



## Bay Area Ecosystems Climate Change Consortium

Thursday, April 24, 2014, 10 AM – 2:00 PM

California State Coastal Conservancy

11<sup>th</sup> Floor Conference room, 1330 Broadway, Oakland, CA 94610

### Meeting Summary

---

#### Attendees:

Whitney Albright, *US Fish and Wildlife Service*

Brian Benn, *Environmental Risk & Financial Solutions*

Louis Blumberg, *The Nature Conservancy*

\*Bill Brostoff, *US Army Corps of Engineers*

Rebecca Fris, *CA LCC*

\*Jenn Fox, *Bay Area Open Space Council*

Andy Gunther, *BAECCC*

Kelley Higgason, *Gulf of Farallones NMS*

Kevin Koy, *UC Berkeley*

\*Roger Leventhal, *Marin County*

David Loeb, *Bay Nature*

Kelly Malinowski, *CA Coastal Conservancy*

Sara Moore, *Consultant/NBCAI*

\*Carl Morrison, *Bay Area Flood Protection Agencies Association*

Allison Murphy, *The Nature Conservancy*

Nick Reseberg, *CEMAR*

Aleka Seville, *SF Joint Policy Committee*

Linda Tandle, *CEMAR*

Susan Wilhelm, *CA Energy Commission*

\* = via teleconference

#### 1. Introduction of participants and their BAECCC-related projects

Louis Blumberg of the Nature Conservancy chaired the meeting. Participants introduced themselves and the interests of their organizations in BAECCC.

#### 2. Review Agenda

Item 4.a., Bayland Ecosystem Habitat Goals Update, was moved to 6.b.

#### 3. Group Discussion: The next steps for Cal-Adapt

Cal-Adapt, a web-based climate adaptation planning tool, is a product of the California Energy Commission and the Natural Resources Agency that was developed by UC Berkeley's Geospatial Innovations Facility (GIF).

Susan Wilhelm of the California Energy Commission gave a brief background on the development of Cal-Adapt. The goal is to provide users with immediate and convenient access to climate data and research that supports preliminary rendering of climate projections and impacts (downscaled to California's geography) and vulnerabilities to those impacts. This information can then be used develop impact response strategies. The site also provides access to more than 150 peer-reviewed reports on climate change related to California, and thousands of data layers.

Kevin Koy of GIF explained that Cal-Adapt aims to serve users who don't have the technical capacity to access and analyze climate data. Data available on the site include: evapotranspiration, average temperature, baseflow, fire, fractional soil moisture, min/max temperature, net surface radiation, precipitation, relative humidity, runoff, snow water equivalent, and wind.

Presenting these many variables over time (historical and projected) requires serving a large amount of data (there are 14,400 raster layers for each monthly variable). This includes projections of two scenarios (low and high emission) from four models that are made available. Kevin demonstrated the climate tools on the site that can be used to assess trends, including local climate snapshots, temperature, snowpack, precipitation, sea level rise, and wildfire. Locations for analysis can be identified by clicking on a map, and analyses are available as graphs, maps, and tables. Kevin urged those interested to view the six-minute demo video on the website <http://cal-adapt.org/>. Kevin noted you can download analyses using screen capture, save them as an image file, or provide the unique URL address where other users can view the analysis.

Future enhancements to Cal-Adapt include new data coming this summer from CMIP5 (coupled modeling Phase 5) that provides a 4km resolution (as opposed to the current 12 km), 10-11 GCMs (models most relevant to California), and RCPs, (Representative Concentration Pathways). RCPs are the product of a new technique that provides four greenhouse gas concentration trajectories for climate modeling and research (the RCPs replace the previous IPCC scenarios). David Loeb asked about the source of 4 km downscaling. Susan noted that Scripps Institution of Oceanography has developed a downscaling routine that allows for finer resolution data.

Also coming is an API (application programming interface) that allows users to write their own apps to access the Cal-Adapt database to develop custom analyses. Kevin demonstrated apps created using an API on the [Berkeley Ecoinformatics Engine](#), which provides access to biodiversity information from UC's repositories and museums. As information at Berkeley is digitized, the API makes it accessible to scientists and researchers for their specific purposes. Kevin also showed another API example, the [San Francisco Data](#) website that encourages users to create apps based on data the City is making accessible.

Andy asked if as new projections are made available on Cal-Adapt, would an existing API automatically use the newer data? Kevin explained that the new data would be set as the default for developers, but older data would be retained as it may be the basis for specific research projects or policy development. One could make minor updates to their app to access the new data if desired.

The tools already available on Cal-Adapt have been vetted by scientists who created the data to verify that the tools are using the data appropriately (*e.g.*, Cal-Adapt uploads only the data resolution that the scientists who develop the information feel is appropriate for use [finer scale data is kept off line]). However, this will not be possible as users are provided access to the data through the API, and interpretative mistakes are possible if users do not understand the limitations of the data. Kevin noted this is a risk with an open-data architecture, balanced by the benefits of the ability to generate custom applications. Given the politicization of climate

science, Andy wondered about the possibility of a user developing a tool to produce deliberately misleading data products. Kevin noted that while such scenarios are possible, he was not aware of such an event occurring.

Louis Blumberg asked if Cal-Adapt uses the sea level rise estimates that have been adopted by the Ocean Protection Council. Susan responded that the plan is to align with OPC to display the COSMOS data. Kevin noted that there are some very sophisticated web tools to view sea level rise data, and Cal-Adapt does not want to “reinvent the wheel.” A simple viewer was developed that can do calculations to view sea level rise scenarios, and Cal-Adapt will retain this general resource while pointing users to the other tools.

Sara Moore inquired if there have been any legal questions. Kevin answered that there is a general disclaimer on the website. Open data policies can make some people nervous, but if good reliable results are produced, then those rise to the top. Susan noted that Cal-Adapt was featured at the White House Climate Change Initiative conference, and it generated considerable excitement and interest about the development of similar tools in other states.

David Loeb asked if there is ongoing support and funding for Cal-Adapt. Susan said funding is secure for another two to four years. There is a much larger vision for Cal-Adapt that includes hiring a staff person to help users.

Kevin queried those present about what kinds of tools and data they would want. He asked that suggestions be sent to him at [kkoy@berkeley.edu](mailto:kkoy@berkeley.edu). There are many decisions to be made in the future; it would be helpful to know what analyses people need to support those decisions. For example, in agriculture there is interest in “chill hours” in different regions. Fruit might grow in one place in 2050 but not in another. Cal-Adapt wants to match developers with the people who have questions; developers can build useful tools but often don’t know what questions need to be answered.

David Loeb mentioned the TBC3 project that’s focused on ecosystem-based approaches to increasing resilience of landscapes and asked if they are using different data than Cal-Adapt. Kevin replied that in some cases they are using Cal-Adapt data but they use other data as well.

Sara inquired about Cal-Adapt’s repository of historical images. Historical photos taken in the 1920s were part of a VTM (vegetation type mapping) project. UC Davis has now digitized the locations of 3,000 landscape photos. A tool has been developed that invites volunteers to find those points and reshoot the photos to see how the landscape has changed. There is a little more work to do before it’s released.

Brian Benn asked how easy or difficult it would be to search by street address, APN, or assessed values. That information could be used to display the change in value experienced from 1950 to the present. He added that investors are interested in projected change in risk due to floods, windstorms, or other weather extremes. Kevin observed that good examples are the Trulia and Zillow sites that now have querying capability for all sorts of information (*e.g.*, local statistics on crime and school performance). Kevin noted if Zillow wanted to include climate predictions, they could do that using the Cal-Adapt API interface.

Louis asked about the use of Cal-Adapt for state capital outlay projects. Could it screen a location and show risk for flood, sea level rise, and fire? Kevin explained that FEMA mapping is not included in Cal-Adapt as those maps are based on occurrences, not projections. And, no data is included on inland flooding. CoSMoS data will have information on storm surges. It will be a bit of patchwork for a while.

Louis mentioned TNC's coastal resilience program that includes five different coastal projects. It would be nice to link those to Cal-Adapt. Kevin replied that if there are appropriate data sets to include then this can be done. Kelley Higgason added that west coast FEMA is starting on sea level rise mapping for the coast. FEMA is bringing together tool developers and stakeholders to foster better communication and an improved understanding of what can or can't be done regarding future coastal flooding scenarios.

Andy asked if there is a priority for certain datasets or geographic locations? Susan responded that the Energy Commission is constrained to energy related topics, and so datasets must be relevant to that mission (*e.g.*, climate impacts on the natural gas infrastructure). Cal-Adapt is considered a statewide resource and development is coordinated with the Safeguarding California plan. Kevin added that despite these constraints the goal is to make Cal-Adapt useful for everyone.

Susan asked those present what they would like to see on Cal-Adapt in the next five years. Suggestions included census data, socio economic data, and DAC (disadvantaged community) designations. Kevin added there have been suggestions to include tools to select data by predetermined geographic boundaries such as zip codes, watersheds, and ecoregions (right now only counties are available). Allison Murphy (TNC) suggested adding those populations vulnerable to high heat days combined with overlays of high heat areas.

#### **4. Updates**

##### **a. Advanced Quantitative Precipitation Information System (AQPI)**

Carl Morrison of Bay Area Flood Protection Agencies Association (BAFPAA) reported on NOAA's AQPI (Advanced Quantitative Precipitation Information) system. NOAA's Earth Systems Research Laboratory, BAFPAA, San Francisco Estuary Project, and other Bay Area governments and agencies want to develop a network of existing NEXRAD radar, new X-Band radar, rain gauges, wind profilers, atmospheric river observation stations, and off-shore aviation resources that will provide accurate and timely quantitative precipitation information six hours or more in advance of storms so various users can better manage reservoirs, prepare for flooding, anticipate transportation challenges and respond to a variety of storm-induced emergencies. Newer technology provides radar at shorter ranges at lower elevations. The low aiming X-Band radar is more precise, portable, and less expensive.

The proposed weather forecasting project will use six to eight strategically placed units to fill in the gaps of other radar systems. This will allow more precise information on location and duration of storm events. Carl noted that 80% of the seven major floods since 1997 were caused

by atmospheric rivers—narrow bands of atmospheric circulation carrying large amounts of water vapor that can cause extreme rainfall and floods.

San Francisco Estuary Partnership has applied for a Bay Area IRWMP grant to fund phases 3 and 4 of this 4-phase project. Phases 1 and 2 include a coastal C-Band Doppler weather radar that points off shore to improve tracking of incoming storms and a low-cost gap-filling radar that provides high resolution coverage over the City of San Francisco for better management of its combined sewer-stormwater system. Other agencies and organizations involved in this effort include California Department of Water Resources, Sonoma County Water Agency, and San Francisco Public Utilities Commission. The phase 3 (and some phase 4) project cost is \$30 million. NOAA manages the project with local administrative services provided by the San Francisco Estuary Partnership. Anticipated benefits from the AQPI system include avoided flood damage costs because of earlier warnings, use of forecast-based operations that help manage reservoirs, reduced water quality impacts from floods, and other economic savings.

## **5. Group Discussion: Adaptation Plans and Projects in the Bay Area**

Bruce Riordan and Aleka Seville from the Bay Area Joint Policy Committee (JPC) presented an overview from their recent analysis of climate adaptation and resilience projects, plans, structures, and needs in each of the nine Bay Area counties. They sought to understand:

1. What are the most interesting resilience projects?
2. What types of coordinating structures and planning efforts exist around climate adaptation? What counties/cities have climate action plans? What climate adaptation efforts are included in other planning documents?
3. What barriers are preventing more of these efforts from getting underway?

A 125-page report is available on the Bay Area JPC website. Bruce distributed a chart<sup>1</sup> showing 60 noteworthy “spotlight projects” for the nine counties. There are more projects in the sea level rise category than in the water, energy, land/natural systems, health, or multiple-impact categories.

Aleka described the Rockefeller 100 Resilient Cities (RC) Centennial Challenge that was launched to enable 100 cities around the world to better address the increasing shocks and stresses of the 21<sup>st</sup> century. The first class of 32 cities includes San Francisco, Berkeley and Oakland. Each city will use grant funds to increase resiliency, *i.e.*, response and recovery from disruptions like earthquake, flooding, or sea level rise. Bruce noted that RC might include counties as candidates for the round this summer since this would be inclusive of cities that can’t undertake these efforts on their own.

Andy remarked that resilience to earthquakes is different than resilience to climate change. While both include the need to respond to an extreme event, climate change also includes the need to prepare for long-term chronic stressors. Bruce commented that earthquake/disaster folks

---

<sup>1</sup> The handouts used by Bruce and Aleka were distributed to the BAECCC list serve just before the meeting, and are found at the end of this meeting summary.

do understand that climate change will bring extreme weather events that need to be included in hazard mitigation plans. This also “mainstreams” climate change adaptation efforts.

Aleka referred to a handout that identified the Bay Area Regional Plans, Climate Action Plans (CAPs focused on GHG reduction), CAP Goals for 2020, adaptation strategies in CAPs, climate strategies included in Hazard Mitigation or General Plans, climate authorities (bodies of elected officials [presently only in Sonoma County]), and Countywide Coordination efforts. Over 40 cities and counties in the Bay Area have completed CAPs. A small but growing list of cities now include climate adaptation in general plans, hazard mitigation plans, and other existing official planning processes.

Andy asked what the Sonoma Regional Climate Protection Authority does. Aleka responded that most of their current efforts are centered on GHG reduction through their Climate Action 2020 program. Bruce remarked that of all the counties Sonoma seems to have a great mix of the right elements (leadership, funding, elected officials, political will, and proactive water agency) to support climate adaptation efforts.

Brian Benn inquired if a Bay Area climate resilient authority is a possibility—some entity that has a broader government mandate to coordinate efforts throughout the area. Bruce responded that while that’s a good idea, it is politically challenging. Aleka added that for now they’re concentrating on sharing information and determining who needs to work with whom. A June 3 regional climate event will feature many of these projects and the people that manage them. Bruce distributed “5 Initial Recommendations to JPC—March 2014.” They include (1) construct planning and governance structure (2) secure resources, (3) develop shared goals and indicators, (4) provide science and data, and (5) improve bay area working environment and productivity.

Brian Benn gave an example of restoring an industrial waterway and credit banking. He feels there needs to be some way to allocate risk and fund preventive restoration. The insurance mechanism could be used to generate premiums to distribute risk and cost. Bruce agreed that it would be good to get a group of financial gurus together to figure out creative financial mechanisms. The San Diego Foundation is providing funds to help define “resilience” by looking at these “indicator” projects. Aleka observed that many questions need to be answered: Who sets the goals? Why does or should anyone follow them? Where does the authority come from? How would implementation be tracked? Andy asked if authority could be implied in current legislation.

Bruce commented on science and data (recommendation 4). Their research found that people are confused by the data—they don’t know where to find it, there’s too much data, and, most of all, they need guidance. Andy commented that Climate Readiness Institute (CRI) is an interesting new institution, but he cautioned that what research means to the University (testing novel hypotheses using experimental methods) is not what many people mean when they say research (developing data products using standard methods). Bruce said what is really needed is a partnership where practitioners and academics can decide together what information is useful, what new research needs to be done, and how to take on the issues of governance and funding. He added that a National Science Foundation grant application to help fund the Climate Readiness Institute is being submitted on Monday. Once that application is completed, CRI,

which was founded at the University of California, Berkeley, is getting back to organizing itself and is conducting a major donor fundraising campaign.

## **Discussion**

Jenn Fox asked what the goal is of the coordinated governance structure. What would be the regulatory authority or impetus behind it? Kelly asked how mandates would be managed since adaptation planning means different things in different situations. Brian added it is important to have structure. How will the pieces be put together? What's going to be measured, what are the metrics? The current regulatory approach occurs in "silos." What's achievable politically? How can data be fed into an actionable format?

Bruce observed that in other places in the country, there is a champion or a dominant city that is leading the way. We don't have that in the Bay Area. SB 1184 (Hancock), which passed the Senate Natural Resources Committee on April 22, would encourage development of regional action plans. This bill would require the Bay Conservation and Development Commission, in collaboration with other state, regional and local government agencies, to take action to protect San Francisco Bay area residents from potential inundation and flooding resulting from sea level rise by preparing a regional resilience strategy for the Bay Area.

Louis said his years of experience with the legislature have demonstrated to him that ecological/natural system issues are "step children"—there isn't enough of an immediate threat to be a priority for many legislators.

### **6. Updates (continued)**

#### **a. Our Coast Our Future and the North-central California Coast and Ocean Climate-Smart Adaptation Project**

Kelley Higgason provided an update on the North-central California Coast and Ocean Climate-Smart Adaptation Project, which extends from Año Nuevo in San Mateo County to Point Arena in Mendocino County and encompasses the Gulf of the Farallones National Marine Sanctuary. Their challenge is how to think about adaptation strategies across a large geographic area with multiple habitat types and species. The project has two phases. Phase 1 consists of two workshops: (1) a Focal Resources Workshop (held February 11) to finalize a list of habitats, species and ecosystem services, and (2) a Vulnerability Assessment Workshop (June 10-11) to assess the vulnerability of focal resources to climate change impacts. EcoAdapt is acting as a consultant to help guide the process. A final list of focal resources and summary report from the Focal Species workshop is available. In early 2015, a working group will begin meeting to develop climate adaptation recommendations (Phase 2).

The *Our Coast, Our Future* project provides an online planning tool for sea level rise and storms in the San Francisco Bay Area. The USGS Coastal Storm Modeling System (CoSMoS) is used to develop 40 different sea level rise and scenarios. The public release of the San Francisco Bay portion of the tool was targeted for early to mid-June, but has now been rescheduled for late July. The North-central California coast, from Half Moon Bay to Bodega Head, is currently available.

## **b. Baylands Ecosystem Habitat Goals Update**

Letitia Grenier reported the Update is about three months behind schedule. This month they are receiving all the science chapters and completing a first draft of the recommendations. The recommendations will then go through a couple rounds of review. A 50-page science summary will be prepared. The final report is targeted for completion by the end of the year. Letitia plans to have the draft recommendations available for discussion at the June BAECCC meeting.

## **7. Review of action items, other business**

Louis reminded everyone of the availability of the new TNC report on *Reducing Climate Risk with Natural Infrastructure* that features nine case studies.

Louis concluded by noting that he and Ellie Cohen are co-chairs of the BAECCC policy working group. The group is considering asking the BAECCC Steering Committee to take a position supporting at SB 1184 (Hancock). He invited anyone who is interested in joining the group to contact him or Andy. The group will also be compiling a list of policies that should be considered for revision to enhance the use of natural infrastructure to develop resilience to climate change, or ideas for new policies to adopt.

## **8. Adjourn**

The meeting was adjourned at 2 p.m.



	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>	<b>15/15</b>	<b>4/20</b> (2 in progress)	<b>7/12</b>	<b>0/6</b> (1 in progress)	<b>1/1</b>	<b>9/20</b>	<b>3/16</b> (4 in progress)	<b>3/8</b> (5 in progress)	<b>10/10</b>
<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>	<b>3/15</b>	<b>3/4</b>	<b>5/7</b>	<b>0/0</b>	<b>1/1</b>	<b>6/9</b>	<b>1/3</b>	<b>0/3</b>	<b>0/2</b>
<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)**
<b>Climate Authority</b>	NO	NO	NO	NO	NO	NO	NO	NO	Reg. Climate Protect. Auth.
<b>Countywide Coordination</b>	Alameda County Energy Council ( <i>JPA</i> )	Contra Costa County Climate Leaders ( <i>np</i> )	Marin Clean Energy Partnership ( <i>np</i> )	NO	San Francisco Dept. of the Environment ( <i>gov</i> )	Reg. Integrated Climate Planning Suite ( <i>gov</i> )	SV 2.0 ( <i>gov</i> ) & JVS Climate TF ( <i>np</i> )	Solano Transportation Authority ( <i>gov</i> )	RCPA ( <i>gov</i> ) & Climate Protection Campaign ( <i>np</i> )

SPOTLIGHT PROJECTS	REGIONAL	ALAMEDA	CONTRA COSTA	MARIN	NAPA	SAN FRANCISCO	SAN MATEO	SANTA CLARA	SOLANO	SONOMA
Flooding (sea level rise, storms)	Resilient Shorelines Program Bay Area Council Extreme Storm Study Our Coast Our Future King Tides SF Bay Restoration Authority	Adapting to Rising Tides Hayward SLR Project (HASPA)	Contra Costa Flood Control Leadership Flood Control 2.0	Marin Coastal & Bay Flooding Projects (7) - C-SMART - So. Marin SLR - Corte Madera - Shore-UP Marin - Flood Control 2.0 - Aramburu Island - Living Shorelines	Napa River/Napa Creek Flood Protection Project State Route 37 Stewardship Study	Port of SF SLR Study SF Mission Bay Vulnerability Asst SF Ocean Beach Master Plan	San Francisco JPA SLR/Adaptation Workshops	San Francisco JPA SF Baylands Restoration & Flood Protection Project South Bay Salt Pond Restoration Project South SF Shoreline Study	Solano County SLR Strategic Program Suisun Marsh Restoration Project	No spotlight project selected
	Water	EBMUD Conservation Projects	No spotlight project selected	No spotlight project selected	No spotlight project selected	SPUC Upper Tuolumne Climate Change Scenarios	No spotlight project selected	Santa Clara Valley Water District Projects	No spotlight project selected	Sonoma County Water Agency Projects
Energy	BayREN PG&E Infrastructure Protection Bay Area Smart Energy 2020	Alameda County Jail Smart Grid Regional Renewable Energy Procurement Project (R-REP)	No spotlight project selected	Marin Clean Energy	Sustainable Napa County Energy Projects	SF Renewable Power Program	No spotlight project selected	No spotlight project selected	Wind and Solar Energy Leadership and Planning	Sonoma Clean Power
Land/Natural Systems	Baylands Ecosystem Habitat Goals Project TBC3 Hydrology Mapping Bay Area Ecosystems Climate Change Consortium	No spotlight project selected	No spotlight project selected	Marin Carbon Project Preparing for Climate Change with Scenarios: Case Study	Napa Green: Wine Industry Leadership	No spotlight project selected	No spotlight project selected	No spotlight project selected	No spotlight project selected	Conservation and Land Use Pilot Project North Bay Climate Adaptation Initiative Sonoma Veg Map
Health	Cal-BRACE Community Resilience Toolkit 2.0	Berkeley Hazard Mitigation Plan	Contra Costa Health Services Climate Leadership	No spotlight project selected	No spotlight project selected	SF Climate Ready Initiative	No spotlight project selected	No spotlight project selected	No spotlight project selected	No spotlight project selected
Multiple Impacts	ABAG Regional Resilience Program Resilient Communities Initiative	Oakland Climate Action Coalition West Oakland EIP Rockefeller 100 RC	Contra Costa County Climate Leaders Small Cities EPA Climate Showcase Grant	Marin Climate & Energy Partnership	Napa Countywide Climate Action Framework	Rockefeller 100 RC SF Carbon Fund SF Adapt	San Mateo County Energy Eff. CAP San Mateo CAP Vulnerability Asst San Mateo County RICAPS	Joint Venture Silicon Valley Public Sector Climate Task Force San Jose Green Vision Silicon Valley 2.0	Benicia Climate Action Plan/ Community Sustainability Comm. Solano Transportation Authority CAPs	Sonoma Climate Action 2020 Plan Sonoma Climate Protection Campaign Sonoma Regional Climate Protection Authority