# Climate Change Research

## *2019-20 Grant Applications and Awards*

| Project Name | Applicant | Partners | Amount Requested | Amount Awarded | Region | Description |
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| Resilient Restoration: Advancing Ecological, Cultural, and Community Resilience with Tribal Nations in Southern California | University of California, Riverside | Funded: San Diego State University; Climate Science Alliance; Tribal Working Group | $1,000,000 | $990,350 | San Diego County | Combines established research tools with traditional ecological and cultural knowledge to address key gaps in planning for climate adaptation and to develop restoration strategies for culturally significant species in Southern California that will be resilient to the impacts of climate change. |
| Smoke, Air, Fire, Energy (SAFE) in Rural California: Energy and Air Quality Infrastructure for Climate-smart Communities | Humboldt State University | Funded: Blue Lake Rancheria; Karuk Tribe | $1,000,000 | $990,350 | North State | Overall goal is to identify sustainable pathways to climate-smart rural California communities through energy and air quality infrastructure development that integrate social dimensions of change. Will develop engineering design tools and management strategies to accelerate deployment of energy and air quality infrastructure systems at households, critical community facilities, and isolated community clusters of 10-50 households and businesses. Will also work with community members and leaders to advance understanding of the social dimensions of climate-smart and fire-smart infrastructures and practices. |

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| Toward Resilient California Communities: A Statewide and Case-Based Assessment of Solar + Storage Potential at Schools and Community Centers | Physicians Scientists and Engineers for Healthy Energy | Funded: Asian Pacific Environmental Network; Communities for a Better Environment | $876,991 | $868,530 | Statewide with SF Bay Area case study | Evaluate the potential for community solar + storage (S+S) to align state climate goals with the need to increase local resilience by analyzing S+S potential at schools and community centers statewide. Will include project design and community engagement within Richmond and Wilmington to develop a framework that advances climate mitigation/adaptation efforts using design parameters for meeting critical electric loads in the event of earthquakes, wildfires, public safety power shutoffs, or other disaster-induced electricity outages, as well as demographic and vulnerability metrics for populations in proximity to these sites. |
| Incentivizing Climate-Smart Farmland Transitions in the San Joaquin Valley | Public Policy Institute of California | Funded: Central Valley Community Foundation; CSU - Fresno | $740,000 | $732,860 | San Joaquin Valley | Supports development of strategies for managing land use transitions that will occur due to the Sustainable Groundwater Management Act (SGMA) by helping stakeholders (1) characterize the streams of benefits from managing fallowed lands, (2) identify funding gaps for beneficial solutions and potential funding sources, and (3) explore incentive structures that can facilitate adoption of beneficial solutions. |
| Local Development under Climate Change: Evaluating Trade-offs Between Carbon Emissions, Water Sustainability, and Affordable Housing for Communities | University of California, Santa Cruz | Funded: U.S. Geological Survey Not Funded: City of San Luis Obispo; Central Coast Climate Collaborative; City of Watsonville Community Development; County of Santa Barbara Planning Department; Salinas Valley Groundwater Basin Management District | $729,820 | $722,780 | Central Coast Counties | Use scenario analysis locally tailored to each county and based on stakeholder input to deliver scenarios for land use planning that assess tradeoffs between carbon emissions from land use change, water shortage vulnerability, affordable housing and displacement of disadvantaged communities, preservation of agricultural lands, and preservation of critical habitats under climate change. |

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| Micro-climate Zones: Designing Effective Outdoor Cooling Interventions | University of California, Los Angeles | Funded: Kounkuey Design Initiative; Arizona State University; Pacoima Beautiful; Local Government Commission; Climate Resolve Not funded: City of Ontario; SoCal Assoc. of Governments; Los Angeles Housing Authority (Watts Rising) | $449,425 | $445,090 | Los Angeles County, San Bernardino County, San Fernando County, Coachella Valley | Conduct a comparative analysis of micro-scale cooling strategies in Oasis, Ontario, Pacoima, and Watts (representing a range of climate zones and built environments by leveraging long-standing community engagement and research partnerships to fill knowledge and guidance gaps to develop an analysis of community-engaged data on the relationship between the micro-scale environment and temperature, and design recommendations to help municipalities and communities most cost-effectively mitigate heat at bus stops and other streetscapes. |
| Evaluating the Impact of Greening Public Schoolyards on Climate Change Resilience | University of Southern California | Not funded: L.A .Unified School District; L.A. Dept of Recreation & Parks | $998,279 | $0 | Los Angeles | This research assesses the effects of a school parks intervention on climate change resilience and evaluates health impacts using a novel stepped wedge trial design to assess the before, during, and after the intervention period, examining local thermal comfort in schoolyards and mental and respiratory health outcomes in schoolchildren while engaging children in depicting their school's greening project. |
| The Economics of Agricultural Adaptation and Mitigation to Climate Change and Water Scarcity | University of California, Berkeley | Not Funded: CA Dept of Water Resources; Nicolaus Nut Company; UC Cooperative Extension; Environmental Defense Fund; Sustainable Conservation; California Rural Legal Assistance | $600,566 | $0 | Central Valley | Generate knowledge to meaningfully inform and improve the State's climate change mitigation and adaptation policies using a three-pronged approach to validate the use of remotely sensed land use data in economic analyses, and explore agriculture's ability to adapt to water scarcity and the roles of groundwater access and crop choice in mitigating weather and drought risk in order to understand the margins with which agriculture can adapt to changing water conditions and realize how past land use decisions shaped agriculture's vulnerability to increased drought and weather risk. |

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| Local Control and Big Data for Climate-Ready Cities | University of California, Davis | Funded: Local Government Commission Not funded: American Planning Association; Center for Regional Change; Valley Vision; California Rural Legal Assistance | $245,122 | $0 | All of CA (tracks data for General Plans for all 58 counties and 482 cities in the state) | Create an online General Plan database synchronized with OPR's CEQA clearinghouse and annual planning surveys, and that uses machine learning to comprehensively read the content of plans in order to understand how local regions are responding to climate change risks and what types of adaption and mitigation programs they prioritize for use by the State, researchers and communities for comparative inspiration in updating plans. |
| Adaptive management for catastrophic wildfire risk management in California's zombie forests | Stanford University | Funded: iNaturalist; Sierra Nevada Alliance | $513,106 | $0 | Sierra Nevada | This proposal would develop a novel climate-niche-modeling technique based on the idea of vegetation disequilibrium which allows us to identify 'zombie' forests – forests established under a previous climate regime that are now out of climate equilibrium – that are expected to be at an especially high risk of type-conversion catalyzed by catastrophic fire, and to work with partners to involve community stakeholders in research and adaptive management options. |
| Transforming land use decisions to minimize wildfire impacts on vulnerable communities, ecosystems, and carbon loss | Point Blue Conservation Science | Funded: George Washington University; Conservation Biology Institute; Paradise Recreation and Park Not funded: National Park Service; Sage Underwriters | $999,154 | $0 | Urban and rural counties throughout California. | This research would create a high resolution, fire-relevant urban growth projections; create wildfire risk maps that include feedbacks among fire, vegetation, and climate, with consequences for ecosystem carbon sequestration; identify conflicts and co-benefits of alternate land use scenarios on vulnerable communities, biodiversity, and wildfire; and, deliver modeling results and evaluation to managers and decision makers. |
| Prototype Designs of Low-Carbon, Resilient Energy Systems at Multiple Scales for Under-Resourced Communities | University of California, Los Angeles | Funded: UC Merced (UCM); The Energy Coalition (TEC) Not Funded: Central Valley Air Quality Coalition; Pacoima Beautiful; East Yard Communities for Environmental Justice | $1,000,000 | $0 | Los Angeles County; San Joaquin Valley | Develop prototype designs of low-carbon, resilient energy systems for under resourced communities, aiming to identify the key attributes that most affect the design parameters and costs, as well as decisions. |

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| Labor, Extreme Heat, and Adaptation to Climate Change: Occupational Heat Exposure and California's Low-Income Workers | University of California, Los Angeles | Funded: Warehouse Workers Resource Center; Garment Worker Center; Community Labor Environmental Action Network (CLEAN); Instituto de Educacion Popular del Sur de California (IDEPSDA); Southern California Coalition for Occupational Safety & Health (SoCalCOSH) | $417,811 | $0 | Southern California; Los Angeles County | This proposal seeks to explore potential impacts of climate change – in particular, extreme heat exposure on the job – for the millions of Californians who work in exposed occupations by combining state-of-the-art econometric ("big data") analyses with worker focus groups to (1) assess the potential scope and magnitude of heat-related workplace health and safety impacts, (2) identify the most vulnerable sub-populations by occupation, race, education, and immigrant status; and (3) explore possible policy solutions. |
| Co-Developing Local Climate Adaptation Institutions | University of California, Davis (LAWR) | Funded: The Sierra Fund; Lowlander Center; Asian Pacific Environmental Network (APEN); Sogorea Te Land Trust; Kumeyaay Diegueno Land Conservancy | $999,649 | $0 | Northern Sierra mountains, Bay Area, San Diego County | Advance collaborative land use and policy approaches that allow adaptation and restoration in-place, in the face of climatic impacts and forced retreat from land. Convene leading solution-builders from Native non-profits and community-based environmental and environmental justice organizations to (1) develop and share resilience strategies in a participatory process of co-learning, and (2) to focus on the feasibility and design of an emergent strategy of building local resilience through institutions that combine elements of conservation and community socioeconomic sustainability. |
| Double Jeopardy: Assessing Wildfire Risk and Recovery Efforts in California | University of California, Berkeley | Funded: UCLA; CSU - Chico; North Bay Organizing Project; Rebuild Paradise Foundation; U.S. Green Building Council LA | $899,999 | $0 | Butte County, Sonoma County, Ventura County, and San Diego County | Engage communities of "doubly vulnerable" populations - those who are socio-economically disadvantaged and either live or work in areas that are at high risk for wildfires to help develop their capacity, while building an interactive web-based tool that can be used by government officials, community organizations, planners, and others to identify areas with high concentrations of vulnerable population groups that are also under severe risk for wildfires. In short, we propose to better address the needs of these "doubly vulnerable" communities in local resilience planning efforts in Northern and Southern California. |

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| Strategic Land Use Research Planning for Climate Adaptation and Groundwater Sustainability | University of California, Merced | Funded: N/A (TBD stipends) Not Funded: Merced County Farm Bureau; UC Cooperative Extension; Cortez Growers Association; Environmental Defense Fund; Merced Irrigation District | $275,000 | $0 | Merced County | Create a spatial optimization model of alternative land uses that incorporates community input and weighs preferential outcomes to identify land use solutions not identified in model algorithms, integrating a network of local stakeholders in the co-production of the spatial optimization model to ensure that project outcomes are feasible, relevant, and representative of Merced's local communities and environment. |
| Evidence-Based Forest Resource Planning for Climate Action in Sierra County: Enabling Economic and Fire Resilience for Rural Communities in California | Lawrence Berkeley National Laboratory | Funded: Merced County Farm Bureau; UC Cooperative Extension; Cortez Growers Association; Environmental Defense Fund; Merced Irrigation District | $1,000,000 | $0 | Sierra County | Address knowledge and capacity gaps that prevent development of an action plan for increased forest management in Sierra and surrounding counties. Initial engagement with Sierra County and the Sierra Business Council has identified that an assessment of the co-benefits of potential forest resource management scenarios, as well as resources to identify potential barriers to implementation, is essential to the process for expanding and supplying an integrated bioenergy and wood products campus near Loyalton. |
| Integrating Riparian restoration into California's GHG Strategy: Improved Methods for Assessing Carbon Storage in Floodplain Forests | Santa Clara University | Funded: Bountiful (formerly Vinsight); River Partners Not funded: American Rivers; US Fish and Wildlife Service; Reclamation District 2092 | $414,190 | $0 | San Joaquin Valley, Sacramento River Valley | Use state-of-the-art remote sensing methods, coupled with detailed groundtruthing at the tree and plot scale, to improve the speed, accuracy, and ease of verifying carbon sequestration measurements in floodplain forests. Access to unique datasets will allow independent assessment of the success of the approach, and the research will advance the state of the science by publishing results as open-source code. |
| Understanding the Impact of Public Safety Power Shutoff (PSPS) on Food Waste and Food Security Among Vulnerable Populations in California | University of California, Berkeley | Funded: UC Agricultural Natural Resources; UC Davis; California Food Policy Advocates Not funded: California WIC Association; California Association of Food Banks | $999,812 | $0 | Alameda, Kern, San Bernadino, and Riverside Counties | Assess the effects of the 2019 PSPS on food waste and food insecurity in four counties (Alameda, Kern, Riverside and San Bernardino) by developing suitable and scalable strategies to lessen such effects in low-income and disadvantaged communities, assessing the level of awareness and usage of such benefits, and inform policies focused on reducing the negative impacts of PSPS on food waste and food insecurity in vulnerable communities. |

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| Advancing Climate Adaptation Strategies and Tools in Co-Creation with Vulnerable Cultural Communities | Sonoma State University | Funded: Pepperwood Preserve; Capital Science Communicators Not funded: Los Cien; PEP Housing; United Way of the Wine Country | $987,839 | $0 | Bay Area (North Bay) | Engage with leaders in Latino and Vulnerable Senior communities and cultural groups to co-create climate vulnerability assessments and culturally appropriate adaptation strategies in partnership with both communications and climate science experts using strategies that empower community members to actively participate in the development of strategies to prepare for and mitigate against the ecological, economic, social, and public safety challenges of an increasingly fire-prone landscape with the ultimately result of significant environmental and public health benefits for vulnerable communities. |
| Engaging Communities to Improve Shade Tree Survival in Low-Income Areas Vulnerable to Extreme Heat | California State University, Northridge | Funded: Los Angeles County Department of Public Health; TreePeople; Los Angeles Conservation Corps Not funded: Urban Strategies; From Lot to Spot | $740,550 | $0 | Los Angeles County | Conduct a mixed-methods evaluation of two large-scale tree planting and public education efforts implemented in Supervisorial Districts 1and 2 within communities that are disadvantaged and vulnerable to the effects of climate change, to accomplish increased shade tree cover in the County. |
| Development and Piloting of Community Wildfire Risk Abatement Programs | University of California, Los Angeles | Funded: Tree People Not funded: RAND Corporation; North Topanga Canyon Fire Safety Council; U.S. Forest Service; The Nature Conservancy | $968,811 | $0 | Northeast San Fernando Valley | Reduce wildfire risk for lower-income and disadvantaged communities in the Northeast San Fernando Valley. Proposes a multi-pronged research effort that examines the role of insurance, possibilities for better land management, structural hardening, homeowner education, the social value of better risk maps and the possibility that some policies (e.g., subsidized fire-fighting expenses) are counter-incentives for homeowners taking risk mitigation actions. |

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| Smart Food For a Smart Climate: Sustainable Diet Education in California | California State University, Dominguez Hills | Funded: California Polytechnic University (CalPoly); California State University, Channel Islands; California State University, Chico; California State University, Fullerton; California State University, Long Beach; California State University, Sacramento; University of California, Los Angeles Not funded: Westside Food Bank; California Partnership for the San Joaquin Valley Development Center | $967,873 | $0 | Cities throughout Northern, Central, and Southern California | Determine the efficacy of educational interventions for reducing the GHG emissions associated with food production by designing an approach that provides information on climate change and the links between agriculture and climate change, helps populations understand what are appropriate are cost-effective and easily available replacements for high-carbon foods, and increases self-efficacy by presenting available practical actions that decrease the carbon-footprint and help achieve climate goals. |
| Transitioning From Planning to Action with Nature-Based Resilience for the Santa Cruz Coast | Point Blue Conservation Science | Funded: City of Santa Cruz; Virtual Planet; San Jose State University; GHD | $885,963 | $0 | Santa Cruz | Develop a case study to transition from understanding vulnerability to developing adaptation solutions, with a focus on developing understanding of appropriate nature-based measures in Santa Cruz. Engage representatives from disadvantaged communities that have been identified as vulnerable during the City of Santa Cruz's climate change vulnerability assessment to develop a guiding vision for a set of adaptation strategies, and will seek their guidance on adaptation strategies. |
| Equitable and Climate-Neutral Sacramento Region | University of California, Davis | Funded: N/A (TBD community partners) Not funded: City of Sacramento; City of West Sacramento | $750,000 | $0 | Sacramento Region | Support efforts to better connect equity, environmental justice, and fighting climate change in the Sacramento Region through community-engaged research resulting in actionable, near-term policy research findings that takes into account equity and climate goals for the region by evaluating shared and electric transportation options for disadvantaged communities and electrifying buildings in low income areas. |

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| Developing Adaptive Strategies Toward Climate-Ready Infrastructure Systems in California | University of California, Irvine | Funded: Los Angeles Regional Collaborative for Climate Action and Sustainability Not funded: Irvine Ranch Water District; Orange County Water District; Los Angeles Metro; Orange County Sanitation District | $600,000 | $0 | Greater Los Angeles area | Develop adaptive strategies toward Climate-Ready Infrastructure Systems by ensuring the safety and durability of existing and new infrastructure systems under current and future climate scenarios including compounding effects and time-variant nature of multiple hazards, while addressing the needs of industries and stakeholders around infrastructure design, maintenance, and operation standards when considering new patterns of climatic extremes and natural hazards under a changing climate. |
| Focused Managed Aquifer Recharge Near Disadvantaged Communities to Build a Climate Resilient Water Supply | University of California, Davis | Funded: Lawrence Livermore National Laboratory; Selfhelp Enterprises | $999,952 | $0 | San Joaquin Valley | Assess the benefits of focused managed aquifer recharge (MAR) near disadvantaged communities in the San Joaquin Valley as a climate adaptation and mitigation strategy through a combination of community engagement, high-resolution numerical modeling, and detailed field and laboratory measurements. |
| Community-Centric Expansion of Low-Income Shared Mobility and Public Transit Pilot Projects | University of California, Berkeley | Funded: TransForm; Los Angeles Walks Not funded: City of Oakland Department of Transportation ; City of San Jose; Bird | $683,398 | $0 | East Oakland, Bay Area cities, and Panorama City (Los Angeles) | Explore social and economic factors for the adoption and use of shared mobility by low-income communities using innovative engagement methods and collaboration across public, private, and nonprofit sectors with an aim to encourage low-income people to shift away from single-occupancy vehicle travel and towards shared modes and public transit. |
| Climate Action Implementation Testbed | University of California, Davis | Funded: Local Government Commission | $972,112 | $0 | Sacramento Region | Accelerate implementation of comprehensive climate change adaptation, mitigation, and equity initiatives in the Sacramento metropolitan region by (1) establishing collaborative working procedures, (2) engaging in strategic stock-taking and reviewing best practices of climate policy implementation both internationally and within the Sacramento region, (3) conducting in-depth interviews with multi-sectorial regional stakeholders, and (4) facilitating participatory action research with collaborative participants. |

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| Evaluation of the Climate and Equity Benefits of Scaling Community-Based Carsharing in Los Angeles County | University of California, Davis | Funded: Mobility Development Partners<br>Not funded: Polytechnique Montréal;<br>City of Los Angeles;<br>Southern California Association of Governments | $300,000 | $0 | San Joaquin Valley, Los Angeles County | Evaluates and plans for the financially sustainable expansion of the City of Los Angeles' BlueLA electric vehicle carsharing pilot to a program that serves disadvantaged communities throughout Los Angeles County by capitalizing on existing data and advanced simulation tools to identify business and revenue models that optimize the financial sustainability of the expanded program, while maximizing GHG reductions and accessibility of benefits to disadvantaged communities. |
| Solar Rooftop Photovoltaic Potential by Land Use Type to Meet Electricity Demands Across California's Disadvantaged Communities | University of California Berkeley | Not funded: GRID Alternatives | $509,873 | $0 | Statewide | Create an aggregated open-access repository that (1) identifies all existing buildings across the state, (2) classifies their zoning, or land use, (3) quantifies building potential for solar rooftop PV, and (4) determines the opportunities and roadblocks for businesses and commercial entities serving disadvantaged communities to install solar PV, with potential for storage, and community solar. |
| Integrating Internet-of-Things and Remanufacturing Industries in Southern California: Transition Towards Circular Manufacturing Implementation | California State University, Fullerton | Funded: ROMAC Industries | $304,985 | $0 | Southern California | Investigates the use of IoT and Industry 4.0 technologies to mitigate the problems faced by the remanufacturing sector trying to achieve absolute zero-waste in the manufacturing cycle by analyzing the harmful effects of internet use in factory operations and uncover the paradox of internet usage in a remanufacturing environment to reduce its carbon footprint. |
| Maximizing the Climate Adaptation and Mitigation Benefits of Safe Drinking Water Projects in California | Pacific Institute | Funded: University of California, Los Angeles Luskin Center;<br>Leadership Counsel for Justice and Accountability;<br>EnvironmentNow | $500,614 | $0 | Tulare County and East Coachella Valley | Optimize climate resiliency and mitigation outcomes from projects aimed to advance the Human Right to Water in California, particularly those funded by the new Safe and Affordable Drinking Water Fund by reviewing drinking water systems statewide, coupled with detailed examination and public engagement in Tulare County of the San Joaquin Valley and the Eastern Coachella Valley. |

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| Linking Human Dimensions with Climate Mitigation and Adaptation to Transition Vulnerable Regions in Southern California to Climate Smart Communities | University of Southern California | Funded: Indicia Consulting LLC ; Altostratus Inc.; Climate Resolve | $845,000 | $0 | Ontario, Jurupa Valley, Chino Hills | Develop approaches to help Inland Southern California communities (1) mitigate their greenhouse gas emissions, and (2) adapt to future climate change impacts, especially those related to rising temperatures and poor air quality in order to accelerate and support their transition to climate smart communities. |
| Seaweed, Feed, and Manure Management: Achieving Comprehensive Reduction of California's Agricultural Methane Emissions | San Diego State University | Not Funded: University of California Cooperative Extension of Imperial Valley; Kings County Economic Development Corporation | $403,387 | $0 | San Diego | Develop a multi-factor decision-making framework for the agricultural industry to assess the methane emissions associated with ruminant seaweed supplementation, feed type, and manure management systems, by performing a comprehensive system analysis. |
| CSU5 Adaptive Development Strategies for Disadvantaged Communities in Response to Climate Change: A Multi-Scale Water-Energy-Food Nexus Investigation | Cal Poly Pomona | Funded: California State University, Los Angeles Not funded: City of Los Angeles; California State University, Northridge | $997,039 | $0 | Southern California region | Through a combination of laboratory experiments, field/pilot studies, and model simulations at the nexus of water-energy-food, investigate the mechanisms of GHG emissions during low-impact development and agricultural intensification in disadvantaged communities in rural and urban areas, discuss the resilience of disadvantaged communities under a changing climate, and recommend adaptive development strategies for vulnerable disadvantaged communities. |
| Confronting Climate Change in the Sierra Nevada: Advancing Science Integration and Collaborative Practice to Build Resilient Landscapes and Communities | Sierra Institute for Community and Environment | Funded: University of Washington; Birkhoff and Associates | $882,839 | $0 | Shasta, Tehama, Butte, Plumas, Lassen, El Dorado, Amador, Calaveras, Alpine, and Fresno Counties. | Support a science informed, consensus-group driven prioritization and implementation of landscape treatments that respond to multiple objectives, including: persistence of live above ground carbon pools through wildfire and drought, ecological adaptation and resiliency to future climates, ecological restoration, and community adaptation to climate change with an emphasis on reduction of wildfire risk to communities, particularly disadvantaged communities. |