utilities in California on the PSPS public education campaign. This campaign prepares Californians, especially vulnerable populations, for power shutoffs. It encourages individuals and families to have a personal safety plan in place, plan for their medical needs, build emergency supply kits, pre-identify backup charging methods for devices that require power, and other emergency preparedness activities.

### **Alert and Warning Guidelines**

After action reports and lessons learned from the October 2017 wildfires prompted Governor Brown to sign Senate Bill 833 (McGuire) in 2018. This legislation required Cal OES to publish the *State of California Alert and Warning Guidelines*. The purpose of the guidelines is to eliminate the differences and inconsistencies among various alert and warning programs across California, and to ensure that as many lives are saved as possible during a disaster. The guidelines were developed in conjunction with local, state, federal, and tribal partners as part of the SEMS Technical Group, and were finalized in early 2019. Cal OES is personally meeting with every county to ensure that all possible alert and warning tools are available and considered when a disaster hits.

### **Hazard Mitigation**

Hazard mitigation is one of the most effective prevention tools that states can use to take action now – before the next disaster – to reduce human and financial consequences later. According to a 2017 study conducted by FEMA entitled, *Natural Hazard Mitigation Saves*, every \$1 spent on disaster mitigation

saves \$6 on future disaster losses. Effective mitigation requires that local risks are fully understood, and that state and local government are balancing long-term community resilience with other short-term projects and priorities.

California leads the nation with its comprehensive State Hazard Mitigation Plan (SHMP), produced by Cal OES. The SHMP is the state's primary hazard mitigation guidance document. It provides an analysis of the state's historical and current hazards, and hazard mitigation goals and objectives. The SHMP is updated every five years in partnership with a wide array of stakeholders and was most recently updated in 2018. It serves as resource for local community planners as it contains risk information that may pertain to their respective area.

Cal OES also encourages communities to adopt Local Hazard Mitigation Plans (LHMPs), which Cal OES reviews as part of the state hazard mitigation planning process. LHMPs ensure that local jurisdictions are aware of the hazards and vulnerabilities within their jurisdiction, and that they are developing strategies to reduce them. This information is used in state planning, to ensure that state and local hazard mitigation planning are coordinated to the greatest extent possible.

Major Disaster Declarations have provided for the availability of FEMA Hazard Mitigation Grant Program (HMGP) funds, for which Cal OES is the State Administrative Agency. Since the January 2017 Severe Storms, Flooding, and Mudslides Incident, Cal OES has received over \$750 million in HMGP funding, and has administered this funding to other state agencies, local government agencies, special districts, federally recognized tribes, and private non-profit organizations. HMGP-funded initiatives include projects for post-wildfire erosion control, soil stabilization, vegetation management, and other projects to mitigate the risk of California's natural hazards.

## **Telecommunications & 9-1-1 System Improvements**

### ***Next Generation 9-1-1***

In 2014, the California Legislature mandated Cal OES to implement Next-Generation 9-1-1 (Next-Gen 9-1-1). This will ensure long-term sustainability of the 9-1-1 network and allow for the implementation of modernized 9-1-1 services. Next-Gen 9-1-1 will provide the redundancy and reliability that Californians expect when they need help. The capabilities of Next-Gen 9-1-1 include seamless text to 9-1-1 delivery into a call center, delivering emergency calls quickly and accurately - in 3 seconds or less, increased location accuracy for wireless calls, and providing a statewide common delivery system for public alerts and warnings. Next-Gen 9-1-1 will create efficiencies to allow agencies to

re-route 9-1-1 calls to other agencies during disasters, and to utilize state-of-the-art mapping in order to better locate callers. Modernizing the 9-1-1 system means that there will be reduced downtime during disasters or routine outages and will allow California to integrate with the First Responder Network Authority's nationwide wireless broadband network initiative, FirstNet.

### ***FirstNet***

California opted into FirstNet on December 28, 2017. Cal OES has worked diligently in the development and implementation FirstNet by working with AT&T for site placement to meet public safety needs and developing comprehensive site-hardening plans, which include identification of mission-critical sites, generators and battery backup, and redundant backhaul. Cal OES has also collaborated with stakeholders to create best practices for FirstNet, its integration with Next Gen 9-1-1, and user identification and classification.

Additionally, Cal OES has continued its mission of working closely with counties to identify coverage needs. It is critical that FirstNet integrate into existing technologies seamlessly. Cal OES will ensure applications developed are interoperable and emergency communications technology transitions are smooth. While significant progress has been made, there is still work to be done as public safety agencies must individually decide if FirstNet has the coverage and capabilities needed to support them.

### ***Hardening Telecommunications Infrastructure for Disasters***

As evidenced in many recent catastrophic wildfires, California's current cellular networks are not hardened to withstand the effects of climate change and natural disasters. During a disaster, 9-1-1 calls require a survivable cellular network.

During the October 2017 wildfires, approximately 72,000 people had difficulty reaching 9-1-1 – some due to the inability to call 9-1-1. 341 cell sites went offline, and 15 public safety answering points were impacted. During the November 2018 Camp and Woolsey fires, a total of 489 cell sites went offline. A majority of these sites were not available during the initial hours of the fires, which hindered the availability to call 9-1-1 and the ability of public alerts and warnings to be delivered. These outages impeded the coordination of emergency response, and many of the affected sites remained offline for days.

Outages in the 2017 and 2018 wildfires were primarily due to lack of site hardening in three areas, including lack of power, backhaul connectivity, and site protection. Cell towers need to have adequate backup power so they are available during these events. The California Public Utilities Commission is looking

at ways to ensure that communications service providers harden their infrastructure and prepare for emergencies with ample back-up power.

Backhaul connectivity is the connection from the cell site to the cellular network and is required for cell sites to function. Most cell sites rely on fiber connections, which can be destroyed during a fire. Backup connectivity would typically be provided via microwave network, but most cell sites do not have backup microwave for backhaul.

In many cases, cell sites were located on the same mountaintop as a public safety communication site. None of the public safety sites burned down, but as many as six cellular sites burned down. Improper defensible space, debris accumulation on rooftops and near the shelters, and other preventable factors most likely contributed to the vulnerability of those cellular sites, and continues to be an issue.

Telecommunication service providers all worked diligently in 2017 and 2018 to restore the cell sites that were out due to wildfires and Cal OES received regular reports on the status of cell sites in the impacted area. While information sharing efforts have improved, receipt of real-time outage information continues to be challenging as industry partners are reluctant to reveal information that could potentially be used by competitors.

### **Conclusion**

Thank you for the opportunity to testify before you and for your continued support. The scale of these disasters will not fit into "business as usual" budget cycles or bureaucracies. They demand urgent action and a dramatic increase in the teamwork, pace, and scale of our responses.

I look forward to answering your questions.