

# ***Bay Area Climate Asset Map***

*Updated November 2014*

***Produced for  
The San Francisco Foundation***

## **Bay Area Climate & Energy Resilience Project**

*A Project of the Joint Policy Committee*

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The purpose of the asset mapping exercise was to provide Bay Area adaptation stakeholders with a better understanding of the key projects and programs underway in the region. This basic mapping is the first step towards identifying strengths and weaknesses in the Bay Area climate adaptation system. Future growth can be built on the successful projects described in these pages while gaps in various sectors will help to target the need for new programs and approaches.

The consultants collected this information on Bay Area climate adaptation and resilience initiatives through web search, email surveys and phone interviews. Initiatives spotlighted in earlier reports were updated and new initiatives were added. Expanded information on project leads, partners and locations was included for all initiatives.

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#### ***A. Flooding (sea level rise, storms)***

##### **Adapting to Rising Tides**

*Pioneering sub-regional planning and collaboration for Bay Area sea level rise*

**Location:** ART Pilot Project: Alameda County; ART Program: Bay Area

**Lead:** Bay Conservation and Development Commission & NOAA Coastal Services

**Partners:** US DOT, Metropolitan Transportation Commission, Caltrans, ICLEI, local government agencies, non-profits and private sector

ART is a collaborative planning effort to understand how San Francisco Bay Area communities can adapt to sea level rise and storm event flooding. Led by the San Francisco Bay Conservation and Development Commission (BCDC) and the NOAA Coastal Services Center, the ART Project has engaged local, regional, state and federal agencies, as well as non-profit and private stakeholders, in an in-depth exploration of the issues. The ART pilot project focused on a portion of the Alameda County shoreline, from Emeryville to Union City.

The goal of the ART pilot project was to increase the Bay Area’s preparedness and resilience to sea level rise and storm events while protecting critical ecosystem and community services. The initial phases of the project addressed two critical initial questions:

- How will climate change impacts of sea level rise and storm events affect the future of Bay Area communities, infrastructure, ecosystems and economy?
- What strategies can we pursue, both locally and regionally, to reduce and manage these risks?

BCDC and its partners are now transitioning ART from a pilot project to regional *program* that will provide tools, data, and resources to local communities around the bay.

**Aramburu Island Coarse Beach Restoration**

*Innovative beach restoration to protect habitat*

**Location:** Marin County

**Lead:** Richardson Bay Audubon

**Partners:** Nature Conservancy, local governments

\$2.6 million project to restore a gravel and cobble beach on an island near Mill Valley to help protect habitat from sea level rise. In appropriate sites, engineered beaches of this type can provide erosion protection that is as effective as the traditional alternative—rock armoring—but less expensive to build, while also offering habitat and aesthetic benefits. Construction was completed in 2012 with re-vegetation and monitoring on going.

### **Bay Area Council Economic Institute Extreme Storm Study**

*Analysis of the potential economic damage to Bay Area from Sandy-like storm*

**Location:** Bay Area

**Lead:** Bay Area Council Economic Institute

**Partners:** Bay Conservation and Development Commission, BART, Metropolitan Transportation Commission, Gordon and Betty Moore Foundation, Coastal Conservancy, Port of San Francisco, SFO

Given the recent devastation on America's Gulf and Atlantic coasts, and with sea levels at the Golden Gate projected to rise by four-and-a-half feet by 2100, how vulnerable is the San Francisco – San Jose – Oakland Bay Area? BACEI is undertaking a two-part study to analyze the physical and economic vulnerability of the Bay Area to a likely extreme weather event. The study will include representatives from some of the Bay Area's most critical transportation and economic infrastructure, including BART, the Bay Conservation and Development Commission, Metropolitan Transportation Commission, the Port of San Francisco and San Francisco International Airport – with engineering firms Parsons and URS. The report will be completed in Fall 2014.

### **Collaborating on Sea Level Rise: Marin Adaptation Response Team (C-SMART).**

*Marin County assessment of sea level rise and storm vulnerabilities*

**Location:** Marin County

**Lead:** Marin County

**Partners:** Ocean Protection Council, Gulf of the Farallones National Marine Sanctuary, U.S. Geological Survey, U.S. National Park Service, Point Blue, and the Federal Emergency Management Administration

This project is funded by a \$200,000 grant recently awarded to the county by the Ocean Protection Council. The project will look at vulnerabilities and ways to protect Marin, including natural systems improvements (wetlands, dunes, oyster reefs) as well as engineered solutions (seawalls and raising structures). Work will begin in 2014 and finish in 2016.

### **Flood Control 2.0**

*Promoting economic and environmental benefits through smart flood management*

**Locations:** Marin, Contra Costa, Santa Clara and San Mateo counties

**Lead:** San Francisco Estuary Partnership

**Partners:** Bay Area Flood Control Agency Association, Marin County, Contra Costa County, Santa Clara County, San Mateo County, cities, and non-profits

Flood Control 2.0 is a regional three-creek project, led by the San Francisco Estuary Partnership with the Bay Area Flood Control Agency Association that is developing a set of innovative approaches for bringing environmental benefits and cost-savings to flood protection infrastructure along the bay shoreline. Walnut Creek, Novato Creek, and San



Francisquito Creek are the focus areas. The strategy has two complementary approaches that transform costly, trapped sediment in local flood control channels into a resource:

- Channel redesign where sufficient adjacent land use flexibility exists
- Sediment redistribution for highly constrained channels

### **Hayward Area Shorelines Planning Agency — Sea Level Rise Project**

*Local leadership and multi-sector collaboration*

**Location:** Alameda County

**Lead:** Hayward Area Shoreline Planning Agency

**Partners:** City of Hayward, East Bay Regional Parks District, Hayward Recreation and Parks District, Bay Conservation and Development Commission

In 2010, the Hayward Area Shoreline Planning Agency (HASPA) completed an innovative study to develop strategies to protect the Hayward shoreline from sea level rise and storm surge. HASPA is a joint powers agency, formed in 1970, including the City of Hayward, East Bay Regional Parks District, and the Hayward Area Recreation and Parks District. The sea level rise study addresses 4+ miles of shoreline between State Highway 92 and San Lorenzo Creek.

The study area is composed of several successful wetland mitigation and enhancement projects that have been in existence for many years. These mitigation areas were developed based upon a consistent tidal regime to provide habitat and forage for a number of species. These areas also form a tidal ‘buffer’ that protects both public and private improvements and facilities built along the inboard levees. Sea level rise now threatens the continued existence of these wetland areas and levees that are critical to the protection of this shoreline.

### **Hayward Resilience Shoreline Project**

*ART going in-depth at the Hayward shoreline*

**Location:** Alameda County

**Lead:** Bay Conservation and Development Commission

**Partners:** Local governments, non-profits, private sector

Between September 2013 and July 2014, Adapting to Rising Tides program staff worked with local and regional partners in Hayward to complete the Hayward Shoreline Resilience Study. The Hayward Resilience Study has conducted vulnerability and risk assessments for 20 assets along the Hayward shoreline, including Bay Trail, marshes and managed ponds, the SR-92 approach and wastewater utilities. This work was done with cooperation and input from a working group made up city, park district, transportation agency, wastewater utility, and regional agency staff. Through coordination with a Federal Highway Administration grant, the focus area obtained detailed analysis of two major transportation assets, the approach to Hayward-San Mateo Bridge and the Bay Trail, a regional pedestrian and bicycle corridor.

The study developed adaptation responses for individual assets and agencies as well as the focus area as a whole. The working group drafted four visions for the long-term future of the Hayward shoreline, including traditional shoreline protection, a habitat levee, managed retreat, and future flooding due to a lack of coordinated action. Working group members have carried information from the study into their own agencies through general plan updates and new grants to study the feasibility of adaptation responses.

### **Innovative Wetland Adaptation Techniques in Lower Corte Madera Creek Watershed**

*Collaborative, pioneering effort by BCDC, Marin County, USGS, and others*

**Location:** Marin County

**Lead:** Bay Conservation and Development Commission

**Partners:** Marin County, USGS, academics and non-profits

Project examines the resilience of San Francisco Bay tidal marshes and intertidal mudflats to accelerating sea level rise, and considers how the wave attenuation and other ecosystem benefits they provide can be preserved. It was conceived in recognition of the significant gap in understanding of the role bay lands play as the first line of defense against coastal flooding, and how that role may change in the future.

The project was supported with funding from the San Francisco Estuary Partnership (SFEP) through a Resilient Watersheds for a Changing Climate grant of the San Francisco Bay Water Quality Improvement Fund from the U.S. Environmental Protection Agency, and by the generous contributions of research partners including the U.S. Geological Survey, UNESCO-IHE, University of San Francisco, and Marin County.

### **King Tides Initiative**

*Exciting public engagement strategy to increase awareness of sea level rise*

**Location:** California

**Lead:** Partnership

**Partners (Bay Area):** Bay Conservation and Development Commission, San Francisco Bay NERR, Gulf of the Farallones, Save the Bay and others

Via smartphones and social media, the statewide King Tides Initiative invites individuals to document “king tides” – the highest high tides of today, which will be the average water levels of the future. The pictures taken help scientists and managers better plan for future flood risks, and give residents a way to participate directly in the science that will drive decisions in their communities.

King Tides Project objectives are to:

- Engage Californians in a conversation about the future of coastal areas
- Identify and catalog coastal areas that are currently vulnerable to flooding

- Build a hyper-local catalogue of images that can be used by everyone – artists, scientists, school groups, coastal planners – to document, visualize, and communicate about coastal hazards

### **Napa River/Napa Creek Flood Protection Project**

*Innovation in flood protection, cross-sector partnerships, and financing*

**Location:** Napa County

**Lead:** Napa County

**Partners:** Residents, businesses, 27 local/State/regional and federal government entities, the Chambers of Commerce, environmental organizations, U.S. Army Corps of Engineers

In 1996, a precedent-setting coalition representing diverse Napa interest groups came together in a series of meetings to develop what is now one of the most successful flood protection projects in the state. Passed by two-thirds of Napa County voters in 1998, Measure A provides environmental restoration and economic development to achieve 100-year flood protection—new dikes, levees and floodwalls and bank stabilization—while maintaining “living river principles.” Project partners include Napa County and its cities, the Friends of the Napa River, the Napa Valley Economic Development Corporation, the Sierra Club and the Chamber of Commerce.

Measure A created the Napa Flood Protection and Watershed Improvement Expenditure Plan, the [Financial Oversight Committee](#) and the [Technical Advisory Panel](#), and established the half-cent sales tax to fund the local share of projects (additional funding comes from federal and state sources). Each incorporated city or town receives a share of Measure A revenue, and a share goes to Napa County for the unincorporated area. Measure A includes specific approved projects and allows for the funding of other projects to improve flood protection, water supply and the health of the watershed. All of the Napa governments involved in Measure A signed a Joint Powers Agreement to spell out structure and responsibilities.

### **Ocean Beach Master Plan for Sea Level Rise**

*Nonprofit leadership in cooperation with city stakeholders*

**Location:** San Francisco

**Lead:** SPUR

**Partners:** City/County of San Francisco, SF PUC, Coastal Conservancy, National Park Service, SF MTA, San Francisco Zoological Society

SPUR staff led this collaborative project to develop a long-range master plan for San Francisco’s Ocean Beach area to address the impact of rising seas, the physical and ecological processes shaping the beach, and improved integration with its natural, recreational, and urban contexts. The plan recommends six key strategies and an ambitious, proactive vision for managing a changing coastline, protecting critical sewer infrastructure, and significantly upgrading public access.

### **Oro Loma Ecotone Project**

*Groundbreaking collaboration along the Hayward-San Leandro shoreline*

**Location:** Alameda County

**Lead:** Oro Loma Sanitary District

**Partners:** East Bay Dischargers Association, UC Berkeley, local governments

This project is restoring and demonstrating historical ecotone functions to address present and future challenges facing San Francisco Bay—sea level rise, nutrient loadings and contaminants. Local agencies are working with scientists and academic experts to look at a series of functions including urban, habitat, wastewater, landfill, utility corridors, and recreation.

### **Our Coast, Our Future**

*New planning sea level rise and storm hazard planning tool for San Francisco Bay*

**Location:** Phase I, Sonoma, Marin, San Francisco, San Mateo outer coast; Phase II: San Francisco Bay

**Lead:** Gulf of the Farallones National Marine Sanctuary

**Partners:** Point Blue, USGS, local governments, and others

Major project, led by Gulf of the Farallones NMS, PRBO and USGS, providing Bay Area natural resource managers, local governments and others with science-based decision-support tools to help Bay Area communities understand, visualize, and anticipate local coastal climate change impacts. Version for coast flooding is available now with SF Bay version making its debut in Summer/Fall 2014.

### **Port of San Francisco Sea Level Rise and Climate Adaptation Study**

*An assessment of port vulnerabilities and adaptation opportunities*

**Location:** San Francisco

**Lead:** Port of San Francisco

**Partners:** N/A

The Port's Engineering Division worked with URS to examine potential future flood risk from sea level rise on Port property and to outline adaptation alternatives with associated costs. The study provided an estimate of sea level rise for port-managed shoreline from Mission Bay to Fisherman's Wharf for two time periods - from the present day through 2050 and through 2100.

The project also included a visual assessment of the Port's shoreline from Aquatic Park and the Municipal Pier to Pier 54. The Port is now undertaking an engineering study of the structural integrity of the sea wall (to be completed in the next two years) and is working with URS to develop an adaptation plan by mid-2014.

### **Resilient Shorelines Program**

*Joint work program under development by BCDC, ABAG and the Coastal Conservancy*

**Location:** Bay Area

**Lead:** Partnership

**Partners:** BCDC, ABAG, Coastal Conservancy, Joint Policy Committee

The RSP is coordinated through the Resilient Shorelines Partnership (BCDC, ABAG and the Coastal Conservancy). The RSP has seven goals:

1. Identify how **shoreline flood risk hazards** (from sea level rise, storm events, or a major earthquake) will affect the future of Bay Area shoreline communities, infrastructure, ecosystems and economy.
2. Develop **local and regional approaches** that address identified shoreline risk hazards, reduce and manage risks, and build resilience.
3. Address the **four frames** of Society & Equity, Environment, Economy and Governance in designing and pursuing program outcomes.
4. Understand how to **integrate strategies** to avoid duplication, make efficient use of limited resources, increase coordination and collaboration, identify gaps and needs, and establish priorities.
5. Develop the shared **regional data, functions and capabilities** necessary to support implementation of resilience strategies at multiple scales (local, watershed/sub-regional and regional).
6. Inform **future updates** to Plan Bay Area and other regional plans and projects to help Bay Area shoreline communities address multiple hazards.
7. **Finance** the proposed actions and strategies.

### **San Francisco Bay Joint Venture — Climate Change**

*Wetlands restoration through collaboration*

**Location:** Bay Area

**Lead:** San Francisco Bay Joint Venture

**Partners:** Federal agencies, state agencies, businesses, universities, non-governmental organizations.

SFBJV, one of eighteen Joint Ventures established by the federal government, brings together public and private agencies, conservation groups, development interests, and others to restore wetlands and wildlife habitat in San Francisco Bay watersheds and along the Pacific coasts of San Mateo, Marin and Sonoma counties. SFBJV is engaged on climate change with its Bay Area partners, including producing a white paper, [Wetland Restoration And Projected Impacts From Climate Change - Recommendations For And By Partners Of The San Francisco Bay Joint Venture.](#)

SFBJV is seeking answers to five key questions:

- What do these projected sea level rise impacts mean for wetland habitats and our efforts to restore and protect them?
- How will the distribution of habitats and species shift as they migrate in response to sea level rise and temperature increases?
- How will climate change projections influence the way we design and prioritize projects?
- What research is needed to address existing data gaps and how will it get funded?
- What is being done to address climate change projections within the JV partnership?

### **San Francisco Bay Restoration Authority**

*New authority for Nine-County Bay Area*

**Location:** Bay Area

**Lead:** San Francisco Bay Restoration Authority

**Partners:** ABAG, Coastal Conservancy, Save the Bay

Regional government agency charged with raising and allocating resources for the restoration, enhancement, protection, and enjoyment of wetlands and wildlife habitat in the San Francisco Bay and along its shoreline. The Authority was created by the California legislature in 2008 with the enactment of AB 2954 (Lieber). Sam Schuchat (Coastal Conservancy ED) is the Chair. Save the Bay's 2007 report "[\*Greening the Bay: Financing Wetland Restoration in San Francisco Bay\*](#)" recommended formation of the Authority. Developing ballot measure (possibly for 2016) for regional parcel tax to fund wetlands restoration.

### **San Francisco Estuary Partnership Climate Ready Estuaries Pilot Project**

*Pilot project to assess impacts of climate change*

**Location:** Sonoma, Napa, and Solano counties

**Lead:** San Francisco Bay Estuary Partnership and US EPA

**Partners:** N/A

Pilot project completed in 2010 that was designed to provide place-based information on the potential implications of climate change for estuarine ecosystems and processes in a form that will enable managers to undertake adaptation planning. Focus was on San Pablo Bay salt marshes and mudflats for sediment retention and community interactions. Produced report entitled [\*Vulnerability Assessments in Support of the Climate Ready Estuary Program: A Novel Approach Using Expert Judgment, Volume 1\*](#).

### **San Franciscquito Creek Joint Powers Authority**

*Joint powers authority to facilitate joint decision-making across city and county lines*

**Location:** San Mateo and Santa Clara counties

**Lead:** San Franciscquito Creek Joint Powers Authority

**Partners:** San Mateo County, Palo Alto, Menlo Park, East Palo Alto, Santa Clara Valley Water District

Five public entities turning a liability into a shared asset with multiple benefits. Following years of effort to address environmental issues, and a 45-year flood in 1998 that damaged approximately 1,700 properties, five local agencies from two counties—the cities of Palo Alto, Menlo Park, and East Palo Alto, the County of San Mateo, and the Santa Clara Valley Water District—joined together to create a new government agency, the San Francisquito Creek Joint Powers Authority (SFCJPA). Elected officials represent these jurisdictions on the SFCJPA Board. The JPA employs an executive director and two professional staff, with much of its project work being done by consultants. The SFCJPA project aims to reduce flood risks in East Palo Alto and Palo Alto along a flood-prone section of the creek from Highway 101 to San Francisco Bay.

### **Save the Bay — Wetlands Restoration**

*Major advocacy group for SF Bay since the 1960's*

**Location:** Bay Area

**Lead:** Save the Bay

**Partners:** Bay Area residents

Save the Bay is working with partners to save 100,000 acres of wetlands in the San Francisco Bay. Wetlands provide vital habitat, and have a direct link to climate change by (a) capturing and storing greenhouse gasses from earth's atmosphere and (b) serving as buffers against storms, flooding, and erosion control. Save the Bay was instrumental in the development of the SF Bay Restoration Authority.

### **SF Bay Living Shorelines Project**

*New reef approaches*

**Location:** Marin County

**Lead:** Coastal Conservancy

**Partners:** San Francisco State University, UC Davis, U.S. Geological Survey Western Ecological Research Center, EPA, San Francisco Estuary Partnership, Wildlife Conservation Board, NOAA Fisheries, Reef Innovations, Drakes Bay Oyster Company, and Dixon Marine Services.

The San Francisco Bay Living Shorelines: Near-shore Linkages Project is a multi-objective habitat restoration pilot project. This experimental restoration project is designed to learn more about best locations and techniques for native oyster and eelgrass restoration, to gather information about fish, invertebrate, and bird use of the reefs, and to assess whether the reefs can provide physical benefits such as reducing wave action and protecting adjacent shorelines. Oyster and eelgrass reefs were constructed at two sites in San Francisco Bay in July and August 2012 (larger and small experiment at the San



Rafael Shoreline, and small experiment at Hayward near the Eden Landing Ecological Reserve).

Living Shorelines projects are new to SF Bay, where pilot restoration work on eelgrass and oyster reefs has recently led to recommendations for additional experimental testing of techniques and gradual scaling up to larger projects. The 2010 [San Francisco Bay Subtidal Habitat Goals Report](#) recommended that the next generation of projects consider the possibility of integrating multiple habitat types to improve linkages among habitats and promote potential synergistic effects of habitat features on each other as well as on associated fauna. Such habitat features, if scaled up slightly beyond previous efforts, could positively influence physical processes (such as sediment erosion and accretion) that affect shoreline configuration.

### **SF Baylands Restoration and Flood Protection Project**

*Public private partnership to address storms and sea level rise*

**Location:** Santa Clara and San Mateo counties

**Lead:** Partnership

**Partners:** Moore Foundation, Silicon Valley Leadership Group, Santa Clara Valley Water District, Coastal Conservancy, City of San Jose, Save the Bay

This project is an innovative public private partnership to protect the South Bay from sea level rise and extreme storms. Partners include the Moore Foundation, Silicon Valley Leadership Group (SVLG), Santa Clara Valley Water District, City of San Jose, Save the Bay, California Coastal Conservancy and other stakeholders. The partnership has a goal of raising substantial funding over the next 10 years from sources including state bonds, federal funding, local tax measures, and contributions from affected business property owners.

### **SF Mission Bay Vulnerability Assessment**

*Applying lessons from the ART project to San Francisco's Mission Creek*

**Location:** San Francisco

**Lead:** SPUR

**Partners:** BCDC, Delta Alliance, City/County of San Francisco

The Project is part of an international collaboration between the Netherlands-based Stichting Delta Alliance (Delta Alliance), the Port of San Francisco, the City and County of San Francisco, the San Francisco Bay Conservation and Development Commission (BCDC) and SPUR to develop sea level rise adaptation alternatives for the Mission Creek waterfront area of San Francisco. Mission Creek is one of the City's lowest-lying areas and is vulnerable to flooding from sea level rise. Storm water runoff from Mission Bay also drains to Mission Creek, potentially complicating future projected flood events. For these reasons, Mission Creek is an ideal study area. The Project is an outgrowth of prior sea level rise work led by BCDC in its Adapting to Rising Tides project.

### **South Bay Salt Pond Restoration Project**

*Largest tidal wetland restoration project on the West Coast*

**Location:** Santa Clara, San Mateo, and Alameda counties

**Lead:** Partnership

**Partners:** California State Coastal Conservancy, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Santa Clara Valley Water District, Alameda County Flood Control and Water Conservation District, and the U.S. Army Corps of Engineers

When complete, the project will restore 15,100 acres of industrial salt ponds to a rich mosaic of tidal wetlands and other habitats. Goals of the project include:

- Restore and enhance a mix of wetland habitats

- Provide wildlife-oriented public access and recreation
- Provide for flood management in the South Bay

Phase II of the project is currently being planned with extensive public input and multi-agency participation. The Project Management Team is comprised of the California State Coastal Conservancy (SCC), the California Department of Fish and Wildlife (DFW), the U.S. Fish and Wildlife Service (FWS), Santa Clara Valley Water District (SCVWD), Alameda County Flood Control and Water Conservation District (ACFCWCD), and the U.S. Army Corps of Engineers (USACE).

### **South San Francisco Bay Shoreline Study**

*Study in coordination with Salt Pond Restoration project*

**Location:** Santa Clara County

**Lead:** U.S. Army Corps of Engineers

**Partners:** Coastal Conservancy, Santa Clara Valley Water District

This project will identify and recommend flood risk management and ecosystem restoration projects for Federal funding. The Shoreline Study is looking at the feasibility of options for managing flood risk as well as undertaking ecosystem restoration and expanding public access. The goal of the study is to protect sections of Santa Clara County's shoreline with the highest potential damages and threats to human health and safety from flooding, using a combination of levees and wetlands. Using natural infrastructure will provide increased flood protection and restored Bay habitats, as well as a flood protection system that can evolve in the future.

### **State Route 37 Stewardship Study**

*Forward thinking solutions for critical Bay Area infrastructure*

**Location:** Napa and Sonoma counties

**Lead:** Partnership

**Partners:** Caltrans District 4, UC Davis Road Ecology Center, Sonoma Ecology Center, Southern Sonoma County Resources Conservation District, Sonoma Land Trust, and Napa County Resources Conservation District..

Route 37 is now in jeopardy of becoming flooded more often because of sea-level rise. The Highway 37 Stewardship Study includes stakeholder processes and technical analyses to determine possible future planning solutions for the highway and its human and natural environment. The project is a good local example of effective cross-sector partnerships, involving a long-term commitment by Bay Area transportation, environmental, and resource protection agencies. It will be a significant challenge to reach a mutually agreeable solution in this extremely sensitive environment threatened by climate change.

Phase I of the project was funded by the Transportation Research Board, Strategic Highway Research Program 2, and supported a collaboration among Caltrans District 4, the UC Davis Road Ecology Center, the Sonoma Ecology Center, Southern Sonoma County Resources Conservation District, Sonoma Land Trust, and the Napa County Resources Conservation District..

### **Suisun Marsh Restoration Project**

*Balancing fresh and saline waters for the benefit of humans, plants, fish and wildlife*

**Location:** Solano County

**Lead:** Partnership

**Partners:** U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Bureau of Reclamation, California Department of Fish and Wildlife, California Department of Water Resources, California Bay-Delta Authority and private landowners.

The Suisun Marsh is the largest contiguous brackish water wetland in the western United States and an important wetland on the Pacific Flyway, providing food and habitat for migratory birds. The lands and waters of this unique ecosystem also are home to a wide variety of plants, fish and wildlife that depend upon a careful balancing of fresh and saline waters for their survival. Sea level rise and reduced water flows through the Delta could impact this critical area and affect water quality for all.

Agency managers with primary responsibility for actions in Suisun Marsh formed a Charter Group to develop an implementation plan that would protect and enhance Pacific Flyway and existing wildlife values, endangered species, and water-project supply quality. The group includes U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Bureau of Reclamation, California Department of Fish and Wildlife, California Department of Water Resources, and California Bay-Delta Authority. Because the Marsh includes private lands, the Suisun Resource Conservation District (SRCD) also serves on the Charter Group to represent private landowners. The Charter Group has also consulted with other participating agencies, including the San Francisco Bay Conservation and Development Commission (BCDC) and U.S. Army Corps of Engineers (COE), in developing the Plan.

### **The Horizontal Levee**

*Innovative approach to levee design for dynamic sea level rise*

**Location:** Bay Area

**Lead:** Bay Institute

**Partners:** N/A

The Bay Institute's groundbreaking study about the economic value of tidal marshes demonstrates that nature performs critical performs for society. During the era of sea level rise, the marshlands of San Francisco Bay have become a critical adaptation tool. The study shows that restoration of San Francisco Bay's tidal marshes is one of the best and most inexpensive ways to protect valuable shoreline development from sea level rise during the next several decades. By using tidal marshes in combination with earthen levees, construction and maintenance costs can be reduced by almost 50%.

## ***B. Water***

### **Bay Area Integrated Regional Water Management Plan**

*Regional water plan includes climate change chapter for the first time*

**Location:** Major parts of all nine counties

**Lead:** Partnership

**Partners:** San Francisco Bay Area water, wastewater, flood protection and storm water management agencies; cities and counties; watershed management interests, planning agencies and organizations, and non-governmental organizations

The San Francisco Bay Integrated Regional Water Management Plan (IRWMP) was developed through a collaboration of Bay Area water agencies. The plan outlines the region's water resources management needs and objectives and presents strategies to help achieve water management goals. The new plan includes a major section on climate change.

The first IRWMP was completed in 2006. The 2013 update expands and improves on the original plan by providing a framework to improve collective understanding and take action to address the region's multiple water-related challenges. Four key objectives outlined in the 2013 update include:

- Provides a valuable venue for regional collaboration across agencies
- Improves responsiveness to regional needs and priorities
- Helps to effectively integrate water resources management activities
- Serves as a platform to secure state and federal funding

### **Bay Area Regional Desalination Project**

*Major desalination study for Bay Area*

**Location:** Bay Area

**Lead:** Partnership

**Partners:** The Contra Costa Water District (CCWD), the East Bay Municipal Utility District (EBMUD), the San Francisco Public Utilities Commission (SFPUC), and the Santa Clara Valley Water District (SCVWD) and Zone 7.

The Bay Area Regional Desalination Project (BARDP) evaluated the building of a desalination treatment facility at CCWD's Mallard Slough Pump Station in eastern Contra Costa County. The plant would turn brackish water into a suitable water supply. Once treated, water could be delivered through either EBMUD or CCWD's systems or "traded" through water transfer agreements. Five of the Bay Area's largest water agencies worked together to investigate how this regional project could serve the needs of over 5.6 million residents and businesses in the region.

In 2013, the project partners completed the Site-Specific Analysis for the project, which included hydraulic modeling, wheeling cost analysis, greenhouse gas analysis, and Delta

modeling. The partners are now looking at a broader effort to develop regional solutions to improve water supply reliability for the Bay Area; desalination will continue to be considered as a potential component.

### **Bay Delta Conservation Plan (BDCP)**

*Planning for significant source of Bay Area water*

**Location:** Sacramento - San Joaquin Delta Ecosystem – includes parts of Solano, Contra Costa and Alameda counties

**Lead:** California Natural Resources Agency

**Partners:** Local water agencies, environmental and conservation organizations, state and federal agencies, and other interest groups.

The Bay Delta Conservation Plan (BDCP) is a Habitat Conservation Plan (HCP) under the federal Endangered Species Act, and a Natural Community Conservation Plan (NCCP) under the California Natural Community Conservation Planning Act. The plan is a comprehensive conservation strategy aimed at protecting dozens of species of fish and wildlife, while permitting the reliable operation of California's two biggest water delivery projects. The BDCP includes 22 conservation measures aimed at improving water operations, protecting water supplies and water quality, and restoring the Delta ecosystem within a stable regulatory framework. Appendices 2.C and 5.A.2 are documents particularly focused on climate change.

### **Delta Vision Strategic Plan**

*Planning for significant source of Bay Area water*

**Location:** Sacramento - San Joaquin Delta Ecosystem – includes parts of Solano, Contra Costa and Alameda counties

**Lead:** Delta Stewardship Council

**Partners:** Members of the Delta Stewardship Council – Randy Fiorini, Phil Isenberg, Gloria D. Gray, Patrick Johnston, Frank C. Damrell, Jr., Frank Ruhstaller, and Susan Tatayon.

Comprehensive plan, two years in the making, provides a suite of strategic recommendations for long-term, sustainable management of the Sacramento-San Joaquin Delta. The Delta provides two-thirds of Californians – an estimated 25 million people – with some of their water and is home to more than 750 plants and animals that, in some cases, are unique to the Delta. The Delta Plan was unanimously adopted by the Delta Stewardship Council on May 16, 2013. The Council is a 7-member board created by State legislation in 2010 to achieve 2 co-equal goals—ensuring a reliable water supply and protecting, restoring and enhancing the Delta ecosystem.

### **East Bay Municipal Utility District (EBMUD) Water and Energy Projects**

*Innovation in water and energy management*

**Location:** Alameda and Contra Costa counties

**Lead:** East Bay Municipal Utility District

**Partners:** N/A

The East Bay Municipal Utility District (EBMUD) is playing a leadership role in Bay Area climate/water efforts through a range of initiatives to conserve water and energy, including their own ambitious goal of reducing the agency's indirect GHG emissions to zero by 2040.

- EPA Climate Ready Water Utilities - EMBUD is involved in this EPA effort to create a risk assessment tool for water utilities. Currently testing version 2.0 and will be involved in developing version 3.0 in 2014.
- Climate Change Monitoring and Response Plan - EBMUD is in the process of updating this plan that summarizes the agency's climate work and includes section on impacts, vulnerabilities and adaptation strategies.
- Renewable Energy and Energy Conservation – EBMUD uses nearly 90 percent less energy than the average California utility to deliver water. At the district's wastewater treatment plant in Oakland, food and other wastes are used to create much of the power needs of the plant. Solar installations and micro turbines at the District's main Oakland office, a satellite office, and the El Sobrante water treatment plant are part of the District's plan to get more energy from renewable sources.

### **Future-Proof Water: Where the Bay Area Should Get Its Water in 21st Century**

*Excellent SPUR report on Bay Area water issues*

**Location:** Bay Area

**Lead:** SPUR

**Partners:** AECOM, SFPUC, Santa Clara Valley Water District, EBMUD and Alameda County Water District

SPUR report (March 2013) that analyzes the Bay Area's current water supplies and future growth projections, then recommends the best tools for meeting our water needs — both in the near term and through the end of the century. The report addresses two specific questions:

- 1) Does the Bay Area have the water we need to support projected population growth?
- 2) How should we supply our region's future water needs?

SPUR concluded that post 2035, the Bay Area region will not have enough water to meet its needs without reducing overall use or developing new water supplies. The report also includes six specific recommendations for securing additional future water supplies for the Bay Area.

### **North Bay Watershed Association**

*Collaboration of numerous North Bay water stakeholders*



**Location:** Marin, Sonoma and Napa counties

**Lead:** North Bay Watershed Association

**Partners:** Cities, counties, water districts and nonprofit organizations working on issues relevant to the North Bay.

NBWA brings together a range of North Bay organizations—cities, water districts, wastewater agencies, storm water agencies, flood control and others—to facilitate partnerships that protect and enhance North San Pablo Bay watershed resources.

The North Bay Watershed Association was created to help regulated local and regional public agencies work cooperatively on water resource issues that impact areas beyond traditional boundaries in order to promote stewardship of the North Bay watershed.

### **Santa Clara Valley Water District Projects**

*Leadership in water conservation and adaptation planning efforts*

**Location:** Santa Clara

**Lead:** Santa Clara Valley Water District

**Partners:** N/A

The Santa Clara Valley Water District (SCVWD) is very active in adaptation activities including flood control, South Bay salt pond restoration, maintaining stream/creek habitat, expanding water re-use and conservation programs, adjusting to changes in local precipitation, and long-term water supply planning. SCVWD also maintains the Climate Change Portal, a searchable database compiling reports and other technical literature on climate change. Current projects/programs include:

- Vulnerability assessment of water and wastewater sectors assets
- Saltwater intrusion prevention program
- Multiple rebate and efficiency and conservation programs for residential, commercial and agricultural areas
- Planning efforts to increase the consumption and production capacity of recycled water
- Management of a network of conduits, reservoirs and percolation ponds fed by imported water to recharge groundwater aquifers

### **SFPUC Study: Upper Tuolumne River Flow & Climate Change Scenarios (2012)**

*Detailed study of future climate scenarios*

**Location:** Tuolumne River watershed<sup>1</sup>

**Lead:** SFPUC

**Partners:** Bay Area water agencies, Turlock Irrigation District

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<sup>1</sup> Study lead by San Francisco with geographic focus on the Tuolumne River which supplies 85 percent of the SFPUC's water supply for 2.5 million Bay Area residents, 8,000 agricultural districts and over 200,000 electrical customers of the Turlock and Modesto Irrigation Districts.

This major study by the SFPUC analyzed climate change impacts on the Hetch Hetchy watershed, the primary source of San Francisco’s water supply. The study assessed the sensitivity of reservoir inflows to a range of changes in two variables, temperature and precipitation. Climate change scenarios were selected to represent a range of possible future climate conditions.

The simulated changes in 2040, 2070 and 2100 result in a progressively altered snow and runoff regime in the watershed. Snow accumulation is reduced and snow melts earlier in the spring. Fall and early winter runoff increases while late spring and summer runoff decreases, and these changes become more significant later in this century. Total runoff is projected to decrease under the climate change scenarios evaluated, in some cases marginally and in others very significantly.

### **Sonoma County Water Agency Projects**

*Countywide and regional leadership on climate change*

**Location:** Sonoma County

**Lead:** Sonoma County Water District

**Partners:** N/A

In addition to innovative water-related projects like *Carbon Free Water by 2015*, SCWA has stepped “out of the water box” to provide executive-level leadership and advocacy for aggressive climate action in Sonoma County, including funding and technical support for projects ranging from electric vehicles to clean power. (A small portion of property tax revenue allows SCWA to fund projects outside ratepayer fees.)

Current projects include:

- Taking steps to become carbon neutral by 2015 (SCWA is the largest energy user in the county) by diversifying their energy portfolio and increasing water efficiency.
- Participation in a national EPA-led task force of water managers and financial experts looking at how Wall Street characterizes water risks.
- Developing a possible energy efficiency program (modeled after a Delaware program) that packages or bundles energy efficiency derived savings for the bond market.
- Working with the SFPUC and EBMUD to develop Pay As You Save (PAYS) in the region.
- Working with USGS and NOAA, and SCRIPPS on opening a new Western Center for Extreme Weather Events that will lead to better forecasting for extreme weather events (heat, frost/freezes, storms).
- USGS Climate Change Study featuring downscaling models for the Russian River watershed.

- Research focusing on the current and future role of atmospheric rivers that produce nearly half of the Bay Area's average water supply.
- Risk assessments for SCWA's water infrastructure, including conducting vulnerability studies and outlining potential strategies.
- Partnering with Pepperwood and the Santa Rosa Junior College on multi-station countywide monitoring of weather and plant response —the Climate Smart Sonoma Weather-Phenology Network.
- Provided start up funding and staffing for the implementation of Sonoma Clean Power and the Sonoma County Energy Independence Program.

## ***C. Energy***

### **Alameda County Energy Council Joint Powers Authority**

*Local government partnership for energy programs*

**Location:** Alameda County

**Lead:** Joint Powers Authority

**Partners:** Local governments

The Alameda County Board of Supervisors formed the Alameda County Energy Council Joint Powers Authority in March 2013 to coordinate and expand sustainable energy programs in the county. The cities of Albany, Berkeley, Emeryville, Fremont, Hayward, Oakland, Piedmont, San Leandro and Union City as well as Alameda County have signed onto the JPA.

### **Bay Area Bridge to the Clean Economy**

*Results-focused partnership of local governments, non-profits and private sector*

**Location:** Bay Area

**Lead:** Bay Area Climate Collaborative

**Partners:** San Francisco, San Jose, Oakland, Silicon Valley Leadership Group, local governments, private sector

Launched by the Mayors Reed, Lee, and Quan and drawing on the insights of over 150 top clean energy leaders, the *Bridge to the Clean Economy* identifies market-oriented initiatives for near-term economic and emissions impact across the four domains of distributed renewables, commercial efficiency, residential upgrades and electric vehicles. The Bridge to the Clean Economy provides the market context, key players and plans for rapid emissions reductions and 20,000 job-years through immediately actionable regional initiatives.

### **Bay Area Smart Energy 2020**

*Visionary plan for remaking the Bay Area energy world*

**Location** Bay Area:

**Lead:** Pacific Environment

**Partners:** N/A

*Bay Area Smart Energy 2020* (BASE 2020) shows how the San Francisco Bay Area can move to a locally based, clean energy economy and leave fossil fuels behind. The BASE 2020 plan calls for at least 25% of Bay Area buildings to be “zero net energy.” These buildings create at least as much energy as they use, meaning there is no energy bill, and payment to the home or business for energy sold back to the utility. These four strategies are among those that will create zero net energy buildings:

1. **Solar Photovoltaics:** Nearly 4,000 MW of solar energy is installed on rooftops, over parking lots and in Bay Area brownfields.
2. **Energy Efficiency:** Energy usage is reduced by 25 to 30 percent in Bay Area buildings and in agricultural operations.
3. **Air Conditioning:** Incentives will encourage upgrades of air conditioning, leading to a fifty percent reduction in energy usage.
4. **Energy Storage:** BASE 2020 calls for 200 MW of energy storage in the Bay Area to be located within buildings or as community energy storage projects.

In addition, BASE 2020 calls for these upgrades to the Bay Area power grid:

1. **Combined Heat and Power:** This is a highly efficient technology that uses a heat engine to simultaneously generate heat and electricity. Combined heat and power facilities are commonly sited at college campuses and hospitals. They can run around the clock, and can be an effective way to “smooth out” the intermittency of renewable power. BASE 2020 proposes 840 MW of new combined heat and power.
2. **Geothermal:** Sonoma County currently generates power from this power source, which harnesses underground sources of heat to create electricity. BASE 2020 recommends upgrading geothermal operations at The Geysers in Sonoma County, which would add 300 megawatts of capacity.
3. **Wind:** The BASE 2020 plan also includes 300 MW of new wind at the Solano wind complex. Unlike the nearby Altamont Pass, Solano has a relatively low bird death rate, and is not as controversial. BASE 2020 also calls for a 400 MW battery at the Solano wind complex to smooth out the intermittent wind power.

There are several options for financing these Bay Area projects. These include “clean energy payments,” where the utility pays the building owner for excess power generated; the Property Assessed Clean Energy (PACE) Program, where projects are paid for as part of a property tax assessment; and Community Choice Aggregation, which allows communities to market and sell energy to their residents independently of PG&E.

### **BayREN**

*One of the top regional collaborations in this statewide program*

**Location:** Bay Area

**Lead:** ABAG

**Partners:** All Bay Area counties

BayREN is a collaboration of the 9 Bay Area counties. Led by the Association of Bay Area Governments (ABAG), BayREN implements effective energy saving programs on a regional level and draws on the expertise, experience, and proven track record of Bay Area local governments to develop and administer successful climate, resource, and sustainability programs. BayREN is funded by California utility ratepayers under the

auspices of the California Public Utilities Commission. One of only two Regional Energy Networks in the state, BayREN represents 20 percent of the state’s population.

Bay Area city and county governments have aggressive climate, energy, and resource savings goals that can only be met through scalable regional initiatives that deliver results. BayREN provides an effective platform for local government energy programs to benefit from regional consistency and scale. BayREN builds energy efficiency expertise and experience of local governments against local, county, and regional boundaries. As a result, BayREN achieves greater energy savings by leveraging local governments’ knowledge of their communities and the existing relationships with their constituents and key stakeholders.

### **Clean Coalition**

*Advocacy for strong energy policies*

**Location:** Bay Area

**Lead:** Clean Coalition

**Partners:** N/A

The Clean Coalition, headquartered in Palo Alto, is a nonprofit working in the Bay Area and beyond to accelerate the transition to a modern energy system where smaller-scale, efficient, renewable energy projects deliver affordable and reliable power to communities.

The Clean Coalition drives policy innovation to remove barriers to procurement, interconnection, and realizing the full potential of integrated distributed energy resources, such as distributed generation, advanced inverters, demand response, and energy storage. The Clean Coalition is focused on four programs:

- **Renewable Utility Programs** — Working with electric utilities and industry stakeholders to design and implement programs that bring local renewable energy online.
- **Renewable State Policy** — Advancing state level policy that accelerates adoption of local renewable energy.
- **Grid Modernization Policy** — Working to modernize America’s power system by improving grid planning, access, and solutions.
- **Community Microgrids** — Working with electric utilities to design and implement community microgrids that prove local renewables provide a reliable and cost-effective foundation for a modern grid.

### **Grid Alternatives — Bay Area**

*Training, jobs and clean energy*

**Location:** Bay Area

**Lead:** GRID Alternatives

**Partners:** Local governments, affordable housing organizations, job training organizations, businesses

GRID Alternatives' vision is a transition to clean, renewable energy that includes everyone. The overall mission is to make renewable energy technology and training available to underserved communities. GRID Alternatives Bay Area leads teams of volunteers and job trainees to install solar electric systems for low-income families from Santa Clara to Mendocino County, providing families with needed savings and giving Bay Area workers hands-on experience to help them find jobs in the green-tech economy. To date, the highest concentrations of solar installations have been performed in Oakland, Richmond, and San Francisco's Bayview district.

GRID Alternatives partners with whole communities to bring solar power and solar jobs to people that need them most. Cities and municipalities provide funds to support the work; affordable housing partners help to identify clients who need services while accessing clean, affordable power for their residents; and job training organizations work with GRID Alternatives to get their students up on a roof installing solar in real time. Local companies sponsor team-building opportunities for their employees to come out and install solar while making a tangible impact for vulnerable families in the community.

### **Local Clean Energy Alliance**

*Large energy coalition working for clean energy and justice*

**Location:** Bay Area

**Lead:** ABAG

**Partners:** All Bay Area counties

The Bay Area's largest clean energy coalition, with some 90 affiliated member organizations, LCEA includes environmental, business, social equity, and community groups. LCEA sees the development of local energy resources as key to growing sustainable businesses, advancing social equity, and promoting community resilience. The LCEA recognizes the importance of all communities benefiting from a clean energy economy, especially those most vulnerable to the impacts of climate change.

The LCEA promotes the development of local decentralized energy systems, which integrate energy demand reduction and local renewable generation. This path enables communities to reduce greenhouse gas emissions and respond to climate change by enhancing local economies, providing clean energy jobs, and improving community health. The LCEA advocates for Community Choice energy as a powerful vehicle for democratizing energy decisions.

### **Marin Clean Energy**

*Blazing the trail for renewable energy and other climate/energy action*

**Location:** Marin, Contra Costa

**Lead:** Marin Energy Authority

**Partners:** Local governments, PG&E, residents, businesses

Marin stakeholders began organizing MCE six years ago because their analysis showed it was the single most significant step that local governments could take to reduce GHGs. Now, MCE procures electricity for 125,000 customers in Marin and Richmond. MCE's Light Green product is 50% renewable, more than twice PG&E's mix, and costs less than a dollar more each month. MCE's Deep Green is 100% renewable and roughly costs an additional \$4 per month for the average residential electric customer. Now, MCE is taking aggressive action to further green Marin's electricity supply, including:

- Development of Marin-based renewable power sources, including feed-in-tariff projects.
- An aggressive energy efficiency program for multi-family and small-commercial properties.
- Solar rebates for low-income households.
- An environmental justice collaborative with community-based organizations.
- On Bill Repayment financing for deeper building retrofits.
- A pilot battery energy storage project with Tesla.

MCE is a not-for-profit public agency created in December 2008 and is governed by a thirteen-member Board of Directors representing each of the participating jurisdictions—the County, eleven Marin cities, and the City of Richmond.

### **PG&E**

*Protecting Infrastructure from Climate Impacts*

**Location:** Bay Area

**Lead:** PG&E

**Partners:** Local governments, residents, businesses

PG&E is doing substantial work to address climate change impacts—including heat, reduced snowpack, changes in rainfall patterns, extreme storm events, and sea level rise—that combined with projected increases in electricity demand in a hotter climate will significantly affect its operations. PG&E commissioned its first technical study on climate change's potential physical impacts on operations in 1989. Since 2008, PG&E has maintained a cross-functional team to explore and communicate climate-related risks within the company. PG&E is also implementing a number of projects to reduce greenhouse gas emissions from its power generating system.

### **Regional Renewable Energy Procurement Project (R-REP)**

*Alameda County leadership for this four-county energy project*

**Location:** Alameda, Contra Costa, Santa Clara and San Mateo counties



**Lead:** Alameda County, Joint Venture Silicon Valley and Contra Costa Economic Partnership

**Partners:** Local governments and special districts

Alameda County, Joint Venture Silicon Valley and the Contra Costa Economic Partnership created the R-REP that utilizes collaborative procurement to purchase renewable energy systems for public agencies in Alameda, Contra Costa, and San Mateo counties. By collaborating, the project partners can reduce transaction costs and administrative time, enjoy competitive contract terms, use standardized financing mechanisms, and reap other benefits while reducing greenhouse gas emissions. The R-REP is now serving more than 20 agencies at more than 100 sites and deploying over 20MW of renewable power. The program is an expansion of a successful Silicon Valley program (SV-REP) that brought together nine agencies for solar procurement. That project produced [\*The Best Practices Guide for Collaborative Solar Procurement.\*](#)

## **Sonoma Clean Power**

*The Bay Area's 2<sup>nd</sup> program for community control and local renewable energy*

**Location:** Sonoma County

**Lead:** Sonoma County Water Agency

**Partners:** Sonoma County, Climate Protection Campaign

Sonoma Clean Power, the Bay Area's 2<sup>nd</sup> Community Choice Aggregation agency (following Marin Clean Energy) began Phase I service in May 2014 with 20,000 customers. By January 1<sup>st</sup>, 2015 that number will increase to 60,000. Sonoma Clean Power's program is similar to MCE, but will have a greater focus from the start on the development of local renewable power projects. Sonoma Clean Power's basic power mix has a 30% reduction in GHGs from PG&E and costs about 2-3% less.

Other benefits of the program include greater local control of electricity rates, new markets for local renewable energy producers (through SCP's feed-in tariff), and keeping ratepayer dollars in Sonoma County to invest in new energy products and services. Sonoma Clean Power will also develop energy efficiency and other supporting programs to reduce GHGs.

As with Marin's decision to develop community choice, Sonoma stakeholders, including SCWA and CPC, determined that a countywide clean power program would be the most significant action local governments could take to reduce GHGs. That analysis led to an extensive public process, under the direction of the SCWA, and the eventual formation of a joint powers authority to govern the program.

Sonoma Clean Power builds on nearly a decade of innovative energy/climate programs in Sonoma that reduce GHGs and build community resilience. For example, the Sonoma County Energy Independence Program (SCEIP), which provides retrofit financing for homeowners, has continued to operate with local funding when most other residential programs in the country shut down due to federal financing restrictions.

## *D. Natural Systems and Agriculture*

### **Bay Area Ecosystems Climate Change Consortium (BAECCC)**

*Model for collaboration among many organizations (and the best name!)*

**Location:** Bay Area

**Lead:** BAECCC

**Partners:** Point Blue, California Coastal Conservancy, The Nature Conservancy, USGS, U.S. Fish & Wildlife Service, Gulf of the Farallones, NOAA, CA Dept. of Fish and Game, National Park Service, BCDC, SF State University, SF Estuary Partnership, SF Bay Joint Venture, UC Berkeley, Bay Area Open Space Council, Bay Area Flood Protection Agencies and CA LCC

BAECCC assesses the impacts of climate change on Bay Area ecosystems and identifies management actions to address those impacts. A great model for the region, BAECCC fosters collaboration among natural resource managers, scientists, and others interested in climate change and the future of the San Francisco Bay Area through three elements—communication & coordination, strategic science, and management applications.

### **Baylands Ecosystems Habitat Goals Project (1999)**

*The original! — Currently being updated*

**Location:** Bay Area

**Lead:** San Francisco Estuary Partnership

**Partners:** Multiple public and non-profit agencies

The Baylands Goals Project, completed in 1999 by a consortium of public agencies, focused on goals for the historic tidelands that ring the Bay. The successful and ongoing implementation of the Baylands Goals served as a model for the Open Space Council to undertake a similar project for upland habitats beyond the Bay's edge.

### **Conservation Lands Network**

*Five-year study with 100+ participating entities*

**Location:** Bay Area

**Lead:** Bay Area Open Space Council

**Partners:** Multiple public and non-profit agencies

Five-year science-based study (2006-2011) of 4.3 million acres and over 1,000 plant and animal targets by over 125 organizations and individuals. The study aimed to identify the most essential Bay Area lands needed to sustain biological diversity. It was designed to recommend the types, amounts and distribution of conservation lands as well as actions needed to sustain diverse and healthy communities of plant, fish and wildlife resources in the nine counties. The new [CLN 1.0 Progress Report](#), completed earlier this year (2014),

highlights the achievements made since the 2011 release of the CLN 1.0 report. Progress is tracked through four conservation indicators and fourteen progress metrics.

### **Bay Subtidal Habitat Goals Project (2011)**

*The third piece of the puzzle!*

**Location:** Bay Area

**Lead:** Conservation Lands Network

**Partners:** Multiple public and non-profit agencies

The Subtidal Habitat Goals Project is a collaborative, regional planning effort to advance the understanding and future science-based protection and restoration of submerged habitats in San Francisco Bay. Along with the Baylands Goals, the Subtidal and Upland Habitat Goals projects cover the entire Bay Area with habitat conservation plans.

### **Climate Change, Conservation & Land Use: A Sonoma County Pilot Project**

*Quantifying the climate benefits of land conservation*

**Location:** Sonoma

**Lead:** Sonoma County Agricultural Preservation and Open Space District

**Partners:** The Nature Conservancy

The Sonoma County Agricultural Preservation and Open Space District and The Nature Conservancy are collaborating to help Sonoma County, and ultimately other counties across California, address climate change through natural resource conservation and land use. The project, funded by the Moore Foundation, is creating a replicable portfolio of tools, policies and economic incentives for Sonoma County that facilitate the conservation of natural and working landscapes and urban forests to optimize climate benefits. Project deliverables include:

- An enhanced Sonoma County “greenprint” that includes considerations of biological GHG emissions and reductions.
- A countywide inventory of forests, urban forests and grasslands.
- An accounting method and tool for estimating and monitoring GHG emissions and reductions.
- Links to state and local incentives (e.g., SB 375 and cap and trade auction revenue, etc.).

### **Marin Carbon Project**

*Pilot project using California’s largest land type—rangelands—to fight climate change*

**Location:** Marin County

**Lead:** Partnership

**Partners:** Landowners, UC Berkeley, UC Davis, Private Sector, Non-profits

The Marin Carbon Project is a consortium of the leading agricultural institutions and producers in Marin County, university researchers, county and federal agencies, and nonprofit organizations seeking to demonstrate the potential of enhanced carbon sequestration in Marin’s agricultural and rangelands soils. Carbon farming involves implementing practices that are known to improve the rate at which CO<sub>2</sub> is removed

from the atmosphere and converted to plant material and/or soil organic matter. Carbon farming is successful when carbon gains resulting from enhanced land management and/or conservation practices exceed carbon losses.

MCP's goal is to develop a countywide agricultural carbon sequestration program with producer outreach, technical infrastructure, and economic supports to serve as a model for other regions in California, the western US, and the nation.

The MCP pilot carbon-farming project involves three farms in West Marin: Stemple Creek Ranch, Straus Dairy, and Corda Ranch. After performing extensive baseline soil sampling and rangeland assessment on these farms, close to 4,000 cubic yards of compost supplied by West Marin Compost was applied on nearly 100 acres of rangelands. This has been followed by careful and detailed monitoring and analysis of enhanced carbon soil properties. As part of the project, MCP has now developed carbon sequestration protocols for review by state and regional authorities.

### **North Bay Climate Adaptation Initiative (NBCAI)**

#### *Leadership and Coalition Building*

**Location:** Sonoma County

**Lead:** Coordination committee—Laguna de Santa Rosa Foundation, Sonoma Ecology Center, Pepperwood Foundation, Community Foundation Sonoma County, Gold Ridge Resource Conservation District, Point Blue Conservation Science and Global Genesis

**Partners:** Local government and nonprofit conservation experts

NBCAI is currently leading the adaptation section of the new Climate Action 2020 Plan. NBCAI is a coalition of natural resource managers, policy makers and scientists committed to working together to create positive solutions to the problem of climate adaptation for the ecosystems and watersheds of Sonoma County. Members are experts and conservation leaders drawn from natural resource organizations throughout the region.

NBCAI grew out of a three-day 2009 conference on watershed climate change adaptation in Sonoma County. The initiative now includes three active working groups aimed at the implementation of climate change adaptation strategies identified by conference participants.

- Habitat Conservation and Stewardship Working Group
- Science, Technology and Land Management Nexus Working Group
- Public Policy Working Group

The working groups address needed actions towards implementation of specific climate change adaptation strategies. The individual working group goals are aligned into a larger combined vision by the NBCAI Coordination Committee.

Since climate adaptation is ultimately a regional issue, NBCAI's goal is to pilot an approach in Sonoma County that can be extended throughout the North Bay. NBCAI's vision is that the San Francisco North Bay will retain resilient, biologically diverse natural systems that provide lasting ecosystem functions and services into the future. NBCAI and RCPA have recently been selected for California State Coastal Conservancy Climate Ready funding to assess climate vulnerabilities, particularly in terms of water security, for Sonoma County as well as Napa, Mendocino and Marin.

### **Point Blue Climate-Smart Conservation Program**

*Leaders in conservation and climate*

**Location:** Bay Area

**Lead:** Point Blue Conservation Science

**Partners:** Local government agencies, scientists and nonprofit conservation experts

Point Blue's collaborative research program on climate change is aimed at revealing what climate change might mean for Bay Area ecosystem conservation. Climate-smart conservation addresses climate change impacts and other threats by using nature-based approaches to:

- Reduce greenhouse gas emissions
- Enhance the benefits nature provides to humans—clean air, fresh water, fisheries, pollination, recreation, climate and flood control
- Improve the abilities of wildlife and people to adapt to the rapidly changing climate

Point Blue works in close partnership with government agencies, nonprofits, academics, and the public to guide effective conservation investments.

### **San Francisco Estuary Partnership**

*Long-running partnership for the bay and delta*

**Location:** San Francisco Bay Delta Estuary

**Lead:** ABAG is the home agency for Partnership

**Partners:** The Bay Area Watershed Network and the San Francisco Estuary Institute and associated partners

The San Francisco Estuary Partnership is a coalition of resource agencies, non-profits, citizens, and scientists working to protect, restore, and enhance water quality and fish and wildlife habitat in and around the San Francisco Bay Delta Estuary. Working cooperatively, the SFEP shares information and resources that result in studies, projects, and programs that improve the Estuary and communicate its value and needs to the public. Projects include habitat restoration, fish & wildlife recovery, water quality improvement, watershed management and stewardship of the Estuary. The SF Estuary Partnership works closely with the San Francisco Estuary Institute, which was formed in

1993 to respond to the need for coordinated regional monitoring and research strategy to assess the chemical, physical and biological health of the Estuary.



### **Scenario Planning for Climate Change Adaptation: A Guidance for Resource Managers (2013)**

*Scenario planning to deal with climate uncertainty*

**Location:** Bay Area

**Lead:** Funded by the California Coastal Conservancy & Point Blue

**Partners:** Multiple local governments and nonprofit conservation experts

Released in June 2013, this document is intended to provide step-by-step guidance to using scenarios to plan for climate change. The intended audience includes natural resource manager, planners, scientists and other stakeholders working at a local or regional scale to incorporate and consider climate impacts in resource management approaches. Scenario planning is a tool that enables managers to envision a range of possible futures by embracing uncertainty rather than trying to reduce or eliminate it which makes it an ideal tool for climate adaptation and resilience planning at many levels.

### **Save the Redwoods Climate Change Initiative**

*Climate change impacts on one of our iconic species*

**Location:** Bay Area

**Lead:** Save the Redwoods League

**Partners:** UC Berkeley and Humboldt State University

The League and scientists from UC Berkeley and Humboldt State University have launched the multi-year Redwoods and Climate Change Initiative to create a comprehensive climate adaptation strategy for the redwoods. Their studies will yield results that quantify redwoods' vulnerabilities to climatic changes and their capacities to mitigate these changes via photosynthesis, fog interception, wood production and carbon sequestration. These findings will help focus League efforts on where to protect and restore redwood forestland according to climate change forecasts and to develop adaptive strategies for the future.

### **Sonoma County Veg Map**

*A groundbreaking project for Sonoma County climate planning*

**Location:** Sonoma

**Lead:** Sonoma County Agricultural Preservation and Open Space District and the Sonoma County Water Agency

**Partners:** The California Department of Fish and Wildlife, USGS, the Sonoma County Information Systems Department, the Sonoma County Transportation and Public Works Department, the Nature Conservancy, the City of Petaluma, NASA, and the University of Maryland

A coalition of partners has embarked on a 5-year program to map Sonoma County's topography, physical and biotic features, and diverse plant communities and habitats. The publicly available datasets eventually produced by this program – including countywide LiDAR data and a fine scale vegetation and habitat map – will provide an accurate, up-to-date inventory of the county's landscape features, ecological communities and habitats. These foundational data sets are key to facilitating good planning and management for watershed protection, flood control, fire and fuels management, and wildlife habitat conservation. These data are also critical to assessing climate mitigation and adaptation strategies and benefits provided by the landscape, such as the amount of carbon sequestration in forests or the degree to which riparian areas, floodplains, and coastal habitats may buffer extreme weather events.

### **Terrestrial Biodiversity Climate Change Consortium (TBC3)**

*Academic and practitioner partnership for the Bay Area*

**Location:** Bay Area

**Lead:** Pepperwood Preserve and Foundation

**Partners:** UC Berkeley, non-profits

Interdisciplinary team of ecologists and earth scientists focused on the development of applied science products to define potential impacts of climate change on the Bay Area and the implications for management of the region's conservation lands, both from the perspective of maximizing the biological value of those lands and the ecosystem services they provide human communities.

## ***E. Health***

### **Bay Area Public Health Department Adaptation Projects (partial list)**

*Leading the way for climate and health*

**Location:** Bay Area

**Lead:** County public health departments

**Partners:** Residents, non-profit organizations

A number of Bay Area public health departments have begun climate adaptation-related activities. Here is a partial list:

- San Mateo County
  - Dedicated staff to work on local implementation of Plan Bay Area
  - Presentations to elected officials
  - Integration of health equity and climate change into Complete Streets, affordable housing, General Plans, etc.
  - Integrating climate change into health programs
- Santa Clara County
  - Participated in Silicon Valley 2.0
  - SCC Climate Action Team and Transportation Committee (2009)
  - Presentation at Planning for Climate Change Workshop (2008)
  - Included in PHD 2012-2015 Strategic Plan - Goal 3: “Establish a Departmental focus on environmental health issues related to climate change and sustainability.”
- Marin County
  - Extreme Temperature Annex, which includes both extreme heat and cold, to the county’s Emergency Operations Plan.
- Alameda County
  - Participated in the Adapting to Rising Tides project.
- City of Berkeley
  - Public health department is involved in the city’s climate change planning and emergency preparedness.

### **Bay Area Regional Health Inequities Initiative (BARHII)**

*Collaborative effort to address health inequities across the region*

**Location:** Bay Area

**Lead:** Partnership

**Partners:** Bay Area Health Departments

BARHII is a unique undertaking by local health departments in the San Francisco Bay Area to confront health inequities. The regional collaboration includes public health directors, health officers, senior managers and staff from Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma counties, and the City of Berkeley.

BARHII has organized its work into committees focused on data, community, built environment and internal capacity. BARHII has recently produced health and climate change fact sheets. BARHII focused considerable attention on SB 375 planning for Bay Area. Includes public health directors, health officers, senior managers and staff from all nine counties. Also produced the [\*Healthy Planning Guide\*](#).

### **Cal-BRACE (Building Resilience Against Climate Effects)**

*Statewide program to build local capacity for climate change*

**Location:** Bay Area

**Lead:** California Department of Public Health

**Partners:** County public health departments

Climate change poses risks to the public health and well-being of all Californians through extreme weather events, wildfires and a shift in certain infectious diseases. To address the need for planning and preparation to meet these challenges, the California Department of Public Health (CDPH) has been awarded a four-year, Centers for Disease Control and Prevention (CDC) climate change and health grant for the Cal-BRACE project.

California will apply the CDC BRACE model (Building Resilience Against Climate Effects) to targeted counties. The model includes five steps to help state health departments develop a comprehensive climate and health adaptation plan:

- Forecast climate impacts and assess vulnerabilities in various areas of the state
- Project the disease burdens from those impacts
- Assess public health strategies to protect health and communities
- Work with local health departments to help their communities develop climate and health adaptation plans
- Evaluate the impacts and quality of project activities

The grant also provides \$250,000 per year to develop an overall assessment of the critical health impacts associated with climate change in California, along with the populations most vulnerable to these changes. Examples of health impacts of climate change include: heat related illness and death; increased air pollution associated with increasing temperature; and, extreme precipitation and flooding, wildfires, rising sea levels, and changes in disease caused by vectors (e.g. mosquitoes) and infectious agents.

### **Contra Costa County Health Services**

*Making the Link Between Public Health and Climate Change*

**Location:** Contra Costa

**Lead:** Contra Costa Health Services

**Partners:** Residents, community-based organizations, county departments

County Health Services is taking a leading role in climate change/health strategy development. Currently, staff members are developing a comprehensive white paper on the connection between climate change and public health impacts in the county. The paper is intended to serve as a starting point for further discussion and collaboration on climate and health issues.

At the same time, Health Services is conducting a hazard and vulnerability assessment for the county's public and private medical system facilities. This new assessment will consider the impact of increased fires, floods and other climate impacts based on facility location to better prepare the county to deal with climate related disasters and emergencies.

Health staff also identified key health impacts of climate change in the county's draft Climate Action plan and highlighted "win-win" strategies that both slow down further climate change and immediately improve human health as "co-benefits."

Finally, the Planning Integration Team for Community Health (PITCH), established by the Board of Supervisors in 2007, integrates public health considerations into land use and transportation planning and engineering activities. The inter-departmental team includes the Department of Conservation and Development, Public Works and Health Services. Projects have focused on Complete Streets implementation, the One Bay Area grant and the County Climate Action Plan development.

### **[Mapping Climate Change Exposures, Vulnerabilities, and Adaptation to Public Health Risks](#)**

*Key study for the San Francisco Bay Area and Fresno regions*

**Location:** Alameda County

**Lead:** UC Berkeley

**Partners:** Oakland community-based organizations

This excellent 2012 study by Michael Jerrett and colleagues for the state PIER program uses an environmental hazard inequality index and applies it to potential Oakland climate change impacts in order to identify and understand highly vulnerable populations.

### **Public Health Institute Climate Change White Paper and Mini-Grants**

*Creating a framework to understand health and climate*

**Location:** Bay Area

**Lead:** Public Health Institute

**Partners:** Public health departments, community-based organizations and public health advocates

Statewide project, funded by the Kresge Foundation, to produce a white paper linking climate adaptation and mitigation to existing public health programs such as WIC,

Nutrition Network, etc. Includes mini-grants for 3 topic areas —possible topics include urban heat islands, regional asthma management program, and community food programs.

Climate change is a public health emergency:

- Climate change has direct impacts on health & well-being
- Climate change is a threat multiplier
- Climate change exacerbates existing health challenges
- Climate change disproportionately impacts vulnerable populations and disadvantaged communities
- Climate change affects the systems on which human life depends – air, water, food, shelter, and security.

The links between climate change, health and vulnerable populations are numerous and significant. A systems approach is required.

- Systems that contribute most to climate change and causes of poor population health are the same—food/agriculture, transportation, energy, economic, etc.
- Social determinants of health (living conditions) and health status are key to climate change vulnerability & resilience
- Many climate actions have huge health co-benefits—Active transportation, clean energy production, urban greening, reduced meat consumption

Health sector can play a major and powerful role in climate change action:

- Public places high value on health
- Health professionals are credible and trusted
- Health professionals touch everyone
- Our language – prevention, protection, health - resonates
- Health frame engenders interest in climate action
- Climate actions & health actions aligned
- Co-benefits provide hope and immediacy and better health
- Failure to act now will mean we have far less to offer later

### **San Francisco Climate Ready Initiative**

*Making the link between climate change and health*

**Location:** San Francisco

**Lead:** Department of Public Health

**Partners:** Residents, community-based organizations, city departments

This pilot project by the Department of Public Health (funded by the federal Center for Disease Control) is developing San Francisco’s public health capacity for climate change, with a focus on heat stress morbidity and mortality from extreme heat events and poor air quality. These impacts on at-risk populations are expected to increase in frequency and duration with climate change.

Phase I project outcomes include:

- An environmental health assessment to map social and community determinants of heat vulnerability.
- A gap analysis of public health capacity to reduce human health effects of climate change utilizing the environmental health assessment and national performance standards.
- Interactive vulnerability maps that indicate adverse health outcomes and risks for extreme heat by census block.
- A citywide heat wave disaster response plan, including appropriate surveillance and health education/outreach activities. The plan was developed by Disaster Planning, in conjunction with Emergency Management Services and an inter-agency task force.

SFDPH, in conjunction with the Office of the City Administrator, has recently been awarded funding by the CDC for the next three years of the project. With this funding, SFDPH will continue to assess climate trends, define disease burden, develop specific intervention methods, and evaluate effects of change for at-risk populations. In partnership with the Office of the City Administrator and community stakeholders, SFDPH will promote community resilience to climate change through education, empowerment and engagement activities.

## ***F. Multiple Climate Impacts***

### **F1. Local Government Initiatives**

#### **[Benicia Adaptation Plan and Community Sustainability Commission](#)**

*Building on Climate Action Plan to Address Adaptation and Sea Level Rise*

**Location:** Solano

**Lead:** Solano County

**Partners:** UC Berkeley, California Coastal Conservancy, local government agencies, Benicia-based businesses, nonprofits and community stakeholders

The 11-member Community Sustainability Commission (CSC) was established in 2009 to evaluate and prioritize Benicia’s strategies to reduce greenhouse gas emissions and make key recommendations for the City’s Climate Action Plan. The CSC is also charged with implementing the CAP’s measures and monitoring its effectiveness. This broad mandate includes recommendations for allocations of [Good Neighbor Steering Committee Settlement Agreement](#) funds for [projects](#) that meet certain criteria set out in the Agreement.

Benicia was recently awarded a Climate Ready grant from the California Coastal Conservancy to develop a scientific risk assessment for the area along the Carquinez Strait. Sea level rise is the main focus of the study but it will also include other climate impacts. The city will turn this assessment into an adaptation plan. As preparation for this effort, Benicia recently worked with students at UC Berkeley to develop an initial risk assessment list (focused on sea level rise) for the industrial park and proposed adaptive measures. Staff vetted the list and presented it to the Economic Development Board for review and feedback. Finally, UC Berkeley students worked with a local hotel manager to assess site-specific risks and develop adaptive strategies to mitigate those risks. The findings will help inform the Conservancy grant work in 2014-15.

#### **[Berkeley Hazard Mitigation Plan](#)**

*A statewide model for resiliency planning and local action*

**Location:** Alameda County

**Lead:** City of Berkeley

**Partners:** Multi-agency effort

The City of Berkeley is one of the first Bay Area cities to formally incorporate a comprehensive set of climate impacts into its Hazard Mitigation Plan. The DRAFT 2014 plan, for the first time, formally acknowledges climate change as a “man-made” hazard of concern and focuses on climate impacts including extreme heat, extreme rainfall, flooding and sea level rise. The city’s sustainability staff is also working with Emergency Services on energy assurance planning. This hazard mitigation work builds on adaptation



and resiliency issues that were addressed in the city’s Climate Action Plan and provides an excellent example of heretofore “siloe” elements of a municipal government coming together for mutual benefit.

### **Climate Action 2020 Plan**

*A new plan, including adaptation, tailored for each community, to reduce GHGs and increase resilience.*

**Location:** Sonoma County

**Lead:** Sonoma Regional Climate Protection Authority and the North Bay Climate Adaptation Initiative (NBCAI)

**Partners:** ICF, local government agencies, nonprofits and community stakeholders

Climate Action 2020, currently underway, is a collaborative effort among all 9 cities and the County of Sonoma to reduce GHG emissions community-wide and prepare Sonoma for the impacts of climate change. RCPA will work with communities to develop a comprehensive and detailed plan for each jurisdiction that will identify measures to reduce GHGs from building energy, transportation, water use and transport, waste, wastewater and agriculture. This detailed plan will be completed in 2015. Development of the adaptation section of the plan will be led by North Bay Climate Adaptation Initiative.

The plan will build on efforts to meet the prior commitments to reduce GHG emissions made by Sonoma County communities over the past decade. Since each Sonoma County community is unique, each city will have a locally specific plan that addresses different concerns and priorities within their community.

### **Pinole General Plan — Climate Adaptation (2010)**

**Location:** Contra Costa County

**Lead:** City of Pinole

**Partners:** Multiple local government agencies and community partners

Pinole addressed climate change through its general plan update. Community visioning was an important part of the process. The general plan addresses climate change adaptation and mitigation through more than 90 policies and actions, all developed under the umbrella of long-term sustainability. Some of the key strategies include transit-oriented development, water conservation, enhanced resilience to storm events, emergency response preparedness, habitat restoration and open space protection.

### **Regional Climate Protection Authority**

*California’s only legally constituted local climate authority*

**Location:** Sonoma County

**Lead:** County of Sonoma

**Partners:** N/A

The Regional Climate Protection Authority (RCPA) was created through state legislation in 2009 to improve *cross-agency* coordination and collaboration in Sonoma County on climate change issues. The RCPA shares its board with the Sonoma County Transportation Authority, including representatives from each of the nine cities and the Board of Supervisors. RCPA staff are leading the development of the new “Climate Action 2020” and are engaged in a variety of GHG reducing efforts including energy efficiency, building retrofit and alternative transportation programs. Data collection, public information and education are significant elements of the RCPA effort.

### **Rockefeller 100 Resilient Cities Challenge**

*New, full-time staff for climate and resiliency for three Bay Area cities*

**Location:** Alameda and San Francisco

**Lead:** Rockefeller Foundation

**Partners:** N/A

In December 2013, the Rockefeller Foundation announced that three Bay Area cities were winners in the 100 Resilient Cities Challenge—Berkeley, Oakland and San Francisco. The awardees will work individually and collaboratively to develop resiliency strategies for climate impacts, earthquakes and other issues, and will expand current efforts to engage community members in resiliency planning.

Although each of these three Bay Area cities will develop its own comprehensive resiliency strategy, they will do so in the context of regional collaboration and cooperation to capitalize on common opportunities, challenges and benefits. The new funding will enable each city to recruit and hire a Chief Resiliency Officer (CRO) – an executive level staff member who will lead their city’s efforts and will coordinate with other Bay Area CROs. Part of this work will involve the development of local definitions and goals for resiliency as well as other city specific challenges.

### **San Jose Adaptation Projects**

**Location:** Santa Clara County

**Lead:** City of San Jose

**Partners:** Multiple local agencies, nonprofit experts and community partners

Climate adaptation is included in Envision 2040, the city’s highly innovative general plan approved in 2011. The city is active on flood control, tree planting (urban heat island), wildland and urban fire hazards, water conservation and re-use, and other climate-related measures.

### **San Jose Green Vision**

*A model for comprehensive citywide sustainability planning and action*

**Location:** Santa Clara County

**Lead:** City of San Jose

**Partners:** Multiple local agencies, nonprofit experts and community partners

In 2007, the City of San Jose adopted the “Green Vision”, a 15-year plan for economic growth and environmental sustainability. The plan outlines 10 ambitious goals to achieve by 2022:

- Create 25,000 clean tech jobs
- Reduce per capita energy use by 50%
- Receive 100% of the city’s energy load from renewable power
- Build or retrofit 50 million square feet of green buildings
- Divert 100% of waste from landfill and convert waste to energy
- Recycle or beneficially reuse 100% of the city’s wastewater
- Adopt a general plan with measurable standards for sustainable development
- Ensure that 100% of public fleet vehicles run on alternative fuels
- Plant 100,000 new trees and replace 100% of city streetlights with smart, zero emission lighting
- Create 100 miles of trails connecting with 400 miles of on-street bikeways

Progress on each of these goals is tracked through detailed metrics that are posted on the Green Vision website.

### **[San Mateo County Climate Action Plan: Vulnerability Assessment \(2011\)](#)**

*An initial review of the county’s vulnerabilities to get the ball rolling*

**Location:** San Mateo County

**Lead:** County of San Mateo Planning and Building Department

**Partners:** ICLEI and PMC

The San Mateo County vulnerability assessment was conducted in 2011 as a collaborative effort between ICLEI - Local Governments for Sustainability, PMC, San Mateo County’s Planning and Building Department, as well as the San Mateo County Vulnerability Assessment Working Group.

The assessment addresses the impacts of climate change on public health, water supply, and agriculture (including farms and managed timber) due to temperature and precipitation changes; wildfires; and the impacts of sea level rise on built infrastructure and ecosystems. The Working Group consisted of staff representatives from County departments including Parks and Recreation, Planning, Public Health, and Public Works, as well as external experts and stakeholders including BCDC, the California Coastal Commission, Cal-FIRE, and PG&E.

### **[San Mateo County Energy Efficiency Climate Action Plan \(2012\)](#)**

*300+ page guide to reducing GHGs, building resilience and addressing adaptation*

**Location:** San Mateo

**Lead:** San Mateo County

**Partners:** Multiple local agencies, nonprofit experts and community partners

San Mateo County developed the Energy Efficiency Climate Action Plan (EECAP) for the county's unincorporated areas with four goals:

- Reduce fossil fuel emissions;
- Reduce the total energy use of the eligible entities;
- Improve energy efficiency in the transportation, building, and other appropriate sectors; and
- Create and retain jobs.

Chapter 6 of the EECAP features a set of strategies to address climate adaptation. This work builds on the vulnerability assessment conducted in 2011. The EECAP recognizes that climate change has the potential to seriously impact county residents and businesses. The EECAP includes assessment information and adaptation actions tailored to six sectors:

- Agriculture and forestry
- The built environment
- Natural resources
- Fire
- Public health
- Water

The EECAP builds on the County's groundbreaking *Energy Strategy 2012*, which was developed by the San Mateo Utilities Sustainability Task Force, an ad-hoc energy-working group of the Congestion Management and Environmental Quality Committee.

**[San Mateo County Regionally Integrated Climate Action Planning Suite \(RICAPS\)](#)**  
*C/CAG leadership and expert assistance makes climate planning more effective*

**Location:** San Mateo County

**Lead:** City and County Association of Governments (C/CAG)

**Partners:** DNV KEMA and Hara

In San Mateo County, each city develops its own Climate Action Plan using a special set of tools developed by the City and County Association of Governments (C/CAG) in conjunction with KEMA Inc. and Hara. This unique and effective approach has been funded by grants from the Bay Area Air Quality Management District (BAAQMD) and Pacific Gas and Electric Company (PG&E) and C/CAG. Climate action plans developed with these tools help cities meet BAAQMD's CEQA guidelines for a Qualified Greenhouse Gas Reduction Strategy. Sea level rise, heat, and other climate impacts are included in the climate adaptation chapter of the plan template. C/CAG and its consultants also provide technical assistance to the cities to complement the CAP tools.

## **SF Adapt**

*Inter-departmental collaboration and cooperation to build resiliency*

**Location:** San Francisco

**Lead:** San Francisco Department of the Environment and City Administrator's Office

**Partners:** Multiple local government agencies

SF Adapt is the city's coordinated effort, led by the Department of the Environment and the City Administrator, to bring together agencies on climate adaptation. SF Adapt includes the Public Utilities Commission, Planning, [the Port](#), the San Francisco International Airport, Public Works, the Municipal Transportation Agency, Public Health, Recreation and Parks, and other city agencies.

SF Adapt was formed to attain three important goals:

- Build interdepartmental coordination and collaboration to address adaptation risks.
- Increase private sector and community awareness and capacity to respond to emergencies.
- Integrate climate impact considerations into all of the city's capital investments, plans, codes and standards.

SF Adapt is currently focused on four adaptation topics; 1) Public health, 2) Sea level rise, 3) Energy assurance planning and 4) Incorporating adaptation into the city's hazard mitigation planning.

## **Silicon Valley 2.0**

*County leadership in cross agency planning and adaptation strategy development*

**Location:** Santa Clara County

**Lead:** Santa Clara Office of Sustainability

**Partners:** AECOM and multiple local and regional government agencies and nonprofit organizations

Through Silicon Valley 2.0, the County of Santa Clara is working with local and regional agencies, private sector partners and nonprofit organizations to develop a countywide climate adaptation plan and a decision making tool that will facilitate in-county coordination. The project engages stakeholders to create a framework of adaptation strategies and measures for sustaining the region's "livability/desirability index".

Funded through a grant from the Strategic Growth Council, SV 2.0 takes a risk management approach to climate change impacts on four principal infrastructures (transportation, energy, water, and "human capital") and uses this framework to:

- Evaluate the exposure of community assets (i.e., infrastructure, populations, and landscapes) to likely climate impacts,

- Examine the potential consequences to the economy, society, and environment of this exposure, and
- Develop preemptive adaptation strategies that improve community resiliency.

SV 2.0 also includes an Economic Resiliency Element to provide strategies for local economies (principally innovation technology and agriculture). The second phase of SV 2.0 Project (which the County is currently seeking funding for) will establish a roadmap towards an ambitious emissions reduction goal for 2050. The roadmap effort will identify potential pathways, technologies, strategies, and policy mechanisms needed to both reduce emissions and increase resiliency in Santa Clara County.

### **Small Cities EPA Climate Showcase Grant**

Collaboration across and within small cities to reduce GHG emissions

**Location:** Contra Costa County

**Lead:** City of El Cerrito

**Partners:** EPA

The city of El Cerrito has made significant progress in increasing both local renewable energy capacity and energy efficiency by leveraging limited resources through innovative partnerships. For example, El Cerrito has utilized nearly all of the city’s solar installation capacity resulting in a 28 percent reduction in their municipal energy load.

Much of this work was funded through an EPA Climate Showcase grant, led by El Cerrito staff. The EPA grant helped four small Bay Area cities (El Cerrito, Albany, Piedmont and San Pablo) partner on a series of activities including joint solar purchases. In this way, these staff-constrained programs could pool their resources for the benefit of all.

### **Solano Transportation Authority Leadership: Climate Action Plans**

*County leadership, support and funding for countywide climate planning*

**Location:** Solano County

**Lead:** Solano Transportation Authority

**Partners:** California Strategic Growth Council, PG&E and multiple cities and local government agencies in Solano County

As follow-up to the general plan process, Solano County secured grant funding in 2011 from the California Strategic Growth Council for the development of a multi-agency climate action plan and an implementation strategy managed by the Solano Transportation Authority (STA). STA also secured PG&E funds to assist in the development of a CAP focused on energy production and use (Energy Efficiency CAP). Subsequently, the STA Board and the Solano City County Coordinating Council directed the STA to work with the cities of Dixon, Fairfield, Rio Vista, Suisun City and Vacaville to develop GHG inventories.

STA is now working with AECOM and PG&E on the EECAP, the multi-agency CAP and the individual CAPs. Benicia and Vallejo and the County of Solano have all independently developed Climate Action Plans but have participated in group meetings on regional coordination and CAP implementation. Integration of CAPS will be done when they are all completed. While this collaborative set-up has to-date focused on GHG reduction, many of the strategies also build community resilience. Finally, this framework could also be used in the future to address direct climate impacts at the city or county level.

### **City/County Climate Action Plans**

40+ cities and counties in the Bay Area have completed Climate Action Plans (CAPs). (See county charts in each summary.) Climate action plans now cover 100% of the cities in two counties—Alameda County and Sonoma County.

While city/county climate action plans focus primarily on greenhouse gas emissions reduction, a number of these plans now include adaptation activities. Examples include plans done by Fremont, El Cerrito, Burlingame, and Oakland. Plans completed in the last few years are more likely to include adaptation strategies.

A small but growing list of cities now include climate in general plans, hazard mitigation plans, and other existing official planning processes. Examples include general plans for San Jose, San Mateo County, Marin County, Richmond and Pinole, as well as hazard mitigation plans in Berkeley and San Francisco.

	ALAMEDA	CONTRA COSTA	MARIN	NAPA	SAN FRANCISCO	SAN MATEO	SANTA CLARA	SOLANO	SONOMA
<b>Regional Plans</b>	Plan Bay Area (2013) — BCDC Bay Plan (2012) — Integrated Regional Water Management Plan (2013) — ABAG Regional Hazard Mitigation Plan (2010)								
<b>Climate Action Plans (GHGs)</b>	15/15	4/20 (2 in progress)	7/12	0/6 (1 in progress)	1/1	9/20	3/16 (4 in progress)	3/8 (5 in progress)	10/10
<b>CAP Goals for 2020</b> (unless noted)	36% below 2005 (1) 33% below 2000 (1) 25% below 2005 (2) 25% below 2004 (2) 20% below BAU (1) 20% below 2005 (1) 15% below 2005 (5) 15% below 2008 (1) 12.5% below 2005 (1)	25% below 1990 (1) 15% below 2005 (2) 1990 level (1)	15% below 2005 (5) 15% below 1990 (1) 25% below 2005 (1)	N/A	25% below 1990 by 2017	15% below 2005 (5) 15% below 2006 (1) 27% below 2005 (1) 7% below 2005 (1) 15% below 2005 by 2035 (1)	15% below 2005 (1) 15-20% below 2005 (1) Decrease emissions 10% every 5 years 2010-2050 (1)	10% below 2000 (1) 15% below 2008 (1) 20% below 2005 (1)	25% below 1990 (10)
<b>Adaptation Strategies in CAPs</b>	3/15	3/4	5/7	0/0	1/1	6/9	1/3	0/3	0/2
<b>Climate in Hazard Mitigation or General Plans</b> <i>**Partial list needs further research</i>	Berkeley (HMP)**	Pinole (GP) Richmond (GP) San Pablo (GP)**	Marin County (GP)**	Napa County (HMP)**	City/County (HMP)**	County (GP)**	San Jose (GP) Santa Clara (HMP)**	County (GP) Vacaville (GP)**	Santa Rosa (GP)**



## **F2. Regional Agency Initiatives**

### **ABAG Regional Disaster Resilience Initiative**

*Far-reaching program for collaborative disaster planning*

**Location:** Bay Area

The Bay Area Regional Disaster Resilience Initiative is a region-wide initiative to develop a process through which stakeholders in the Bay Area can build resilience through collaborative planning for recovery. The initiative identified sector-specific recovery issues that benefit from multi-jurisdictional coordination and collaboration and identify actions needed to improve this capacity.

The Resilience Initiative process included four stakeholder-driven workshops, a survey, and interviews with key regional resilience stakeholders and elected officials. The initiative culminated with four targeted policy papers and an Action Plan to guide future work in the region to build resilience to major disasters.

### **Bay Area Regional Hazard Mitigation Plan (2010 Update)**

*Regional plan will be updated in 2015*

**Location:** Bay Area

ABAG's 2010 Regional Hazard Mitigation Plan provided a regional "umbrella" for participating local governments and special districts to conduct local hazard mitigation planning in an efficient manner. Over eighty entities took part in the regional/local planning process.

Local governments who adopt a hazard mitigation plan may be eligible for the following benefits:

- A more disaster-resistant and resilient community and region
- [Hazard mitigation assistance programs](#), including Hazard Mitigation Grant Program, Pre-Disaster Mitigation, Flood Mitigation Assistance and Severe Repetitive Loss grant programs
- Points under the National Flood Insurance Program's [Community Rating System \(CRS\)](#)
- Waiver of the [6.25% local match](#) for Public Assistance money after a disaster.

### **BAAOMD Regional Climate Protection Strategy**

*Leadership for the region's GHG efforts*

**Location:** Bay Area

The Bay Area Air Quality Management District is beginning the development of a Regional Climate Protection Strategy. The strategy is designed to support statewide AB 32 efforts and to help the Bay Area attain the state’s 2050 GHG emissions goal—an 80% reduction in GHG emissions below 1990 levels. This goal was adopted by the BAAQMD board in early 2014.

BAAQMD staff is currently working on a 10-point program to guide the work in the near-term. This includes:

- Policy Approaches:
  - Set GHG reduction goal and interim targets
  - Develop Regional Climate Action Strategy
  - Initiate Rule Development
  - Launch Climate Change & Public Health Initiative
  - Explore Bay Area's Energy Future
- Assistance to Local Governments:
  - Support and Enhance Local Action
  - Report Progress to the Public
- Technical Program
  - Update Inventorying and Forecasting
  - Implement GHG Emissions Monitoring
  - Expand Enforcement

### **[Plan Bay Area](#)**

*Long-range plan for transportation, land use and climate change*

**Location:** Bay Area

Plan Bay Area is the long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. The Plan was jointly approved in July 2013 by the Association of Bay Area Governments (ABAG) Executive Board and by the Metropolitan Transportation Commission (MTC). The Plan includes the region’s Sustainable Communities Strategy and the 2040 Regional Transportation Plan and represents the next iteration of a planning process that has been in place for decades.

Plan Bay Area marks the nine-county region’s first long-range plan to meet the requirements of California’s landmark 2008 Senate Bill 375, which calls on each of the state’s 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce greenhouse gas emissions from cars and light trucks. Working in collaboration with cities and counties, the Plan advances initiatives to expand housing and transportation choices, create healthier communities, and build a stronger regional economy.



### **F3. Non-Profit Organizations**

#### **Asian Pacific Environmental Network (APEN)**

*Advocacy on AB 32 and other climate issues*

**Location:** Bay Area

In 2010, APEN launched the Asian Pacific American Climate Coalition (APACC) to develop Asian Pacific American (APA) leadership to ensure that AB 32 and other climate policies related to energy, jobs and housing are implemented equitably for all Californians. In recent years, APEN organized to help defeat Proposition 23, the oil industry's attempt to gut AB 32, and worked to educate policy leaders about climate and community investment opportunities that contributed to getting SB 535 "Community Benefits Fund" signed into law. Currently, APEN is leading a statewide alliance for renewable energy and jobs in California.

#### **Bay Area Resilient Communities Initiative**

*New collaborative of community-based organizations working on adaptation*

**Location:** Bay Area

The Bay Area Resilient Communities Initiative (RCI) is creating a national model of resilience planning led by the communities most impacted by climate change and natural disasters for the benefit of all residents. RCI's core capacities include:

- Leading collaborative development of policy and programs
- Assessing resilience vulnerability and assets
- Conducting effective multilingual community engagement
- Managing project implementation
- Evaluating programs and policies with a social equity perspective

RCI members include:

- Asian Pacific Environmental Network (APEN)
- Bay Localize
- Breakthrough Communities
- Communities for a Better Environment (CBE)
- Environmental Justice Coalition for Water
- Greenaction for Health and Environmental Justice
- Marin Grassroots
- Movement Generation Justice and Ecology Project
- Pacific Institute
- POWER (People Organized to Win Employment Rights)
- West Oakland Environmental Indicators Project
- Youth United for Community Action (YUCA)

### **Bay Localize**

*Creators of the Community Resilience Toolkit 2.0*

**Location:** Bay Area

Bay Localize inspires and supports Bay Area community leaders in building equitable, resilient communities. The organization works to confront the challenges of climate instability, rising energy costs, and recession by boosting regional capacity to provide for everyone's needs, sustainably and equitably. This is accomplished by equipping local leaders with flexible tools, models, and policies that strengthen their communities.

Bay Localize released the first edition of Community Resilience Toolkit in 2009, with the second edition in 2012. The *Toolkit 2.0* is a comprehensive collection of online tools to help individuals and organizations understand local impacts of the climate and energy crisis in their region and what they can do about them. The tools are for individuals, community groups, teachers, and municipal planners.

### **Breakthrough Communities**

*Advocacy for social justice and climate justice*

**Location:** Bay Area

The Oakland-based Breakthrough Communities Project, sponsored by the Earth House Leadership Center, focuses on sustainability and social justice issues. Breakthrough Communities worked with other California organizations to produce “Six Big Wins for Social Equity” in the state’s landmark SB 375 legislation. This includes:

- Clean Air and Healthy Communities
- Investment Without Displacement
- Affordable Housing
- Reliable Public Transit
- Economic Opportunity
- Community Power

### **Brightline Defense Project**

*Energy and sustainability in low-income communities and communities of color*

**Location:** Bay Area

Founded in San Francisco in 2005, Brightline is a policy advocacy organization that works to promote sustainability in vulnerable communities. Focus is on quality-of-life improvements in low-income communities and communities of color, particularly those historically polluted by dirty power plants. Program areas include renewable energy, environmental justice, green jobs, and local hiring. Brightline has worked on the Potrero Power Plant campaign, GoSolarSF and other local efforts.

### **Climate Protection Campaign**

*The pioneering non-profit model for climate protection in the Bay Area*

**Location:** Sonoma County

For more than a decade, the award-winning CPC has provided strong climate leadership, resources, and advocacy for Sonoma County by working in partnership with governments, businesses, youth and the broader community. Under leadership from the CPC, Sonoma's nine cities, the County, and a coalition of diverse stakeholders produced a comprehensive and detailed Climate Action Plan in 2008 with one of the toughest GHG reduction goals in the country—25% below 1990 levels by 2015. Strategies in the plan were designed to reach measurable targets for each sub-area, a key ingredient often missing in local climate action plans.

Over the past few years, the CPC has provided major support for the development of a wide range of Sonoma climate programs, including Sonoma Clean Power, energy efficiency programs, and schools-based projects. It has also developed a countywide GHG reduction scorecard and helped secure funding. Currently, a CPC-led project is documenting best practices around the country for climate protection.

### **Climate Readiness Institute**

*Berkeley, Stanford, Davis and LBL working jointly with Bay Area practitioners*

**Location:** Bay Area

The Climate Readiness Institute was created in February 2014 to bring together academic experts and practitioners from government, business, and the non-profit sector to tackle the most important Bay Area climate challenges. The specific mission is to develop, in partnership with concerned policy makers and business leaders, the cutting-edge climate science, adaptation strategies, and mitigation tools needed to ensure a resilient, low carbon Bay Area and beyond.

The CRI is addressing four topic areas: Flooding (sea level rise, storms, king tides), water supply, climate impacts on natural systems, and greenhouse gas emissions reduction. Each of these topic areas will be examined through the lenses of equity, governance, and the economy.

### **Communities for a Better Environment**

*Climate justice in California*

**Location:** Bay Area

CBE is committed to climate justice—policies that combat climate change and sustain, protect and support communities around the world. CBE works with California communities that are living with the effects of local pollution. Through its clean energy work, CBE is working to help California transition away from reliance on fossil fuels,

toward an energy system that is a renewable, rather than one that causes global warming, hastening climate impacts.

### **Community Food and Justice Coalition — Climate Change**

*Food, public health, and climate change*

**Location:** Bay Area

CFJC is an Oakland-based organization whose climate work focuses on the nexus of food and nutrition, public health, and the effects of climate change on the most vulnerable communities. The health effects of climate change disproportionately impact low-income communities and people of color, acting as a stress multiplier in communities with already high burdens of disease and food insecurity. For this reason, CFJC provides support to community groups and partner organizations working to build a movement for climate change resiliency by encouraging individual actions, reinforcing community networks, raising awareness, and advocating for policies that promote sustainability.

### **Contra Costa County Climate Leaders (4CL)**

*A model nonprofit advocacy and organizing resource for Contra Costa cities*

**Location:** Contra Costa County

4CL is a network assisting the county and its 19 cities to inform, support and encourage climate change strategies for both GHG reduction and adaptation. The network facilitates countywide action by monitoring and documenting climate activities, providing free resources and tools, and operating a multimedia communications strategy that ensures best practices are shared and implemented.

4CL's website includes an interactive "local actions map" that details climate actions and specific accomplishments for each of Contra Costa's 19 cities providing a user-friendly way to share best practices. 4CL also provides regular workshops on specific climate and resiliency issues that are a priority in Contra Costa County. All workshops feature peer-to-peer discussions and opportunities for local governments to share lessons learned. Recent workshop topics include: Resilient Cities, Climate Change and Health, Water Conservation, Residential Energy Financing, GHG Inventories, and Reducing VMT.

### **Environmental Justice Coalition for Water**

*Democratic water allocation, management and policy*

**Location:** Bay Area

EJCW is statewide coalition of grassroots groups and intermediary organizations building a collective, community-based movement for democratic water allocation, management, and policy development in California. EJCW empowers low-income communities and people of color to advocate for clean, safe, and affordable water for their communities. EJCW envisions all communities throughout California having access to safe and

affordable water, clean rivers, streams, and bays for personal, cultural, ceremonial, and recreational uses. EJCW plays a strong bridge-building role by connecting grassroots communities and statewide policy advocates across California. By connecting its members to each other and potential allies throughout the state, as well as tackling structural inequity in how California's water resources are managed, EJCW is building a broad movement for water justice.

### **Greenaction for Health and Environmental Justice**

*Climate justice and community resilience*

**Location:** Bay Area

Greenaction works locally, regionally and nationally on environmental and climate justice, community resilience and health, and for clean, renewable energy and just solutions to the climate crisis.

Greenaction's Bay Area climate justice and resilience work includes campaigns in Bayview Hunters Point, Richmond, Berkeley and San Leandro, including mobilizing opposition to rail transportation of crude oil from fracking and tar sands through local communities. Greenaction serves on the steering committee of the Resilient Communities Initiative. Greenaction's Diesel Education and Emissions Reduction Project is a community-based, multi-stakeholder effort that has been successfully implemented in Bayview Hunters Point and in Kettleman City and Kings County in the San Joaquin Valley.

### **Greenlining Institute — Climate Change**

*Climate and energy program benefits for ALL*

**Location:** Bay Area

The Greenlining Institute works on a number of climate and energy programs to make sure that ALL Californians benefit from new clean and green strategies, especially low-income households in communities highly impacted by air pollution. Their report, *Electric Vehicles: Who's Left Stranded*, identified obstacles to the adoption of electric cars and trucks in communities of color. They are now working statewide on incentives and policies to address these obstacles, including car sharing, financing options, and charging infrastructure for multi-unit residential developments. Brightline staff were key players in the successful legislative fight to allocate \$\$ from California's cap and trade program to areas that are disproportionately impacted by pollution and suffering from unemployment and other economic problems.

### **Joint Venture Silicon Valley Public Sector Climate Task Force**

*Cross sector collaboration for cost effective climate solutions*

**Location:** San Mateo and Santa Clara counties



Formed in May 2007, the Joint Venture Public Sector Climate Task Force develops collaborative solutions for the reduction of greenhouse gas emissions from public agency operations. It also provides a neutral forum for cities, counties, and special districts to learn from each other.

The Task Force recently completed Phase 1 of a multi-agency procurement of solar power for local agencies using Power Purchase Agreement financing. The project will generate more than 14 megawatts of power at peak capacity – in total, these sites will more than double the entire solar installed capacity for nonresidential systems in Santa Clara county. The Task Force includes representatives from each city, town and county in Silicon Valley, plus several special districts and other public agencies. The group also includes advisory members from local organizations working on sustainability and energy conservation and several affiliate members from for-profit companies in relevant sectors.

### **Marin Climate & Energy Partnership**

*Staff-level coordination and strategy development for climate change*

**Location:** Marin County

Founded in 2007, the Marin Energy & Climate Partnership (MCEP) brings together the eleven Marin cities and towns, the County of Marin, the Transportation Authority of Marin, and the Marin Municipal Water District. The partners are working together to reduce greenhouse gas emissions and build resilience.

In six years, MCEP has helped develop greenhouse gas inventories and climate action plans for member cities, and helped local governments to implement green building regulations, electric vehicle charging stations, LED streetlights, zero waste initiatives, and green purchasing policies. MCEP is now developing a “resilient neighborhoods project” modeled on the Low-Carbon Diet program. The basic MCEP approach is to develop a key topic at MCEP and then each city takes it back to its officials and constituents. MCEP is funded by BAAQMD, the Marin Community Foundation, Marin Energy Watch Partnership, and annual dues (\$2,000 from each city), and other sources.

### **Movement Generation Justice and Ecology Project**

*Resilience-Based Organizing*

**Location:** Bay Area

The Movement Generation Justice and Ecology Project uses Resilience Based Organizing (RBO) to build the capacity of communities to be responsive to changing conditions, both economically and ecologically. In RBO, people work together to directly meet their needs through shared work, democratic self-governance and, ultimately, confronting and transforming unjust policy as a critical ingredient for ecological restoration and community resilience. Movement Generation has begun catalyzing this form of power

building with collaborative partners in the Bay Area including Urban Tilth in Richmond and People Organized to Demand Environmental & Economic Rights (PODER) in San Francisco.

## **Oakland Climate Action Coalition**

*Model for community-based organizations in climate action planning*

**Location:** Alameda County

Between 2009 and 2011, the Oakland Climate Action Coalition (OCAC) organized unprecedented community participation to help the City of Oakland develop one of the most comprehensive and bold climate action plans in the Bay Area. Oakland's Energy and Climate Action Plan (ECAP) outlines 150 actions the city should take to reduce emissions to the adopted goal of 36% below 2005 levels by the year 2020 and 85% below 2005 levels by 2050 and includes an adaptation section with four strategies to address sea level rise and other climate impacts. The ECAP includes a long-term plan for the next 10 years and a short-term plan for the upcoming three years. Originally led by the Ella Baker Center, the OCAC currently involves more than 30 diverse community organizations.

In 2012, the OCAC's Resilience and Adaptation Subcommittee partnered with the Pacific Institute on the study *Community-Based Adaptation Planning: Case Study of Oakland CA* for the state's climate research program. The goal of the study was to inform the development of equitable adaptation planning efforts by engaging community-based organizations in analyzing both the impacts of, and social vulnerabilities to, climate change. The study report outlines adaptation strategies that can be implemented at the local level, discusses their advantages and disadvantages, and identifies social equity concerns.

## **POWER**

*People Organized to Win Employment Rights*

**Location:** Bay Area

San Francisco-based POWER, first organized in 1997, is racial justice organization led by low-income people whose mission is to win economic, environmental, racial and gender justice for all. POWER's Transit to the People project organizes African American, Latino, and low-income youth and adult transit riders to shift local, regional and national mass transit priorities towards the needs of working class communities of color. POWER was instrumental in successful San Francisco campaign that produced the Free Muni for Youth pilot project in 2013-14.

## **Resilient Neighborhoods**

*Taking the Low-Carbon Diet to Marin neighborhoods*

**Location:** Marin County

Resilient Neighborhoods is the delivery vehicle for household climate action in Marin County, where 60% of the carbon emissions come from residents. The fun, free, team-based program has been successful in helping 400 people go on a 'low-carbon diet' to reduce 2.1 million pounds of carbon. Resilient Neighborhoods makes it easy and

practical for people to reduce energy and waste, curtail water use, make smarter purchases and create more efficient homes. Resilience is created through the climate adaptation part of the program.

The program helps families prepare for emergencies, build neighborhood social infrastructure and support strong local economies and food production. Teams form in neighborhoods, homeowner associations, places of worship, businesses and even high schools. With the data collected on actions taken, RN partners with cities, towns and the county to help implement the residential portion of their climate action plans, meet zero-waste goals and reduce water consumption.

### **SPUR**

*Bay Area leading planning and advocacy organization*

**Location:** Bay Area

Through research, education and advocacy, SPUR promotes good planning and good government in the San Francisco Bay Area. Members include individuals, nonprofits and private sector companies whom SPUR works to bring to together to develop solutions to issues ranging from community and disaster planning to housing and sustainable development. SPUR has worked on climate change issues for a number of years including publishing “Climate Change Hits Home,” “Critical Cooling,” “Sea Level Rise and the Future of the Bay Area,” and “Strategies for Managing Sea Level Rise.”

### **West Oakland Environmental Indicators Project**

*Building a model for community-level climate organizing*

**Location:** Alameda County

The WOEIP is a West Oakland-based environmental justice organization working to create healthy homes, healthy jobs and healthy neighborhoods for all who live, work, learn and play in the community. Through Community-Based Participatory Research projects and their Collaborative Problem-Solving Model, WOEIP builds community empowerment and helps local residents achieve their own vision for healthy neighborhoods. WOEIP played a key role in the development of the 2012 Pacific Institute study *Community-Based Adaptation Planning: A Case Study of Oakland California*.

### **Youth United for Community Action (YUCA)**

*Young people taking charge in their communities*

**Location:** San Mateo County

Youth United for Community Action (YUCA) is a grassroots community organization, with a major focus on East Palo Alto, that has been created, led, and run by young people of color from low-income communities. YUCA helps young people to empower themselves and to work on environmental and social justice issues to establish positive

systemic change through grassroots community organizing. In 2013, YUCA organized a “community visioning fair” where youth envisioned an East Palo Alto that would protect affordable housing, promote environmental justice and climate change, and preserve the community for the low-income residents.

#### **F4. Initiatives That Engage the Private Sector**

##### **Association of Climate Change Officers (ACCO)**

*Advancing cross-sector climate efforts across the globe*

**Geographic Focus:** International

**Bay Area Private Sector Members Include:** Microsoft, CH2MHill, SAP, IBM, Wells Fargo

The Association of Climate Change Officers defines, develops and supports the functions, resources and communities necessary for effective organizational leadership in addressing climate-related risks and opportunities. ACCO produces industry-leading education and training events and helps organizations develop best practices for climate-related response strategies. ACCO members include public and private corporations, municipal, state, regional and Federal governmental organizations, colleges and universities and nonprofit organizations.

##### **Bay Area Climate Collaborative**

*Breaking down regional barriers to accelerate the clean energy market*

**Geographic Focus:** Santa Clara County – Silicon Valley

**Bay Area Private Sector Members Include:** Bank of America, Microsoft, Pacific Gas & Electric, Lockheed Martin

The Bay Area Climate Collaborative was launched in 2009 with a vision to enable a healthy, safe and globally competitive Bay Area through collaborative action on climate change. The BACC works to rapidly scale the clean energy economy through market acceleration initiatives, drive down the deployment cost of clean energy so economic benefits accelerate adoption and to leverage cross-sector collaboration by creating strategic alignment.

##### **Bay Area Council**

*Providing leadership and public policy advocacy since 1945*

**Geographic Focus:** Regional – Bay Area

**Bay Area Private Sector Members Include:** AT Kearny, ARUP, Citi, Safeway

The Bay Area Council is a business-sponsored, public policy advocacy organization for the nine-county Bay Area. The Council proactively advocates for a strong economy, a vital business environment, and a better quality of life for everyone who lives here.

Today, more than 275 of the largest employers in the region support the Bay Area Council and offer their CEO or top executive as a member. The Bay Area Council advocated for the development of AB 32, California's landmark climate change law. BAC also focuses specifically on climate issues relevant to transportation and water including improving regional defenses against extreme weather events.

### **Business Council on Climate Change (BC3)**

*Identifying climate change issues in San Francisco that require collaborative action*

**Geographic Focus:** San Francisco

**Bay Area Private Sector Members Include:** Wells Fargo, New Resource Bank, CH2MHill, Pacific Gas & Electric

The Business Council on Climate Change (BC3) was founded on the idea that realizing cities' potential as hubs for climate action depends on engaging organizations from all areas of urban life. The BC3 network includes more than 100 San Francisco-based organizations, spanning the public, private, non-profit, and philanthropic sectors. BC3 works to identify parts of the climate change problem that call for collaborative action. It brings powerful but traditionally isolated institutions together around the same table to develop model solutions and measure the impact of solutions over time. BC3's staff and advisors identify opportunities for action, leverage funding, and coordinate the network. Member organizations set overarching priorities and take the lead in implementing particular projects.

### **Business for Social Responsibility (BSR)**

*Working with businesses across the globe to share best practices and implement solutions*

**Geographic Focus:** International

**Bay Area Private Sector Members Include:** Adobe, Autodesk, Bank of America, Yahoo! Inc.

Business for Social Responsibility's mission is to work with business to create a just and sustainable world. BSR works to catalyze change within business by integrating sustainability into strategy and operations, and to promote collaboration among companies and their stakeholders for systemic progress. BSR has over 250 private sector members worldwide and provides sector specific resources, educational and collaborative opportunities and sustainability consulting services.

### **GreenBiz Executive Network**

*Peer to Peer networking for Corporate Social Responsibility leaders*

**Geographic Focus:** International

**Bay Area Private Sector Members Include:** Adobe, Microsoft, Genentech, Wells Fargo

The GreenBiz Executive Network (GBEN) has been developed to provide an opportunity for green executives and professionals to meet with peers to gain guidance and insight for better decision-making. GBEN members are those responsible for taking their company's sustainability efforts to a higher level of performance. GBEN members are typically executives responsible for their company's sustainability and environmental programs and member meetings are designed to be participative, member-led, and highly interactive. GBEN provides you with the best current thinking on green and sustainability

in the corporate setting. The topics, research, and activities undertaken by the network are determined by the members themselves, based on their questions, interests, and needs.



### **Joint Venture Silicon Valley (JVSV)**

*Strategic networking and partnership development for sustainable solutions*

**Geographic Focus:** Santa Clara County – Silicon Valley

**Bay Area Private Sector Members Include:** CBRE, Adobe, Agilent Technologies, Applied Materials

Established in 1993, Joint Venture Silicon Valley provides analysis and action on issues affecting our region's economy and quality of life. The organization brings together established and emerging leaders—from business, government, academia, labor and the broader community—to spotlight issues and work toward innovative solutions. Climate focused initiatives include the Smart Energy Enterprise Development Zone (SEEDZ) and renewable energy procurement projects (SV-REP and R-REP) with the goals of expanding and accelerating deployment of solar installations throughout the Bay Area.

### **Sustainable Silicon Valley (SSV)**

*Education and collaboration to create market demand for economic and environmental sustainability*

**Geographic Focus:** Santa Clara County – Silicon Valley

**Bay Area Private Sector Members Include:** Genentech, Cisco, AMD, Google

Sustainable Silicon Valley is a consortium of companies, governmental entities, academic and research institutions and non-profit organizations that work together to inspire collaboration, accelerate innovation, and encourage economic prosperity for a sustainable future. SSV connects businesses, innovators and policy makers, to drive implementation and growth of the clean, regenerative economy. SSV's programs educate, facilitate interaction among diverse stakeholders and invite collaboration to identify, improve, innovate and implement practical solutions for regional and global sustainability. By elevating market readiness, SSV helps create demand for sustainable solutions and stimulates the transition to a regenerative economy.