COMMITTEES ON EMERGENCY MANAGEMENT, UTILITIES & ENERGY, AND WATER, PARKS, & WILDLIFE

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JOINT INFORMATIONAL HEARING

Wednesday, February 1, 2023
State Capitol, Room 437

California's Preparedness and Response to Extreme Atmospheric River Incidents

January 2023 Storms in Review. California began 2023 with as many as nine major storm events in around three weeks. These storms brought 8–15 inches of rain in the valleys, 20–30 inches of rain in the foothills, and 10–15 feet of snow in the Sierra. While this precipitation did provide much-needed drought relief, it was accompanied by intense floods and winds reaching up to 90 mph that caused over $1 billion in damage and the tragic loss of at least 22 lives. The phenomenon responsible for exacerbating the impact of these storms: atmospheric rivers. Atmospheric rivers are long corridors that transport concentrated water vapor through the air from the tropics to California; these events can be either hazardous or beneficial depending on their intensity. When atmospheric river-fed storms approach land and encounter high elevation mountain ranges, such as the Sierra Nevada, moist air rises and cools producing copious amounts of precipitation. Some of these atmospheric rivers can carry 7.5–15 times the average flow out of the Mississippi River.

Based on forecasts of the high winds, excessive rainfall, and the potential for flooding, local operational areas (counties) began proclaiming local emergencies prior to the damaging New Year's Eve storm. On January 4, 2023 the Governor requested and secured an Emergency Declaration for direct Federal Assistance from the Federal Emergency Management Association. As the series of atmospheric rivers continued to cause floods, extended power outages, and displace thousands of residents, a majority of California's counties proclaimed local emergencies and ultimately the Governor requested an Expedited Major Disaster Declaration on January 12, 2023. President Biden approved the Major Disaster Declaration on January 14, 2023.

Policy considerations for the Legislature.

Is California and our mutual aid systems prepared for a mega-flood scenario?

How can California improve local forecasts during atmospheric river incidents?

How resilient are California's lifeline systems to extreme weather?

How equitable was California's response to this incident?

Were there lessons learned or areas of improvement for our alert and warnings systems, evacuations, and sheltering operations?

How should California invest hazard mitigation funds to make our communities more resilient?

Utility Response and the Protection of Critical Infrastructure

Utilities provide essential services such as electricity, water, gas, and telecommunications. These services are vital for maintaining public health and safety, as well as enabling economic stability and comfort. Without these services, basic human needs such as lighting, heating, water, and communication would be largely unavailable.

Flood and windstorm events can compromise utility infrastructure from trees and other debris falling into powerlines, damaging equipment, and interrupting service. Downed powerlines that remain energized pose electrocution hazards, either on their own or when in contact with standing water. Rising water levels can also submerge gas meters or pilot lights, creating hazardous situations for customers after the water has receded. Flooding, landslides, and road closure can slow utility service workers' access to infrastructure, while active lightning or high winds can make it too dangerous for crews to work, slowing down restoration efforts.

During the recent atmospheric rivers, utilities faced enormous challenges to keep power flowing. As shown in Box 1, during the storms the two largest utilities in Northern California, Pacific Gas and Electric Company (PG&E) and the Sacramento Municipal Utility District (SMUD), faced customer outages in the hundreds of thousands to millions. For a time, over half of SMUD customers were in the dark. This degree of widespread outage is unmatched in SMUD history.

During normal outage events, utilities respond to restoration requests as they occur. However, during major storms where hundreds of thousands of customers are without power, utilities often must prioritize restoration efforts. For SMUD during these storms, that prioritization followed:

Box 1: Storm Impact on Utilities

PG&E

- ~5.6 million electric accounts (serving ~16 million people across 70,000 square miles).
- 2.8 million restorations during the storms (some customers experience multiple outages).
- 2.3 million poles territory-wide.
- 1,818 poles and 4,430 powerlines were damaged during storm.
- Majority of outages during non-emergencies are restored within 24 hours.
- During the storm, 80% of customers were restored within 12 hours, more than 90% within 24 hours.
- PG&E had more than 7,200 dedicated personnel responding to the storm including contractors and mutual aid from southern California, Oregon, Idaho, Utah, Wyoming, New Mexico, Colorado, Washington, Wisconsin and Canada.

SMUD

- ~645,000 accounts (serving ~1.5 million people)
- ~599,000 customer outages throughout the storms
- 425 poles and ~1,800 powerlines down during the storm
- More than 100 crews working around-the-clock to restore power. Mutual aid from around the state, including those from Roseville Electric, Turlock Irrigation District, Modesto Irrigation District, Western Area Power Administration, City of Riverside, Los Angeles Water & Power, Redding Electric Utility, Clark County Public Utilities District and Lodi Electric. It was the largest mobilization of restoration crews that SMUD ever deployed.

1. Public safety hazards (downed power lines and poles).
2. Hospitals and critical flood control pumps.
3. Areas with large numbers of customers out of power.
4. Scattered, smaller outages.

Another challenge with restoration efforts from such widespread outages is having enough dedicated personnel and equipment to respond to the event. Both PG&E and SMUD called upon mutual aid support from around the state, the country, and internationally. PG&E pre-staged power poles, powerlines, transformers, and other electric equipment at yards throughout their service territory in preparation for the storm. In addition, the California Utilities Emergency Association (CUEA) is an organization, chartered in 1952, to help utilities during emergencies.[1] Representing nearly 100 members across all utility sectors, CUEA helps its members access mutual aid resources throughout the state.

Utilities also offer a number of customer support programs during unplanned outages. These can vary by utility, but generally include direct payments to customers who have been without power for a specified period of time, partnerships with food banks to ensure food replacement is available to those in need, targeted outreach to medically vulnerable customers, and specific resource offerings like portable batteries, small generators, fuel cards, or even lodging for those dependent on electricity for medical and life sustaining needs. During the recent storms, PG&E even negotiated discounted hotel rates for customers experiencing extended outages. They also provided nearly 6,300 go bags with water, snacks, a battery charger, and blankets at warming centers in nine counties in coordination with local government and emergency services partners.

These utility efforts actions arise, in part, from legislative and regulatory action. In 2012, the Legislature adopted requirements for the electrical corporations and regulated water utilities' disaster and emergency preparedness plans, including the following elements: use of weather reports to pre-position personnel and equipment before severe weather events; improve communications; and methods to control and mitigate an emergency or disaster and its aftereffects.[2] This legislation was created in response to the December 2011 windstorms in the San Gabriel Valley that knocked out power to more than 400,000 customers, some of them for more than a week. Following those storms, numerous public officials, including first responders, recommended to the California Public Utilities Commission (CPUC) that electric utilities consult with local agencies to better prepare for disasters.

Following this and subsequent legislation, as well as lessons learned from utility preparedness and response efforts during the 2017-2019 wildfire seasons, the CPUC adopted updated disaster and emergency preparedness plans for the electrical and water utilities in 2021.[3] These plans required both electric and water utilities to adopt California's Standardized Emergency Management System (SEMS) to improve communication among governmental agencies, tribal governments, the public, and the utilities.

Flooding in California. California has experienced destructive flood events throughout its history. Before January 2023, the last major, widespread flooding event was 1997 (the New Year's Day floods, when 120,000 people were evacuated and 23,000 homes and businesses flooded). More recently, more local flood disasters include the Oroville Spillway in 2017 and the Russian River floods in 2019. Even before this year's floods, every county in California has been declared a federal disaster area at least once for a flooding event over the last 30 years.[4]

[1] https://www.cueainc.com/
[2] AB 1650, Portantino, Chapter 472, Statutes of 2012
[3] D. 21-05-019; R. 15-06-009; issued 5/21/2021
[4] Taylor, M. (2017) Managing Floods in California. An LAO Report. https://lao.ca.gov/Publications/Detail/3571

Estimates suggest more than 7.3 million people and structures valued at nearly $600 billion statewide are located in areas that have at least a 1-in-500 probability of flooding in any given year.[5] In the Central Valley, 1.3 million people, $17 billion in agriculture economic activity, and $223 billion in homes, businesses, and structures are in flood risk areas. Factoring in future development, climate change, and potential losses to key infrastructure, those figures could climb much higher. Current projections indicate that peak flood flows will increase up to five times by 2072 in the Central Valley compared to past records.[6] Despite their damaging potential, in some cases floods can have positive effects including replenishing groundwater basins, creating habitat for fish and wildlife, and improving water quality by flushing out contaminants.

Flood Management Infrastructure and Responsibilities. Local, federal, and state agencies have developed a variety of physical structures to regulate flood flows including levees, channels, and weirs to convey and control floodwaters as well as dams, reservoirs, and bypasses to collect or store water. Physical structures are sometimes paired with nonstructural approaches – like limiting development in floodplains – for flood management. Flood infrastructure across California includes more than 20,000 miles of levees and channels and more than 1,500 dams and reservoirs. Most of these facilities are owned and managed by local governments, reflecting the history of how the facilities were developed and aligning primary responsibility for the projects with their beneficiaries. A recent report estimated that flood management responsibilities are spread across over 1,300 local agencies across the state.[4]

Over 1,600 miles of levees, four dams, five major weirs, and seven bypasses are overseen by the state and are considered part of the State Plan of Flood Control system (SPFC), a system of flood protection infrastructure along the Sacramento and San Joaquin Rivers and their main tributaries. The Central Valley Flood Protection Board (CVFPB) oversees SPFC facilities and levees (often called project levees) on behalf of the state. For most segments of SPFC levees, the state has developed formal agreements with local governments to handle regular operations and maintenance responsibilities. The Department of Water Resources (DWR) maintains approximately 300 miles of SPFC levee segments not covered by such agreements.[4]

With the exception of around 20 dams and reservoirs operated by the U.S. Army Corps of Engineers (USACE) or the Bureau of Reclamation, the federal government generally does not directly operate or maintain flood control facilities in California.[7] The USACE does inspect federally constructed levees for compliance with federal standards, while the Federal Emergency Management Agency (FEMA) operates the National Flood Insurance Program, which includes mapping flood risk and establishing floodplain management standards.

State Actions on Flood Control. In response to Hurricane Katrina striking New Orleans in 2005, serious flooding in Northern California in 2006, and California's responsibility to pay $464 million in damages after the Linda Levee failure in 1986 (*Paterno v. State of California*), the Legislature took a series of actions in 2006–2007 which included approving two general obligation bonds and a package of six flood protection bills. This included state and local planning requirements, higher flood protection standards, local development requirements, and updated flood risk mapping goals.

As part of the legislation, the CVFPB was required to adopt an integrated flood management plan, the Central Valley Flood Protection Plan (Flood Plan), for the Sacramento-San Joaquin River Flood Management System by July 2012. On June 29, 2012, the CVFPB unanimously adopted the Flood Plan, which the CVFPB states, "provides conceptual guidance to reduce the

[5] The 2021-22 Budget: Department of Water Resources https://lao.ca.gov/Publications/Detail/4321
[6] Central Valley Flood Protection Plan Update (2022) http://cvfpb.ca.gov/cvfpp/
[7] https://www.spk.usace.army.mil/Missions/Civil-Works/Dam-Safety-Program/

risk of flooding for about one million people and $70 billion in infrastructure, homes, and businesses with a goal of providing 200-year (a 1-in-200 chance of flooding in any year) protection to urban areas, and reducing flood risks to small communities and rural agricultural lands." The CVFPB's adoption of the Flood Plan triggered the requirement that cities and counties incorporate data and analysis from the Flood Plan into their general plans by 2014 and update their zoning ordinances by 2015 to prohibit development on property within a flood hazard zone unless the required levels of flood protection are met.

The CVFPB Flood Plan is updated every five years. The first update in 2017 included recommendations on investments and policies to support comprehensive flood risk management actions locally, regionally, and system-wide. The second (and most recent) update to the Flood Plan (November 2022) highlighted themes of flood system climate resilience, accountability and adaption through performing tracking, and strategic alignment with other State water management planning efforts. Renewed effort is now focused on developing new partnerships to support underserved communities. Since 2007, approximately 361 miles of urban and 120 miles of non-urban SPFC levees have been repaired, rehabilitated, or improved, providing public safety and economic outcomes. In addition, multi-benefit and restoration projects completed between 2016 and 2021 resulted in a net gain in floodplain inundation and restored riparian habitats, and modified one priority fish passage barrier. Investment in flood management as outlined in the Flood Plan is estimated to cost $25–30 billion over the next 30 years.

ARkStorm Scenario. In 2010, the United State Geological Survey (USGS) led a multidisciplinary team of leading earth scientists, engineers, and social scientists to create the ARKStorm Scenario: a detailed and realistic depiction of how a severe winter storm could affect the state. The ARkStorm Scenario shows that atmospheric rivers represent a nearly existential threat to California's people, economy, and culture. It is well established that climate change is raising the ocean temperatures that power atmospheric rivers, making an event like the ARkStorm more realistic, the threat more grave, and the likely losses greater.

The 2010 ARkStorm is patterned after the 1861–62 historical events but uses modern modeling methods and data from large storms in 1969 and 1986. The ARkStorm draws heat and moisture from the tropical Pacific, forming a series of atmospheric rivers that approach the ferocity of hurricanes and then slam into the U.S. West Coast over several weeks.[8]

In contrast to U.S. East and Gulf Coast hurricanes, only recently have scientific and technological advances documented the ferocity and strength of possible future West Coast storms. ARkStorm is intended to elevate the visibility of the very real threats to human life, property, and ecosystems posed by extreme storms on the U.S. West Coast. This enhanced visibility will help increase the preparedness of the emergency management community and the public to such storms. The ARkStorm analysis suggested that such an event would likely produce widespread, catastrophic flooding and subsequently lead to the displacement of millions of people, the long-term closure of critical transportation corridors, and ultimately up to nearly $1 trillion in overall economic losses (2022 dollars).[9]

A new ARkStorm scenario (ARkStorm 2.0) has recently been analyzed to reflect climate change data and advances in modeling to investigate the impact of a 30-day storm in a future climate (2071–2080), called ARkFuture. This new modeling shows that climate change will increase the severity of storms bringing more intense moisture transport and more overall precipitation, along with higher elevation freezing levels and decreased snow-to-rain ratios that together yield runoff

[8] Porter, K., *et al.* (2010)Overview of the ARkStorm Scenario. USGS

[9] Huang, X. and Swain, D. L. (2022) Climate Change is Increasing the Risk of a California Megaflood. *Science Advances*

that is much higher than that during historical events. Additionally, projected increases in hourly rainfall rates during individual storm events have high potential to increase the severity of geophysical hazards such as flash flooding and debris flows. This is especially true in the vicinity of large or high-intensity wildfire burn areas, which are themselves increasing due to climate change and yielding large increases in associated compound hazards.

The plausibility of the ARkStorm scenarios has been demonstrated over the last several years, including during winter-spring 2017, when a drought-busting and record-breaking series of 68 atmospheric-river storms reached the West Coast.[10] Neither the 2017 and 2023 storms approached the severity of the megaflood modeled by ARkStorm: a flood 200 miles long and 12 to 20 miles wide that would effectively be an inland sea in the Central Valley. However, the cascading consequences associated with the atmospheric rivers, floods, wildfire fuel production, and fire and debris-flows, aligned closely with the ARkStorm scenario.

Northern California Catastrophic Flood Response Plan (NCCFRP). The NCCFRP is the latest and fourth catastrophic plan for California and provides a framework outlining how local, state, and federal governments will respond and coordinate in anticipation of and following a catastrophic flood event, with emphasis on impacts to the Sacramento-San Joaquin Delta. This framework has structured objectives that enable a phased response approach to meet the needs of the affected communities. The plan focuses on establishing response organizations with the readiness to act in support of affected communities.

This plan was developed in accordance with the Sacramento-San Joaquin Delta Emergency Preparedness Act of 2008. That act required the California Office of Emergency Services (Cal OES) to develop an emergency preparedness and response strategy for the Delta Region to include the development of a catastrophic flood plan. Cal OES developed this plan in coordination with DWR, numerous state agencies, FEMA, and other federal agencies, and expanded the planning to the following ten counties: Butte, Colusa, Contra Costa, Glenn, Sacramento, San Joaquin, Solano, Sutter, Yolo, and Yuba.

CALIFORNIA's EMERGENCY MANGEMENT SYSTEM

California's Standardized Emergency Management System (SEMS). In order to respond to frequent and multiple disasters occurring anytime and anywhere in the state, it is important that emergency response agencies operate within a clear and consistent organizational structure. SEMS is the cornerstone of California's emergency response system and the fundamental structure for the response phase of emergency management. The system unifies all elements of California's emergency management community into a single integrated system and standardizes key elements. Elemental to SEMS are:

1) Incident Command System (ICS) - A field-level emergency response system based on management by objectives;

2) Multi/ Inter-agency coordination - Affected agencies working together to coordinate allocations of resources and emergency response activities;

3) Mutual aid - A system for obtaining additional emergency resources from non-affected jurisdictions; and

4) Operational Area Concept - County and its sub-divisions to coordinate damage information, resource requests and emergency response.

[10] ARkStorm and the 2017 Relentless Storm Season
https://ui.adsabs.harvard.edu/abs/2018AGUFMNH23A..06C/abstract

Emergency Management Mutual Aid (EMMA) System: The purpose of EMMA system is to provide emergency management personnel and technical specialists to support the disaster operations of affected jurisdictions during an emergency. One of the primary objectives is to provide emergency management personnel and technical specialists from unaffected areas to support local jurisdictions, Operational Areas (OAs), and regional emergency operations during emergencies.

California Emergency Services Act. The California Emergency Services Act (CESA) was enacted in 1970, and established OES within the Governor's Office. Under the CESA, OES is charged with coordinating statewide emergency preparedness; post emergency recovery and mitigation efforts; and the development, review, approval, and integration of emergency plans.

The CESA gives the Governor authority to proclaim a state of emergency in an area affected or likely to be affected when: a) conditions of disaster or extreme peril exist; b) the Governor is requested to do so upon request from a designated local government official; or c) the Governor finds that local authority is inadequate to cope with the emergency. Local governments may also issue local emergency proclamations, which is a prerequisite for requesting the Governor's Proclamation of a State of Emergency.

State of Emergency. The CESA defines a "state of emergency" as the duly proclaimed existence of conditions of disaster or of extreme peril to the safety of persons and property within the state caused by conditions such as air pollution, fire, flood, storm, epidemic, riot, drought, cyberterrorism, sudden and severe energy shortage, plant or animal infestation or disease, the Governor's warning of an earthquake or volcanic prediction, or an earthquake, or other conditions, other than conditions resulting from a labor controversy or conditions causing a "state of war emergency," which, by reason of their magnitude, are or are likely to be beyond the control of the services, personnel, equipment, and facilities of any single county, city and county, or city and require the combined forces of a mutual aid region or regions to combat, or with respect to regulated energy utilities, a sudden and severe energy shortage requires extraordinary measures beyond the authority vested in the California Public Utilities Commission (CPUC).

The California Disaster Assistance Act (CDAA). The CDAA was first enacted in 1974, was later modified to establish the Disaster Response Emergency Operations Account (DREOA) as a subaccount of the Special Fund for Economic Uncertainties (SFEU). (The SFEU is the state's discretionary budget reserve of the General Fund.) CDAA authorizes the Department of Finance (DOF) to transfer funds from the SFEU to DREOA and allocate funds from DREOA to state departments for emergency response and recovery costs. CDAA specifies that funds are allocated from DREOA upon notification of the Joint Legislative Budget Committee (JLBC) by DOF.

Federal Disaster Declaration Types. There are two types of disaster declarations provided for in the Stafford Act: emergency declarations and major disaster declarations. Both declaration types authorize the President to provide supplemental federal disaster assistance. However, the events related to the two different types of declaration and scope and amount of assistance differ.

Emergency Declarations. The President can declare an emergency for any occasion or instance when the President determines federal assistance is needed. Emergency declarations supplement State and local or Indian tribal government efforts in providing emergency services, such as the protection of lives, property, public health, and safety, or to lessen or avert the threat of a catastrophe in any part of the United States. The total amount of assistance provided for in a single emergency may not exceed $5 million. The President shall report to Congress if this amount is exceeded.

Assistance Available Under Emergency Declarations

Public Assistance (PA) – Only Categories A (debris removal) and B (emergency protective measures) may be authorized under an emergency declaration.Categories C-G (permanent work) are not available under an emergency declaration. Emergency declarations often include only Category B and will typically be limited to DFA, absent damage assessments showing significant need for financial assistance. This assistance is generally provided on a 75% federal, 25% non-federal cost sharing basis.

Individual Assistance (IA) – The Individuals and Households Program (IHP) is the only form of IA that may be authorized under an emergency declaration.Authorization of IHP under an emergency is rare. Housing Assistance under IHP is provided at a 100% federal share, while Other Needs Assistance under IHP requires a 25% non-federal cost share.

The Hazard Mitigation Grant Program (HMGP) - is not available for emergency declarations.

Pre-Disaster Emergency Declarations

A Governor or Tribal Chief Executive may request an emergency declaration in advance or anticipation of the imminent impact of an incident that threatens such destruction as could result in a major disaster. Such requests must meet all of the statutory and regulatory requirements for an emergency declaration request. Requests must demonstrate the existence of critical emergency protective measure needs prior to impact are beyond the capability of the State and affected local governments or Indian tribal government and identify specific unmet emergency needs that can be met through DFA. Such DFA may include, but is not limited to, personnel, equipment, supplies, and evacuation assistance. Pre-positioning of assets generally does not require a declaration. Assistance made available under a pre-disaster emergency declaration will typically be Category B (emergency protective measures), limited to DFA.

Major Disaster Declarations

The President can declare a major disaster for any natural event, including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or, regardless of cause, fire, flood, or explosion, that the President determines has caused damage of such severity that it is beyond the combined capabilities of state and local governments to respond. A major disaster declaration provides a wide range of federal assistance programs for individuals and public infrastructure, including funds for both emergency and permanent work.

Assistance Available Under Major Disaster Declarations

Not all programs, however, are activated for every disaster. The determination of which programs are authorized is based on the types of assistance specified in the Governor or Tribal Chief Executive's request and the needs identified during the joint PDA and subsequent PDAs. FEMA disaster assistance programs are as follows:

FEMA's Individual Assistance Program

When a disaster occurs, the Federal Emergency Management Agency (FEMA) may assist individuals with their recovery through the Individual Assistance (IA) program if the President authorizes such assistance pursuant to a declaration of emergency or major disaster under the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

Individual Assistance Programs

FEMA may provide the following forms of Individual Asssistance:

The Crisis Counseling Assistance and Training Program (CCP) provides grant funding to local, state, territory, and tribal governments, which may contract with local mental health service providers, for CCP services. The CCP assists individuals and communities through community-based outreach and the provision of psycho-educational services following an emergency or major disaster.

Disaster Case Management (DCM) partners case managers with disaster survivors to develop and implement disaster recovery plans that address the survivor's unmet needs following a major disaster.

Disaster Legal Services (DLS) are provided for free to low-income individuals to assist them with securing benefits or making claims arising from a major disaster.

Disaster Unemployment Assistance (DUA) provides unemployment benefits and re-employment assistance to individuals who are ineligible for regular unemployment insurance, and were previously employed or self-employed, and rendered jobless or whose employment was interrupted, as a direct result of a major disaster.

The Individuals and Households Program (IHP) provides financial and/or direct assistance for housing, as well as financial assistance for other needs (referred to as Other Needs Assistance (ONA)), to eligible individuals and households who have uninsured or under-insured necessary expenses and serious needs resulting from an emergency or major disaster, which cannot be met through other means or forms of assistance.

The federal government provides 100% of the funding for CCP, DUA, DLS, DCM, and IHP-Housing Assistance. IHP-ONA, however, is subject to a statutorily set 75% federal and 25% nonfederal cost share, borne by the state/territory/tribe.

Public Assistance Programs

Assistance to State, Tribal, and local governments and certain private nonprofit organizations for emergency work and the repair or replacement of disaster-damaged facilities, which may include the following Categories:

A - Debris removal
B - Emergency protective measures
C – Roads and bridges
D – Water control facilities
E – Buildings and equipment
F – Utilities
G – Parks, recreational and other facilities

Hazard Mitigation Assistance

Assistance to State, Tribal, and local governments and certain private nonprofit organizations for actions taken to prevent or reduce long term risk to life and property from natural hazards.

Current Assistance Available for this Federal Major Disaster Declaration

	Individual Assistance	Public Assistance	Hazard Mitigation Assistance
Counties Designated	Calaveras, Merced, Monterey, Sacramento, San Luis Obispo, Santa Barbara, San Joaquin, San Mateo and Santa Cruz counties	Merced, Monterey, Sacramento, San Luis Obispo, Santa Barbara and Santa Cruz counties	All 58 counties
What it means…	Assistance to individuals and households to repair or replace damaged property. Housing assistance available only for primary residence. Other Needs Assistance (ONA) may include transportation, childcare and medical and dental expenses. FEMA works with the U.S. Small Business Administration (SBA) to offer low-interest disaster loans to businesses (including private non-profit organizations), homeowners, and renters with physical damage.	Assistance to state and local governments and certain private non-profit organizations for emergency work and debris removal.	Assistance to state and local governments and certain private non-profit organizations for actions taken to prevent or reduce long term risk to life and property from natural hazards.

According to the California Office of Emergency Services (Cal OES), "the state of California is committed to maximizing state and federal aid to support the communities and individuals who have been adversely impacted by the winter storms. The California Governor's Office of Emergency Services (Cal OES) understands that "all disasters are local" and that because the atmospheric river affected different parts of our state differently, not all areas may be eligible (or need) the same level support or programs to rebuild and recover. Eligibility for federal programs will be based on the unique damage and extent of impacts incurred locally."

KEY STATE, FEDERAL, AND LOCAL ENTITIES IN CALIFORNIA WITH FLOOD MANAGEMENT FUNCTIONS

California Central Valley Flood Control Association (CCVFCA) – The CCVFCA represents many local flood control partners. The CCVFCA was established in 1926 to promote the common interests of its membership in maintaining effective flood control systems in California's Central Valley for the protection of life, property and the environment. Membership in the CCVFCA is limited to public agencies such as reclamation, flood control, levee maintenance, drainage and other special districts, and local government agencies.

California Office of Emergency Services (Cal OES) – Cal OES is responsible for the coordination of overall state agency response to major disasters. The office is responsible for assuring the state's readiness to respond to and recover from all hazards – natural, manmade, and war-caused emergencies and disasters – and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts. In that role, Cal OES is a critical partner in preparing for flood and in coordinating state and local flood response efforts.

California Water Commission (CWC) – The CWC provides a public forum for discussing water issues, advises the Director of the Department of Water Resources on matters within the Department's jurisdiction, approves rules and regulations, and monitors and reports on the construction and operation of the State Water Project. The *Water Quality, Supply, and Infrastructure Improvement Act* (Proposition 1), approved by voters in 2014, gave the CWC responsibilities regarding the distribution of public funds for the public benefits of water storage projects. The CWC presents its views to the U.S. Congress appropriations committees on funding for flood control or reclamation projects being planned or constructed in California by the United States Army Corps of Engineers or the Bureau of Reclamation.

Central Valley Flood Protection Board (CVFPB) – The CVFPB is responsible for planning, managing and protecting the State Plan of Flood Control. These are the flood control features (levees, floodways, etc.) for which the State government has statutory responsibilities, also called project levees. Levees that are private or belong to local agencies are called non-project levees. The CVFPB helps plan new flood control features, maintains existing features, and enforces against incompatible projects and activities in the flood way or on (or in) flood control structures. This can include things such as pipes through levees or backyard swimming pools that encroach into State-held easements next to levees.

Delta Protection Commission (DPC) – The DPC promotes the protection of life and property through the maintenance and improvement of Delta levees, and by facilitating coordinated emergency preparedness and response. This includes long-term planning for ongoing, cumulative levee improvements to address new issues as they arise over time. As directed by SB 27 (Simitian, 2008), the DPC continues to work to facilitate an inter-agency unified command system and response strategy for the Delta region, as well as on implementation of an all-hazard emergency response exercise in the Delta.

Delta Stewardship Council (DSC) – The Sacramento-San Joaquin River Delta is an expansive inland river delta and estuary in Northern California. Much of the water supply for central and

southern California is derived from here via pumps located at the southern end of the Delta, which deliver water for irrigating about 3 million acres in the San Joaquin Valley and municipal water supply for about 25 million people in southern California. The Sacramento-San Joaquin Delta Reform Act of 2009 (SB X7-1, Simitian, 2009), among other actions, created the DSC and tasked it with coming up with a long-term plan for the Delta (the Delta Plan) that balances water supply and ecosystem restoration while respecting the Delta's intrinsic value as a place. The Act also required the DSC, in consultation with the CVFPB, to recommend priorities in the Delta Plan for state investments in both project and non-project Delta levees. In response, the DSC launched the Delta Levees Investment Strategy.

Department of Water Resources (DWR) – The DWR manages California's water resources, systems, and infrastructure. With regard to floods, the DWR plans for and improves the flood management system; maintains levees; provides emergency preparedness and response; and forecasts river levels based on weather conditions. The DWR administers bond dollars for both Integrated Regional Water Management Projects, some of which can have storm water or flood components, as well as flood subventions funds.

Federal Emergency Management Agency (FEMA) – FEMA's primary purpose is to coordinate the response to a disaster that has occurred in the United States and that overwhelms the resources of local and state authorities. In addition, FEMA provides state and local governments with experts in specialized fields and funding for rebuilding efforts. FEMA provides funds for training of response personnel throughout the United States and its territories as part of the agency's preparedness effort.

United States Army Corps of Engineers (USACE) – The USACE is the State's federal partner for project levees. The USACE's roles include funding, building projects, fighting floods, and helping rebuild after floods. Under the Flood Control and Coastal Emergencies Act [Public Law 84-99 (PL 84-99)], the Chief of the USACE, acting for the Secretary of the Army, is authorized to undertake activities including disaster preparedness, advance measures, emergency operations (flood response and post flood response), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source. PL 84-99 also sets certain construction and maintenance requirements for flood control structures, with consequences for states and local agencies for failing to meet these standards.