

Marin County Climate Adaptation/Resilience Snapshot
Compiled by the Bay Area Climate & Energy Resilience Project (BACERP)
March 2014

This summary memo is based on input from Marin County climate stakeholders. The information was gathered via phone, email, web search, and an in-person group meeting co-hosted by the Marin Climate & Energy Partnership in December 2013. The information is presented in four sections:

- County-Level “Spotlight” Adaptation & Resilience Initiatives
- Climate Planning Activities
- Current Structure for Coordination Among Cities
- Resources and Assistance To Accelerate Action

I. County-Level “Spotlight” Adaptation & Resilience Initiatives

Across the Bay Area, government, non-profit and private sector stakeholders are developing and implementing programs that address climate impacts (e.g., sea level rise, extreme storms, fire, heat) and build community resilience. Some are called “climate adaptation” projects, while others focus on health, transportation, or land conservation, but provide substantial climate adaptation or resilience co-benefits.

Whatever they are called, these efforts are increasingly mainstreaming climate issues into community planning and making our cities more prepared for the physical, economic, and social impacts of climate change. Importantly, a number of these programs can provide a wonderful double-benefit, by building local resilience AND reducing greenhouse gas emissions.

For example, in Marin County:

- The Marin Municipal Water District is working with customers on water conservation and efficiency programs to address drought and has commissioned detailed studies of future rainfall patterns.
- The Marin Energy Watch Partnership is providing assistance and incentive funding to help residents and businesses reduce their energy needs.
- The Transportation Authority of Marin, Marin County Bicycle Coalition, WalkBikeMarin, and other groups are building out transit, bike, and walk programs that will help residents withstand energy price shocks and shortages.
- Health advocates are working with the statewide Cal-BRACE program to quantify the climate benefits of various health strategies.
- Marin businesses are reviewing supply chains and markets beyond the Bay Area to identify potential vulnerabilities from extreme storms.
- Strategic Energy Innovations (SEI) has partnered with the Marin Energy Management Team (MarinEMT) of the County of Marin to help Marin school

districts maximize the financial, environmental, and learning outcomes of their Proposition 39 investments.

At the same time, there are a growing number of region-wide, climate-related initiatives such as Plan Bay Area, the Bay Area Ecosystems Climate Change Consortium, PG&E's infrastructure protection work, the Integrated Regional Water Management Plan, TBC3's fine-scale hydrology mapping for land managers, the Bay Area Council's extreme storm study, Bay Localize's Community Resilience Toolkit 2.0, BayREN (energy efficiency), Cal-BRACE (health), and the Baylands Ecosystem Habitat Goals Project. (These regional efforts are outside the focus of this county-level report.)

Within this broad and growing climate context, we have selected 5 Marin climate adaptation and resilience initiatives to "spotlight" as notable examples of *county-level innovation* and *leadership*. These are described below with the hope that they will inspire and inform stakeholders in counties across the region. (Note: For accuracy, we have used language from project web sites where possible.)

Web links are provided for each spotlight initiative. To learn more, including project contact info, email the BACERP staff — Bruce@bayareaajpc.net or Aleka@bayareaajpec.net.

Marin Climate & Energy Partnership

Staff-level coordination and strategy development for climate change

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.

Marin Clean Energy

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

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.

Marin County Coastal/Bayside Flooding Projects

Leadership on protection from sea level rise and extreme storms

Marin County and various regional/local partners are conducting an impressive number of projects to address sea level rise and extreme storms. These include:

- *Collaborating on Sea Level Rise: Marin Adaptation Response Team (C-SMART)*. \$200,000 grant recently awarded to the county by Ocean Protection Council to help fund a project to 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.
- County leaders are developing a sea level rise project in southern Marin that uses a grassroots, multi-stakeholder approach modeled on BCDC's Adapting to Rising Tides project in Alameda County.
- *Innovative Wetland Adaptation Techniques in Lower Corte Madera Creek Watershed* is a collaborative, pioneering effort by BCDC, Marin County, USGS, UNESCO-IHE, and University of San Francisco that 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. Funded by San Francisco Estuary Partnership and the US EPA.
- *Shore-Up Marin*. This project by Marin Grassroots works with vulnerable communities in Marin to learn their primary concerns about sea level rise.

The project hosted 3 community meetings to identify a list of concerns, which will be compiled and released in report form on Earth Day in April 2014.

- *Flood Control 2.0* is a regional demonstration project on three creeks including Novato Creek in Marin that is developing a set of innovative approaches to bring environmental benefits and cost-savings to flood protection infrastructure along the bay shoreline. 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, and sediment redistribution for highly constrained channels. The project uses an interdisciplinary team linking regional science expertise with on-the-ground flood control agencies. Funded by the San Francisco Estuary Partnership and US EPA.
- *Aramburu Island Coarse Beach Restoration* is a \$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.
- *SF Bay Living Shorelines Project* is using engineered oyster reefs and eelgrass beds to restore habitat and attenuate wave energy to reduce erosion. This project, led by the California Coastal Conservancy, is currently testing various reef approaches in San Rafael on property owned by the Nature Conservancy. This type of habitat supports many species of invertebrates, fish, and water birds.

Marin Carbon Project

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

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 CO₂ 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.

Preparing for Climate Change with Scenarios: A Marin County Case Study

Scenario planning to deal with climate uncertainty

“The Futures of Wild Marin,” was a unique and compelling one-day workshop using climate scenario planning, conducted by Climate Adaptation Consultant Sara Moore, working with Marin conservation managers. The purpose was to help stakeholders deal with the uncertainty surrounding future climate change in Marin.

Scenario planning is a decision-support tool which incorporates the best available information on climatic and socio-economic trends to create multiple, plausible future scenarios. The workshop found that the planning approach most helpful to resource managers may be a hybrid, using scenario planning in conjunction with iterative, adaptive management and inter-agency collaboration.

The workshop and related research are reported in “*Decision-Making Under Uncertainty: An Assessment of Adaptation Strategies and Scenario Development for Resource Managers*,” produced for the state PIER program in 2012.

II. Climate Planning Activities

A. Climate Action Plans

Climate Action Plans (CAP's), completed by more than 40 Bay Area cities, set goals and strategies for greenhouse gas (GHG) emissions reduction. Recently, some cities have also begun to include climate adaptation strategies in their CAP's that address heat, sea level rise, extreme storms, higher fire risk, and other climate impacts. The chart below provides key information on Marin climate action plans.

Climate Action Planning Activity			
City/Town	Adopted CAP	GHG Reduction Goal	Adaptation Section in CAP
Belvedere	Yes	15% below 2005 by 2020	Highlights local impacts and recommends partnering with regional agencies to develop regional adaptation programs ¹
Corte Madera	No	-	-

¹ <http://www.cityofbelvedere.org/DocumentCenter/Home/View/508>

Fairfax	No	-	-
Larkspur	Yes	15% below 2005 by 2020	-
Mill Valley	Pending	15% below 2005 levels for community emissions and 20% below 1990 levels for municipal emissions	Includes chapter on adaptation that outlines 6 specific goals by impact ²
Novato	Yes	15% below 2005 by 2020	-
Ross	Yes	15% below 2005 by 2020	-
San Anselmo	Yes	15% below 2005 by 2020	Includes brief section on adaptation and recommended actions ³
San Rafael	Yes	25% below 2005 levels by 2020	Includes measures related to monitoring sea level rise and carbon sequestration ⁴ -
Sausalito	No	-	-
Tiburon	Yes	15% below 2005 by 2020	Includes brief section on adaptation and recommended actions ⁵
County unincorporated areas	No	15% below 1990 levels	-

B. Other Climate Planning

Marin County was one of the first counties in California to include GHG reduction goals (15% below 1990 levels by 2020) in its general plan, the Marin Countywide Plan, adopted in 2007.

III. Current Structure for Coordination Among Cities

Marin Climate & Energy Partnership convenes cities with the County and other climate partners. (See description in Section I)

² <http://www.cityofmillvalley.org/Index.aspx?page=1028>

³ [http://www.townofsananselmo.org/documents/3/33/CAP-San%20Anselmo-Final\[1\].PDF](http://www.townofsananselmo.org/documents/3/33/CAP-San%20Anselmo-Final[1].PDF)

⁴ <http://docs.cityofsanrafael.org/CityMgr/Climate%20Change%20Action%20Plan%20-%20Final.pdf>

⁵ http://www.marinclimate.org/sites/default/files/documents/tiburon_climate_action_plan.pdf

IV. Resources and Assistance to Accelerate Action

Note: The bold headings describe common themes from the stakeholder discussions. The bulleted items are opinions expressed by individuals.

BACERP staff asked Marin stakeholders to identify and discuss what services or products would be most helpful to advancing their climate work. This could include assistance and resources provided by a proposed regional climate adaptation “hub.” Marin stakeholder input is summarized below (grouped but unranked).

Help Us Identify and Secure Resources So We Can Implement Strategies in Climate Plans.

- Although we have many CAP's and other plans, cities have little or no money to actually implement climate projects and programs – need more funding for implementation.
- If local agencies are going to lead or play a major role on climate action, they are going to need dedicated (additional) staff to design and implement programs.
- It's critical to raise consciousness with vulnerability assessments but then, what comes next? We need funding and staff resources to start taking action. We are going to have to make hard choices but we don't see a clear path or movement beyond studies to implementation at this point.
- While MCEP has done a great job over the years in terms of coordinating planning, the organization still does not have adequate funding to focus efforts on implementation.
- We would love to be able to pick up the phone and call the proposed Hub for information or assistance. However, if we still lack sufficient funding to implement projects, the Hub's services will be less helpful.

Bring Us Together with Other Counties, Regional Agencies and Stakeholders for Joint Action. Help Us Create A Common Agenda, Networks and Working Groups on Specific Topics.

- We need joint action in Sacramento for Bay Area stakeholders around a few top agenda items. We will be much more effective if every county is not trying to do this on its own.
- We need to coordinate our messages and actions statewide as our Bay Area infrastructure is connected to the rest of the state – we really are all in this together. For example, the Port of Oakland is directly tied to Central Valley

agriculture. This understanding should lead to statewide legislation or other action.

- Regional agencies need to work with us on topics of mutual interest. We could have helped with Plan Bay Area—we could have been good allies—but we weren't included.
- There's too much siloed or parallel work. We need much more coordination among groups to figure out the common agenda that we should work on together.

Facilitate New, Innovative “Creative Thinking” on Funding Strategies. This Work Requires Additional Funding. The “Usual” Funding Sources Are Not Going to Magically Expand.

- MCE has its own revenue streams via people paying their energy bills. This is a huge factor in their success. It allows them to develop and implement new programs. What other climate programs could we design that would have their own revenue streams?
- Need to identify and quantify the cost of doing nothing. We can't just look at the costs of implementing climate programs. We need to look at what counties and cities are going to eventually spend *just to fix things*. What money can we save by acting now?
- The insurance industry will be a very important and key player in coming years on the economics of climate change— we need to do more work to effectively engage them now.
- How do we shift some of the great resources and wealth in the Bay Area economy to help fund and support this critical climate work?
- How do we engage the private sector on taking more responsibility to fund projects that will protect their own assets? We need effective partnerships with them.
- Think more clearly about where money is going to be spent. For example, focus on purchases that many people will inevitably make in the next ten years like buying a new car. How do you get people to use their dollars to buy a more climate-friendly vehicle?
- Those who helped create the mess (i.e. fossil fuel industry) need to take greater responsibility for cleaning it up. We are already spending a ton of money locally to fix climate-related damages; these companies/industries should be paying their fair share.

- The Hub could work with us to see what funding is already out there and how it could be used for climate action here. For example, the Hub could explain to local officials how the state’s cap and trade revenue is being allocated and spent.
- We need to work in a coordinated approach with other counties at the state level to see how existing resources can be modified/redirected to help provide adequate funding for climate work.
- We need new partnership ideas for funding. For example, we need to bring the Marin Carbon Fund to the table.
- What are “creative” funding solutions that are used in other fields? For example, a \$500,000 loan loss reserve could allow MCE to significantly expand onsite solar.
- We must bring Marin Community Foundation back into the climate funding and leadership picture for Marin.

Provide Us with Easier Access to (Vetted) Quality Climate Information.

- We need a common place for residents and businesses to go for reliable climate data and information. There are way too many different sources of information for each of us to wade through.
- We need help to figure out what we should be doing and how to move forward without reinventing the wheel. If the Hub were able to screen/filter existing climate information/portals, this would be helpful. We need help filtering, rating and evaluating climate information. Help us find and use the quality information needed to choose strategies and take action.

Help Us To Engage The Public In A Much More Compelling And Effective Fashion. The Key To Action Is Greater Public Engagement.

- Climate work right now is siloed. Connect it with other popular activities. For example, show how energy efficiency efforts can help with emergency preparation. Connect those types of programs—they can be much more powerful together.
- We need help connecting the dots for people—health, economy, and climate change. Show how they are linked. Show more clearly how climate change is directly linked to the “things people care about.”

- There is a need for more focused public education on climate change impacts—most people don't understand how "climate change" will affect them personally.
- We have a significant problem in terms of public perception. Example – we promote wetlands restoration only as an environmental project/priority as opposed to a public safety or climate adaptation measure.
- We must develop a useable language to get away from climate jargon and acronyms. We need to promote and communicate concepts and thought bubbles that people can easily understand.
- The concept of climate adaptation is too broad and vague. Need to focus on a few compelling issues that will get the public engaged. Sea Level Rise could be a very successful and compelling issue that the whole region could rally around. We should use this to promote spending "dollar for dollar" on adaptation and mitigation efforts.
- Communication needs to be coordinated and improved. We need a policy framework that people can understand. Need to explain how laws and regulations are made and why.
- We should hold public forums called "choosing the future you want." We need to understand that Marin County will never go back to the way it was 20 years ago. We need to work towards the common goals to make Marin a better place to live.
- We need more inclusive and thoughtful community outreach to be successful—need to get broader community involved. In recent debates on housing efforts, people came out and talked about equity issues in a very powerful way and the Supervisors made the low-income housing project happen. Support was critical to countering the housing opponents who are vocal and organized. We need more of this.
- We need to remember that for most residents the work of the County is irrelevant to their everyday lives. Therefore, we need to make the connection between everyday actions and climate change much clearer and more personally relevant. Start organizing from the ground up. Then, move up to the next level. Build local trust and credibility first. Food waste is a great example of this – the challenge is making the connection between composting/creating less waste and climate impacts. We can use garbage as a way to reach out and engage people about their personal footprint.
- Communication is our biggest challenge, but we should not try to do this alone. We need countywide coordination on this. For example, we should

connect MCEP with the City Managers group to work on coordinating communication efforts. Marin County Council of Mayors could also help on this. We need to work more *together*, not just in silos.

- We need to use business networks to do outreach. There are 3 core components of this work: 1) Need coaches to hold the hands of each business through the process. 2) Need a promotional or business network to work directly with. 3) Need a valuable accreditation process.
- We need to speak specifically to the relatively affluent Marin community by making the business case for climate work. That's what most people will respond to.
- Political support can be built not by finding elected leaders to educate but by educating the public who then pressure leaders into action.

Marin Clean Energy Is A Big Success Story. Help Us To Expand MCE's Programs in Marin and Help Get New CCA's Launched Statewide.

- Need legislation to reduce the launch costs for CCA's statewide. That would turn Marin, Sonoma (SF maybe) into a large movement.
- Two big issues for MCE: 1. Regulatory hurdles at the CPUC are hindering MCE's progress. Additional costs are being shifted to MCE from PG&E. 2. Energy efficiency restructuring – we need to promote long term, deeper savings by changing the way that Total Resource Cost (TRC) is calculated by pro-rating this over many years (TRC = money spent per kilowatt-hour saved).
- All of the CAP's list getting residents and businesses to switch to MCE's Deep Green option as the most cost effective GHG reduction measure – we need to promote this and also need to work to adjust regulations so that we can build more local solar capacity.
- We should focus our efforts on getting all businesses in Marin County to choose MCE's Deep Green option and recover the additional costs through energy efficiency savings.

V. Participants

We thank the following Marin stakeholders who provided their valuable time and smart thinking:

- Leslie Alden, Aide to Supervisor Kathrin Sears, Southern Marin – 3rd District, County of Marin
- Bob Brown, Community Development Director, City of Novato
- Cory Bytof, Sustainability Coordinator, City of San Rafael, Chair, MCEP
- Bill Carney, President, Sustainable San Rafael
- Elizabeth Dunn, Planning Manager, City of Novato, Vice Chair, MCEP
- Jon Elam, President, Marin Conservation League
- Rochelle Ereman, Epidemiology Program Manager, Marin County Department of Health and Human Services
- Ericka Erickson, Associate Director, Marin Grassroots
- Kiki La Porta, President, Sustainable Marin
- Roger Leventhal, Senior Civil Engineer, Department of Public Works, County of Marin,
- Jack Liebster, Planning Manager, Community Development Agency, County of Marin
- Stephen Miller, Deputy Director, Strategic Energy Innovations
- Christine O'Rourke, Sustainability Coordinator and Planning Consultant, Marin Climate and Energy Partnership
- Rafael Silberblatt, Program Specialist, Marin Clean Energy
- Dawn Weisz, Executive Officer, Marin Clean Energy
- Chris Yalonis, Director, Marin Conservation League