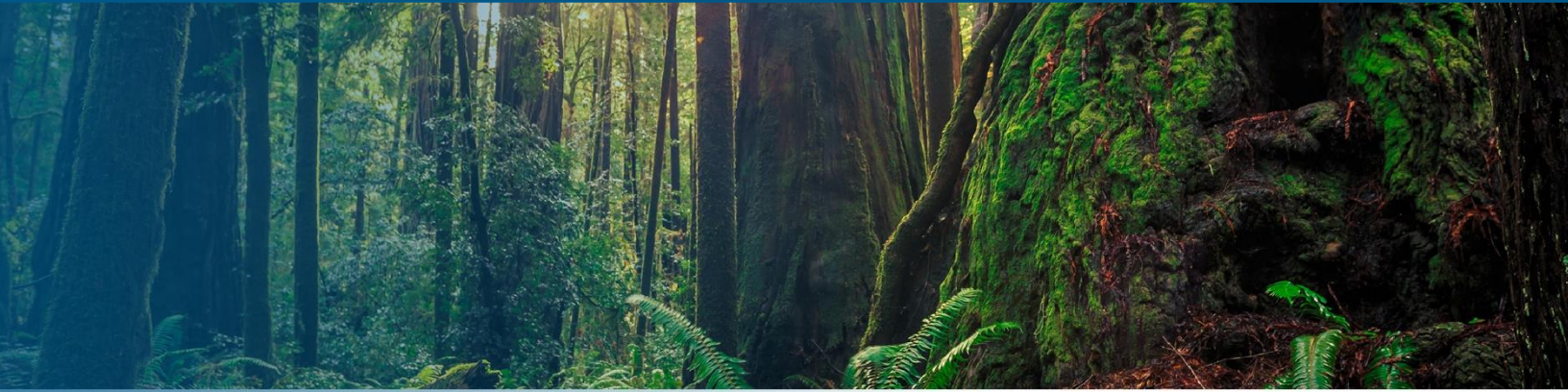


Resources to Support Resilient and Equitable Emission Reduction Planning



Introduction

This Handbook provides techniques and strategies that can be implemented over the coming months and years to support and encourage sustainable, resilient, and equitable land use planning. While the measures, methods, and guidance presented in this Handbook represent the best available information at the time of publication, the number of resources relating to climate resilience, GHG reduction, and equity is continually growing. Models and tools also change regularly as they incorporate new science and data. Handbook users are encouraged to use the guidance presented in this Handbook, and where appropriate, supplement with data and ideas from a diverse array of additional resources.

Table 6-1 describes additional resources to expand on the principles outlined in this Handbook. Resources are presented in alphabetical order and grouped as either California specific or nationally applicable. Each resource is characterized by one or more function—community program; policy guidance; informational repository; local, regional, or state plan; model or data visualization software; measures/strategies; or reports, projections, or data. Table 6-1 also identifies the central topic(s)—climate resilience, GHG emission reductions, and health/equity—addressed by the resource, as indicated by the following graphics.



Climate Resilience














GHG Reduction

























Health/Equity












Table 6-1. Additional Resources and Guidance to Support Sustainable, Resilient, and Equitable Land Use Planning












Name	Resource Type	Description	Topic(s)
California-Specific			
APEN: Mapping Resilience	Informational repository	Mapping Resilience: A Blueprint for Thriving in the Face of Climate Disasters , from the Asian Pacific Environmental Network, reports on the distribution of climate resilience efforts in California and how to get resilience projects to historically underserved communities that will face disproportionate negative impacts from climate change.	 
ARCCA	Policy guide, community program; informational repository	The Alliance of Regional Collaboratives for Climate Adaptation (ARCCA) is a network of regional collaboratives and allies that work to advance statewide adaptation and community resilience efforts. Its website tracks the latest policy updates, describes ongoing resilience and equity initiatives, and provides additional resources, such as toolkits and roadmaps.	  
CalAdapt	Model or data visualization software	CalAdapt collects and visualizes simplified versions of climate change projections and climate impact research from California's scientific community. CalAdapt has a variety of visualizations to choose from, including: <ul style="list-style-type: none"> Sea Level Rise Wildfires Local Climate Change Snapshot Extended Drought Models Extreme Heat Days and Warm Nights 	 
CalEEMod	Model or data visualization software	CalEEMod quantifies ozone precursors, criteria pollutants, and GHG emissions from construction and operation of new land use development and linear projects in California. The model also integrates data from CalEnviroScreen®, Cal-Adapt®, and HPI® to identify potential climate risks and environmental burdens within the project vicinity. Measures to reduce emissions, climate risks, and environmental burdens are available for user selection and analysis. ¹	  
CalEnviroScreen	Model or data visualization software	CalEnviroScreen is a mapping tool that identifies communities that are the most affected by or vulnerable to different types of pollution. The data for CalEnviroScreen comes from environmental, health, and	

¹ This version of CalEEMod is still in development and will be released in 2022. The [current version](#) of CalEEMod (2020.4.0) quantifies ozone precursors, criteria pollutants, and GHG emissions from construction and operation of new land use development projects.

Name	Resource Type	Description	Topic(s)
		socioeconomic information at the state and federal level, and produces parceled data for every census tract in California.	
California Adaptation Clearinghouse	Informational repository	The State's Adaptation Clearinghouse is a searchable database of many resources that are useful for local, regional, and state adaptation planning efforts. Resources include tools, case studies, guidelines, scientific reports, and more. It also contains a clearinghouse for equity and environmental justice .	  
California Climate Adaptation Planning Guide	Policy guidance; local, regional, or state plan	The California Adaptation Planning Guide (APG) is a tool that local governments and organizations can use to integrate best practices into their adaptation planning efforts. First published in 2012, the guide has since been updated in 2020, and includes processes communities can use to plan for climate change. The updated APG reflects the latest best practices, especially considering the many updates to California's plans, programs, science, regulations, and policies. An interactive version of the guidance is also available online.	 
California Fourth Climate Change Assessment: Climate Justice and Tribal and Indigenous Communities Reports	Reports, projections, and data	California's Climate Change Assessments are a series of regional and state reports, tools, and models that contribute to the scientific foundation for understanding local scale climate-related vulnerability. The assessments identify how climate change may disproportionately affect underserved populations and tribal and indigenous communities. The Climate Justice report offers tools for mapping, discusses critical factors related to climate vulnerability and adaptive capacity, lists potential climate adaptation strategies, and discusses knowledge gaps in the field. The Tribal and Indigenous Communities report discusses how climate impacts uniquely affect tribal communities and offers related case studies and recommended actions.	  
California Healthy Mobility Options Tool	Model or data visualization software	The California Healthy Mobility Options Tool (also known as the California Integrated Transport and Health Impacts Model / ITHIM CA) is a planning tool that compares the health impacts associated with different travel scenarios based on a mix of active and motorized transport modes. The tool calculates the associated change in deaths and years of life shortening and disability; health costs due to travel-related changes in air pollution, physical activity, and traffic injuries; and GHG emissions.	
California Healthy Places Index	Model or data visualization software	The California Healthy Places Index (HPI) , developed by the Public Health Alliance of Southern California, is a tool that enables the user to explore local factors that affect life expectancy and compare community conditions across California, using a scoring system based on housing, transportation, education, and other key factors that influence health. There are many free features available,	

Name	Resource Type	Description	Topic(s)
		and users can also choose to pay for a premium account which unlocks additional features.	
California Heat Assessment Tool	Model or data visualization software	The California Heat Assessment Tool (CHAT) allows users to explore and understand how extreme heat will impact specific communities across the state. The tool allows users to explore how “heat health events” are projected to change in their communities over time. A heat health event is any heat event that generates public health impacts, regardless of the absolute temperature.	 
Funding Wizard	Funding database	The Funding Wizard is a searchable funding database that helps to identify grants, rebates, and incentives for sustainability projects that are available in California. It includes various filters to help narrow down searches, and provides descriptions of funding opportunities and links for more information.	 
CCHES	Policy guidance; measures/strategies; informational repository; reports, projections, and data	The CDPH’s Climate Change and Health Equity Section (CCHES) works across sectors to embed health and equity into California climate change programs and policies. CCHES administers the California Building Resilience Against Climate Effects (CalBRACE) project, which provides a comprehensive suite of tools for better understanding the effects of climate change on public health, including the Climate Change and Health Vulnerability Indicators for California , County-Level Climate and Health Profile Reports , an Adaptation Planning Toolkit for public health, and best practices for local health department partnerships.	 
ICARP	Policy guidance; measures/strategies	The Integrated Climate Adaptation and Resiliency Program (ICARP) provides a cohesive and coordinated programmatic response to climate change impacts in California. The program delivers holistic strategies to coordinate efforts at all governmental levels. The program website outlines current initiatives and provides multiple planning resources.	 
Our Coast, Our Future	Model or data visualization software	Our Coast, Our Future uses data from the Coastal Storm Modeling System (CoSMoS) to provide a web visualization tool that assesses exposure to sea level rise and coastal flooding hazards. The tool assists coastal resource managers and land use planners in visualizing and anticipating vulnerabilities to sea level rise and storms.	
Resilience Before Disaster: The Need to Build Equitable, Community-Driven Social Infrastructure	Measures/strategies; reports, projections, or data	The Resilience Before Disaster report offers recommendations for building resilient communities in California through investment in social infrastructure and climate resilience. It urges state policymakers to take urgent action to address climate change and social inequity to safeguard all Californians.	 
SB 1000 Implementation Toolkit	Community program; policy guidance;	The California Environmental Justice Alliance’s SB 1000 Implementation Toolkit is a guidance document intended for local governments, planners, community-based organizations, and other stakeholders who will be working to develop an environmental justice element or a set of	

Name	Resource Type	Description	Topic(s)
	measures/ strategies	environmental justice policies for their general plans to meet the requirements of SB 1000.	
Safeguarding California Plan	Measures/ strategies	The Safeguarding California Plan outlines California's Climate Adaptation Strategy by discussing current and necessary actions the state should take to strengthen California's climate resilience, lower GHG emissions, and address environmental justice. In addition to the 2018 update of the plan, the California Natural Resources Agency publishes case studies of ongoing climate action, resources for coordinating local action, and reports on recent research.	  
Sea the Future	Model or data visualization software	Sea the Future aggregates and compares the wide variety of sea level rise and flooding visualization tools that exist for modeling in California and helps users understand the underlying assumptions and methodologies of each tool to make sure that they choose the most appropriate tool for their task.	
Sustainable Communities and Climate Protection Program	Policy guide; local, regional, or state plan; informational repository	The Sustainable Communities and Climate Protection Program supports California's goals to reduce GHG emissions through coordinated transportation, housing, and land use planning. The program uses a variety of resources and a comprehensive library of policy briefs to make it easier for a government to implement climate programs.	  
Tracking California	Model or data visualization software	Tracking California , a program of the Public Health Institute, mobilizes data on pollution and disease to understand their cause, effect, and trends. This program tracks and analyzes data on public health and the environment to protect communities in California and give policymakers and community groups the tools they need to be informed about environmental justice and health equity.	
National Tools			
Coastal Resilience	Policy guidance; model or data visualization software; reports, projections, or data	Coastal Resilience is a program led by The Nature Conservancy that looks at nature-based solutions for reducing coastal flood risk. This program includes a methodology, web mapping tool, and network of global practitioners.	
Community-Driven Climate Resilience Planning: A Framework	Policy guidance	Developed by the Movement Strategy Center, the Community-Driven Climate Resilience Planning: A Framework identifies characteristics of community-driven climate resilience planning and emerging opportunities for planners to draw from.	 

Name	Resource Type	Description	Topic(s)
Community Resilience Economic Decision Guide and Online Tool (EDG)	Policy guidance; model or data visualization software; reports, projections, or data	This Community Resilience Economic Decision Guide and Online Tool , from the National Institute of Standards and Technology, provides economic methodology for evaluating investment decisions related to adapting to, withstanding, and recovering from disrupting events for communities.	 
Guide to Equitable, Community-Driven Climate Preparedness Planning	Policy guide; measures/strategies	The Guide to Equitable, Community-Driven Climate Preparedness Planning was prepared by the Urban Sustainability Directors Network (USDN) and discusses social inequities, such as structural and institutional racism, and their place in climate preparedness planning. It offers a framework on community-driven planning for climate change, as well as equitable adaptation solutions. The guide also helps developers identify effective ways to engage with communities in resilience planning.	 
Opportunities for Equitable Adaptation in Cities	Policy guidance; informational repository; measures/strategies	Developed by the Georgetown Climate Center, this workshop summary report gives a framework that governments and community changemakers can use to determine the disproportionate impact of climate change on vulnerable communities and how best to alleviate those impacts while increasing overall resilience.	 
Our Communities, Our Power: Advancing Resistance and Resilience in Climate Change Adaptation	Community program; policy guidance; informational repository	The NAACP's Our Communities, Our Power toolkit examines the power of communities in reducing GHG emissions and becoming climate resilient, while highlighting the opportunity that communities have to address equity and environmental justice while focusing on community programs.	  
Social Cohesion: The Secret Weapon in the Fight for Equitable Climate Resilience	Community program; policy guidance	Social Cohesion: The Secret Weapon in the Fight for Equitable Climate Resilience by the Center for American Progress discusses how to integrate community resilience into climate resilience and how social cohesion builds up these goals.	 
U.S. Adaptation Clearinghouse	Informational repository	The Georgetown Climate Center's Adaptation Clearinghouse allows users to search between tools related to climate adaptation and resilience and GHG reduction easily and provides summaries and comparisons of different tools and resources at a glance. Users can search by region, topic, or sector, and save their searches and favorites in a free account.	  
U.S. Climate Resilience Toolkit	Model or data visualization software; reports,	The U.S. Climate Resilience Toolkit amasses research across U.S. federal agencies as well as scientists and researchers to provide an in-depth look at climate resilience by region of the U.S., topic, type of stressor, and steps to resilience. The toolkit specializes in examining not just the existing issues and their projected	 

Name	Resource Type	Description	Topic(s)
	projections, or data	intensities, but how to improve the preparation for and response to climate impacts through policy, infrastructure, and behavior change.	

Sources: APEN 2019; ARCCA 2021; CalEJA 2016; CARB 2021a, 2021b; CARB et al. 2020; CDC 2019; CDPH 2020, 2021a, 2021b, 2021c; CEC 2021; CEMA and CNRA 2020; CNRA n.d., 2019; Georgetown Climate Center 2011, 2017, 2021; Gonzalez 2017; Lou et al. 2020; NAACP 2019; NIST 2020; NOAA 2021; OEHHA 2021; OPR 2021a, 2021b, 2021c; OPR, CEC, and CNRA 2018; SCC 2021; PHASC 2021; TNC n.d.; Tracking California 2021; USGS n.d.; USDN 2017.

References

Alliance of Regional Collaboratives for Climate Adaptation (ARCCA). 2021. ARCCA. Last revised: 2021. Available: <https://arccacalifornia.org/>. Accessed: May 6, 2021.

Asian Pacific Environmental Network (APEN). 2019. *Mapping Resilience: A Blueprint for Thriving in the Face of Climate Disasters*. Available: https://apen4ej.org/wp-content/uploads/2019/10/APEN-Mapping_Resilience-Report.pdf. Accessed: May 6, 2021.

California Air Resources Board (CARB). 2021a. *Sustainable Communities & Climate Protection Program*. Available: <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-climate-protection-program>. Accessed: May 6, 2021.

California Air Resources Board (CARB). 2021b. Funding Wizard. Available: <https://fundingwizard.arb.ca.gov/web/>. Accessed: June 24, 2021.

California Air Resources Board (CARB), California Department of Public Health (CDPH), and Nicholas Linesch Legacy Fund. 2020. *Integrated Transport and Health Impact Model*. Available: <https://skylab.cdph.ca.gov/HealthyMobilityOptionTool-ITHIM/#Home>. Accessed: September 17, 2021.

California Department of Public Health (CDPH). 2020. *Climate Change and Health Vulnerability Indicators for California*. Last revised: August 17, 2020. Available: <https://www.cdph.ca.gov/Programs/OHE/Pages/CC-Health-Vulnerability-Indicators.aspx>. Accessed: September 17, 2021.

California Department of Public Health (CDPH). 2021a. *Climate Change and Health Equity Section (CCHES)*. Last revised: August 11, 2021. Available: <https://www.cdph.ca.gov/Programs/OHE/Pages/CCHEP.aspx>. Accessed: September 17, 2021.

California Department of Public Health (CDPH). 2021b. *California Building Resilience Against Climate Effects (CalBRACE)*. Last revised: February 1, 2021. Available: <https://www.cdph.ca.gov/Programs/OHE/Pages/CalBRACE.aspx#>. Accessed: May 6, 2021.

California Department of Public Health (CDPH). 2021c. *CalBRACE - 2017 Climate Change and Health Profile Reports*. Last revised: February 1, 2021. Available:

<https://www.cdph.ca.gov/Programs/OHE/Pages/ClimateHealthProfileReports.aspx>. Accessed: September 17, 2021.

California Emergency Management Agency and California Natural Resources Agency (CEMA and CNRA). 2020. *California Adaptation Planning Guide: Planning for Adaptive Communities*. Last revised: June 2020. Available: <https://www.caloes.ca.gov/HazardMitigationSite/Documents/CA-Adaptation-Planning-Guide-FINAL-June-2020-Accessible.pdf>. Accessed: June 22, 2021.

California Energy Commission. 2021 (CEC). *Cal-Adapt*. Last revised: January 26, 2021. Available: <https://cal-adapt.org/>. Accessed: May 6, 2021.

California Environmental Justice Alliance (CalEJA). 2016. *SB 1000 Toolkit: Planning for Healthy Communities*. Available: <https://caleja.org/2017/09/sb-1000-toolkit-release/>. Accessed: May 6, 2021.

California Office of Environmental Health Hazard Assessment (OEHHA). 2021. *CalEnviroScreen*. Last revised: April 28, 2021. Available: <https://oehha.ca.gov/calenviroscreen>. Accessed: May 6, 2021.

California Office of Planning and Research (OPR). 2021a. *Adaptation Clearinghouse*. Last revised: 2021. Available: <https://resilientca.org/>. Accessed: May 6, 2021.

California Office of Planning and Research (OPR). 2021b. *Equity and Environmental Justice Clearinghouse*. Last revised: 2021. Available: <https://resilientca.org/topics/equity-and-environmental-justice/>. Accessed: May 6, 2021.

California Office of Planning and Research (OPR). 2021c. *Integrated Climate Adaptation and Resiliency Program*. Last revised: 2021 Available: <https://opr.ca.gov/planning/icarp/>. Accessed: May 6, 2021.

California Office of Planning and Research, California Energy Commission, and California Natural Resources Agency (OPR, CEC, and CNRA). 2018. *California's Fourth Climate Change Assessment*. Available: <https://www.climateassessment.ca.gov/>. Accessed: May 6, 2021.

California Natural Resources Agency (CNRA). 2019. *Safeguarding California and Climate Change Adaptation Policy*. Last revised: 2019. Available: <https://files.resources.ca.gov/climate/safeguarding/>. Accessed: May 6, 2021.

California Natural Resources Agency (CNRA). n.d. *California Heat Assessment Tool*. Available: <https://cal-heat.org/>. Accessed: September 17, 2021.

California State Coastal Conservancy (SCC). 2021. *Sea the Future*. Last revised: 2021. Available: <https://www.seathefuture.org/#/>. Accessed: May 6, 2021.

Georgetown Climate Center. 2011. *CalBRACE Adaptation Toolkit*. Last revised: 2011. Available: <https://www.adaptationclearinghouse.org/resources/calbrace-adaptation-toolkit.html>. Accessed: September 17, 2021.

Georgetown Climate Center. 2017. *Opportunities for Equitable Adaptation in Cities: A Workshop Summary Report*. Available: https://www.georgetownclimate.org/files/report/GCC-Opportunities_for_Equitable_Adaptation-Feb_2017.pdf. Accessed: May 6, 2021.

Georgetown Climate Center. 2021. *Adaptation Clearinghouse*. Last revised: 2021. Available: <https://www.adaptationclearinghouse.org/>. Accessed: May 6, 2021.

Gonzalez, R. 2017. *Community-Driven Climate Resilience Planning: A Framework*. Last revised: May 2017. Available: <https://www.adaptationclearinghouse.org/resources/community-driven-climate-resilience-planning-a-framework.html>. Accessed: June 22, 2021.

Lou, Z., A. Raval, M. Young, and S. Appel. 2020. *Resilience Before Disaster: The Need to Build Equitable, Community-Driven Social Infrastructure*. Final. California. September 21. Prepared for the Asian Pacific Environmental Network (APEN), SEIU California, and the BlueGreen Alliance. Available: <http://apen4ej.org/wp-content/uploads/2020/10/Resilience-Before-Disaster-FINAL-UPDATED.pdf>. Accessed: May 6, 2021.

National Associate for the Advancement of Colored People (NAACP). 2019. *Our Communities, Our Power: Advancing Resistance and Resilience in Climate Change Adaptation*. Report, Final. Available: <https://www.adaptationclearinghouse.org/resources/naacp-our-communities-our-power-advancing-resistance-and-resilience-in-climate-change-adaptation-action-toolkit.html>. Accessed: June 22, 2021.

National Institute of Standards and Technology (NIST). 2020. *The Community Resilience Economic Decision Guide and Online Tool*. Available: <https://www.nist.gov/community-resilience/edge-and-economic-decision-guide>. Accessed: May 6, 2021.

National Oceanic and Atmospheric Administration's Climate Program (NOAA). 2021. *U.S. Climate Resilience Toolkit*. Last revised: April 1, 2021. Available: <https://toolkit.climate.gov/>. Accessed: May 6, 2021.

Public Health Alliance of Southern California (PHASC). 2021. *The California Healthy Places Index*. Last revised: April 22, 2021. Available: <https://healthyplacesindex.org/>. Accessed: May 6, 2021.

The Nature Conservancy (TNC). No Date. *Coastal Resilience*. Available: <https://coastalresilience.org/>

Tracking California. 2021. *Tracking California – Informing Action for Healthier Communities*. Last revised: March 2021. Available: <https://trackingcalifornia.org/>. Accessed: May 6, 2021.

U.S. Centers for Disease Control and Prevention (CDC). 2019. *CDC’S Building Resilience Against Climate Effects (BRACE) Framework*. Last revised: September 9, 2019. Available: <https://www.cdc.gov/climateandhealth/brace.htm>. Accessed: May 6, 2021.

U.S. Geological Survey (USGS). No Date. *Our Coast, Our Future*. Available: <https://data.pointblue.org/apps/ocof/cms/>. Accessed: May 6, 2021.

United Sustainability Directors Network (USDN). 2017. *Guide to Equitable Community-Driven Climate Preparedness Planning*. Report, Final. Available: https://www.usdn.org/uploads/cms/documents/usdn_guide_to_equitable_community-driven_climate_preparedness-_high_res.pdf?cn=bWVudGlvbG%3D%3D&utm_content=buffer03b62&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer. Accessed: May 6, 2021.