CALIFORNIA REGIONAL CLIMATE ADAPTATION INITIATIVE

Understanding Climate Change in the Bay Area; What Your Organization Can Do About It

By taking action today, the San Franciso Bay area can move towards a healthier, more prosperous and sustainable future.

Why address climate change? What's the threat?

Changes in global and local temperatures depend on the accumulation of carbon dioxide and other heat-trapping gases emitted from human activities into the atmosphere. The accumulation of greenhouse gases (GHGs) could be high (harming human health) or low (reducing health risks). The direction on climate impacts depends on the success of both international and local efforts to reduce GHG emissions.

Climate Resolve

Innovate. Advocate. Achieve. Together.

How will the San Francisco Bay area be impacted by climate change?

SAN FRANCISCO BAY AREA IS WARMING. By mid-century (2041-2060) the San Francisco Bay area will likely warm by 4°F to 5°F above historic climatic temperatures.[1]

OUR HEALTH IS IN THE BALANCE. Longer and more frequent high-heat days will increase the number of heat-related illnesses, such as heat stroke, heat cramps, heat exhaustion, and dehydration, as well as other illnesses and premature deaths. Mortality risk for those 65 or older could increase ten-fold by the 2090s.

THE PACIFIC OCEAN WILL RISE. Sea levels are projected to continue rising in the future. End-of-century sea level rise in the San Francisco Bay will see at minimum 2.5 feet (50th percentile) to upwards of 4 feet. Much of the Bay Area's transportation system — airports (including SFO), roads, and railways — is concentrated along the Bay and thus vulnerable to flooding from sea level rise and storm surge.

WATER WILL BECOME MORE ACIDIC. Coastal waters of California are acidifying twice as fast as the rest of the oceans around the world. Roughly 27% of all carbon dioxide emitted since 1959 has gone into the Pacific Ocean off the California coast. The steady rise of carbon dioxide will lower the pH of freshwater streams, lakes, and rivers, which will affect marine species and the Bay-Delta ecosystem.

SHIFTING PRECIPITATION IS EXPECTED. In the San Francisco Bay area, higher extreme rainfall will cause more surface runoff and less groundwater recharge. Percent increases in the largest precipitation events (measured in inches of rain per day) range from 6% to 37% by end-of-century. Imported water from the Sierra Nevada and Cascade regions will become less reliable due to a declining snowpack and earlier seasonal runoff.

1 All citations are from Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley). 2018. San Francisco Bay Area Summary Report. California's Fourth Climate Change Assessment. Publication number: CCCA4-SUM-2018-005.

WE ANTICIPATE MORE DESTRUCTIVE WILDFIRES. Frequent and sometimes large wildfires will continue to be a major disturbance. Ongoing expansion into the wildland urban interface will continue to increase wildfire risks to communities. The North Bay counties (Santa Rosa, Sonoma, Napa County) will be most at risk of wildfires, while the urban population will be vulnerable to smoke inhalation and poor air quality.

FLOODING WILL BE A BIGGER PROBLEM. The projected increase in precipitation extremes, alone and in combination with the projected increase in wildfires, creates increased potential for floods and mudslides.

DROUGHTS WILL WORSEN. Droughts will become more severe due to rising temperatures, increased evaporation and decreasing soil moisture.

WAIT — THERE'S GOOD NEWS. Within the San Francisco Bay area, county and local governments have made progress to reduce greenhouse gas emissions and make plans to adapt to climate change. Plans include: Alameda County Community Climate Action Plan (2014), City of San Francisco's Sea Level Rise Vulnerability and Consequences Assessment (2020), City of San Francisco's Focus 2030: A Pathway to Net Zero Emissions (2019), City of San Francisco's Resilient SF plan (2016), and City of Santa Rosa's Climate Action Plan (2012), South Bay Regional Collaborative - Resilient by Design - Adapting to Rising Tides - Raising the Bar. Each plan includes actions on climate mitigation and adaptation that aim to reduce the region's vulnerability to climate change hazards while bolstering the region's readiness to face unavoidable climate impacts.

ACTION(S) TAKEN

Although the San Francisco Bay area will be impacted by a changing climate in many ways, the region already has specific plans in place to address those impacts with innovative solutions that will create more livable cities for everyone. There are two pieces of legislation and one executive order that drive climate action in California.

- **Senate Bill 32 (2016)** requires California Air Resources Board (CARB) to reduce greenhouse gas emissions to 40% below 1990 levels by 2030.
- **Senate Bill 100 (2018)** commits California to achieving 100% renewable energy by 2045.
- **Executive Order B-55-18** commits California to achieving carbon neutrality in every sector by 2045.

On the regional level, cities and counties have identified actions and set targets to reduce GHG emissions and address climate change impacts. Highlighted actions include:

- **The San Francisco Estuary Institute (SFEI)** released the Wetland Regional Monitoring Program Plan (2020) to improve wetland restoration project success by putting in place regional scale monitoring to inform science-based decision-making. Wetlands provide many solutions to climate change challenges, including potential carbon storage, migration corridors for wildlife, groundwater recharge, and for flood management. SFEI will leverage monitoring data to respond and adapt to climate challenges and help support a more resilient Estuary.
- **The City of San Francisco's Board of Supervisors (2020)** voted to phase out natural gas in new and significantly renovated city buildings. Since natural gas represents 99% of greenhouse gas emissions from municipal buildings, reducing the city's natural gas use serves as a major step towards San Francisco's emissions reduction goals.
- **Marin County's heralded MCE** is California's first and largest community choice energy (CCE) program. It supplies over 470,000 customer accounts and more than 1 million residents and businesses in 34 member communities with electricity that ranges between 60-100% clean and renewable energy.
- **Alameda County's Green Building Ordinance (2009)** promotes practices that will reduce water and resource usage, reduce waste, and increase energy efficiency in the construction or remodeling of residential and nonresidential structures.
- **The South Bay Regional Collaborative (2004)** works to address the challenges facing the San Francisco Bay area and improve the quality of life for all Bay Area residents.
- **The City of Santa Rosa (2019)** passed a reach code that requires residential construction of homes three stories or fewer in the City to be all electric to reduce greenhouse gas emissions.

DEFEND CLIMATE PROGRESS. These climate action policies often come under attack from fossil fuel and other corporate interests. Above all else, the state's existing climate policies need to be defended.

NEXT STEPS. Here are some actions that you can take right now to prepare for the impact of climate change in the Bay Area.

- **THE MAIN PROBLEM . . . WELL, IT'S CARS.** The leading source of greenhouse gas emissions in California is from the transportation sector. How do we reduce those emissions? First, by building affordable housing near public transit, and by creating neighborhoods that promote biking, scootering and walking. Another essential climate strategy is to encourage transition to electric and hydrogen-fueled vehicles.
- **COOL DOWN NOW.** In select climate zones deploy "cool roofs" — cool roofs protect people working or living indoors, reduce energy consumption and even reduce smog.
- **MORE TREES PLEASE.** Plant more trees in and around your home — trees provide shade, cool the city, and clean the air you breathe. Plus, when planted at home, they can reduce utility bills. Some trees are provided free-of-charge by municipalities and utilities.
- **WATER IS LIFE.** Take advantage of free water conservation initiatives provided by SFPUC, East Bay MUD and other water utilities — these projects can not only lower water bills, they also save greenhouse gas emissions and build resilience within communities.
- **EMBRACE LOCAL FLORA.** Convert grass lawns to native species with a turf replacement program. California-friendly landscaping conserves water, saves money on utility bills, and creates a wildlife-friendly environment. Turf conversion programs are often provided by many local water utilities.

There are many cost effective strategies that Californians can adopt around the home that can improve their quality of life and help with climate change.

- **APPLY SMARTS TO APPLIANCES.** Large appliances can be the biggest energy users in a household. Homeowners can make sure their air-conditioners and heaters are working efficiently. Taking care of these appliances can save residents money, energy, and ensure comfort on days with extreme weather. Local utilities may help you recycle old appliances, and in some cases, replace them with new, energy efficient ones.
- **ENERGY EFFICIENT HOMES.** Make use of local utility programs that can help assess energy savings opportunities for your home. For example, PG&E offers the Energy Savings Assistance Program which will inform you of essential actions that you can take to make your home more energy efficient. Community choice utilities also offer efficiency incentives.
- **SMART SHOPPING.** The PG&E Marketplace can show you the best and most efficient products for your home. From air purifiers to pool pumps, find appliances that will help lower your carbon footprint and save you money.

- **EFFICIENCY PAYS DIVIDENDS.** Energy efficient light bulbs and appliances may be eligible for rebates. They lower utility bills and a household's carbon footprint.
- **COMMUNITY CHOICE ENERGY.** These Bay Area utilities allow households to purchase 100% renewable energy thereby lowering greenhouse gas emissions.
- **CAPTURE AND STORE RAINWATER.** Local and state water utilities offer programs to subsidize purchases of water storage barrels and cisterns that can store up to 1,000 gallons of water. According to the American Rainwater Catchment Systems Association, a house with a 1,500-square-foot roof in an area that receives 12 inches of rain a year (SF averages 24-25 inches) could collect 10,800 gallons of water in a year.

In the face of pandemics and other threats, climate solutions can also foster greater social connection and community resilience at-large.

- **ORGANIZE THE NEIGHBORHOOD.** Climate action starts when community members organize, educate their neighbors, and unite around common principles. Neighbors learn about each other's needs and priorities, about where their resources come from, about how their local economies are run. They learn the power of their collective voice and the importance of knowing their neighborhood and their neighbors.
- **GROW A CIVIC CULTURE.** Spaces such as libraries, senior centers, rec centers, and pools serve as designated areas to protect and assist the public in times of need.
- **COOLING AND RESILIENCE CENTERS.** For inland parts of the Bay Area, places such as libraries, senior centers, rec centers, and pools may serve as designated areas to protect and assist the public in times of need.

- **REVITALIZE GREEN SPACES.** Green spaces in urban areas are a key component to tackling climate change. The region's renowned parks serve as cooling centers, spaces for wildlife, and places for community connection. Plus, as we are experiencing during the current pandemic, natural urban spaces are one of the few places where people can commune safely.
- **PROTECT NATURE.** Finally, the Bay Area is famous for its natural beauty, which is accessible to families, outdoor enthusiasts, or anyone who wants a breath of fresh air amongst the redwoods or along the coast. Protecting this is incredibly valuable for its own sake, let alone from a climate resilience or mitigation perspective.

More about CCEDA and Climate Resolve

CCEDA is comprised of organizations actively engaged in revitalizing California's neighborhoods and its members produce results through a full range of community building strategies including real estate development-housing, retail and commercial-business assistance and lending, social services, and job training and creation. Additionally, CCEDA provides its members a clearinghouse for information and action that advances the field of community economic development.

Climate Resolve builds collaborations to champion equitable climate solutions. We connect communities, organizations and policymakers to address a global problem with local action. We inclusively develop practical initiatives that reduce climate pollution and prepare for climate impacts. Our purpose is a just and resilient future.

For more information on climate leadership in your community contact the California Community Economic Development Association:

244 San Pedro St # 412,
Los Angeles, CA 90012

cceda.com | (213) 625-0105

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