



ICARP

INTEGRATED CLIMATE ADAPTATION & RESILIENCY PROGRAM

Technical Advisory Council Quarterly Meeting Meeting Minutes

April 14, 2023 | Zoom Video Conference | 9:30 AM – 3:24 PM

[Public Agenda](#)

[Meeting slides](#)

Item 1 | Welcome and Roll Call

Chair Saharnaz Mirzazad introduced the meeting with a land acknowledgement and noted that Sacramento, California is on ancestral Nisenan Tribal Land. She remarked that a land acknowledgement is a formal statement that recognizes and respects Native Americans as traditional stewards of this land and the enduring relationship that exists between Native American tribes and their traditional territories.

Today's agenda:

- Item 1: Welcome & Roll Call
- Item 2: Approval of Draft Meeting Minutes
- Item 3: State Agency Report Out
- Item 4: ICARP Programmatic Updates
- Item 5: 2022 ICARP Impact Report
- Item 6: Science Advisory Group
- Item 7: Local Transportation Climate Adaptation Program Guidelines
- Item 8: California's Fifth Climate Change Assessment
- Item 9: Extreme Heat Workshop
- Item 10: General Public Comment
- Item 11: Closing and Meeting Adjourned

Technical Advisory Council (TAC) Members Present (20):

Nathan Bengtsson, Pacific Gas & Electric (PG&E)

Allison Brooks, Bay Area Regional Collaborative

Roberto Carlos Torres (replacing Karalee Browne), Institute for Local Government

Kim Clark, Southern California Association of Governments (SCAG)

Shereen D'Souza, California Environmental Protection Agency (CalEPA)

Grant Davis, Sonoma County Water Agency

Jana Ganion, Blue Lake Rancheria

Alex Ghenis, Sustain Our Abilities

Jenn Phillips, (Alternate for Amanda Hansen) California Natural Resources Agency (CNRA)

Virginia Jameson, California Department of Food and Agriculture (CDFA)

Denise Kadara, Allensworth Progressive Association

David Loya, City of Arcata

Saharnaz Mirzazad (Chair), Governor's Office of Planning & Research (OPR)

Darwin Moosavi, California State Transportation Agency (CalSTA)

Jr De LaRosa (Alternate for Lori Nezhura), Governor's Office of Emergency Services (CalOES)

Linda Helland (Alternate for Rohan Radhakrishna) California Department of Public Health (CDPH)/California Health & Human Services Agency (CalHHS)

John Wentworth, Town of Mammoth Lakes

Gloria Walton, The Solutions Project

Enrique Huerta, (Alternate for Jonathan Parfrey), Climate Resolve

Jo-Ann Julien (Alternate for Wilma Wooten), County of San Diego

Absent (4):

Jacob Alvarez, City of Coachella

Veronica Beaty, California Coalition for Rural Housing

Sona Mohnot, Greenlining Institute

Michelle Passero, The Nature Conservancy

Item 2 | Approval of Draft Meeting Minutes

Public Comment

No comments.

Action

Nathan Bengtsson moved to approve the December 9th, 2022 and January 27th, 2023 meeting minutes, with a second from Gloria Walton.

The TAC voted to approve TAC meeting minutes from December 9th, 2022, and January 27th, 2023, with 15 ayes, 0 noes, and 5 abstaining.

Aye: Nathan Bengtsson, Allison Brooks, David Loya, Shereen D'Souza, Grant Davis, Alex Ghenis, Jenn Phillips, David Loya, Virginia Jameson, Saharnaz Mirzazad, Darwin Moosavi, JR De La Rosa, Linda Helland, Roberto Carlos Torres, Gloria Walton, and John Wentworth.

Abstain: Kim Clark, Jana Ganion, Denise Kadara, Enrique Huerta, Jo-Ann Julien

Minutes approved.

Item 3 | State Agency Report Out

Linda Helland provided an update for the California Department of Public Health (CDPH)/California Human and Health Services Agency (HHS). She shared that CDPH is implementing a syndromic surveillance system for near-real-time notification of climate-related health conditions resulting in an emergency department visit. They will also hire staff to provide technical assistance and support for local health departments to address climate and health issues. Additionally, she shared that CDPH is developing a contract with the Tule River Tribe to support their integration of health and equity considerations into the tribal hazard mitigation plan update and address housing issues as well. CDPH's research scientists completed an analysis of excess death from the September 2022 heat wave and is working to publish those results by June. In March, CDPH held a training in Tulare County understand weatherization and energy efficiency upgrades and support farmworker families in receiving these services. She also shared that CDPH's Center for Healthcare Quality and Occupational Health Branch provides education and guidance for foster care, healthcare, and long-term care facilities to help them stay at a safe temperature during heat waves. Additionally, the Occupational Health Branch will provide guidance and education to employers on how to keep workers safe from extreme heat. She concluded by sharing that CDPH is in legislative hearings because of the proposed elimination of the \$25 million Regional Climate Change and Health Resilience Planning Grant Program.

Darwin Moosavi provided an update for the California State Transportation Agency. First, he shared that the Regional Transportation Plan guidelines are currently being updated by the California Transportation Commission and will release finalized guidelines on May 5th. He also shared that the "Adaptation of Regional Transportation System to Climate Change" section was moved to a standalone item to provide more focus on adaptation topics. He also shared the PROTECT Program, through the Infrastructure Investment and Jobs Act (IIJA) will release a Notice of Funding Opportunity at the end of April. This program will offer nationwide planning grants available at \$25 million a year, resilience improvement grants at \$175 million a year, and community resilience and evacuation route grants at \$25 million. Mr. Moosavi concluded by sharing that the California Transportation Commission will provide an overview on their new Local Transportation Climate Adaptation Program.

John Wentworth asked if Darwin Moosavi will be present during Item 7.

Darwin Moosavi responded that he will be present.

Jenn Phillips provided an update for the California Natural Resources Agency. First, she shared that they released an annual progress report for the State Adaptation Strategy. This short report was developed in collaboration with OPR and included updates to the State Adaptation Strategy website. The report highlights statewide climate impacts in 2022, including progress the state is making across six priority areas identified in the State Adaptation Strategy. The State will begin the update to the State Adaptation Strategy later this year. Ms. Phillips shared that she will bring the plan to the TAC for input to ensure the plan is advancing resilience actions and drives on implementation across all parts of the state. She also shared that the California Natural Resources Agency is hosting several Earth Day events, specifically highlighting their work on natural working lands and nature-based solutions. She highlighted a state law that requires the agency to establish ambitious natural working land targets by January 2024. To meet this requirement, the state is convening an expert committee to inform these targets. The next public meeting of the committee will be held at the end of April.

Saharnaz Mirzazad provided an update for the Office of Planning and Research (OPR). OPR's Community Economic Resilience Fund (CERF) will release a tribal solicitation in mid-May for a four-to-five-week period. It is a \$25 million award to one or several organizations that can help with outreach, allowing for more flexibility for tribes and reducing administrative barriers. She also noted that CERF's economic development pilot awardees will be announced the second week of May. Additionally, OPR's Land Use and Planning Team will release the draft Evacuation Planning technical assistance for public review for the entire month of June. She continued with updates from the Strategic Growth Council (SGC), highlighting that the Transformative Climate Communities program is accepting applications for the program, and has a Request for Proposals for technical assistance providers to support California entities with the \$3 billion US EPA Block Grant Program. She concluded by sharing that the Community Resilience Centers program and the Sustainable Agricultural Land Conservation program will adopt guidelines at the April 26th SGC meeting.

Gloria Walton thanked the state agency partners for sharing these updates. She expressed that she and others are feeling eco-anxiety. She thanked Linda Helland for the work CDPH is doing to support farmworkers. She asked if CDPH is working with farmworkers directly or with unions. She mentioned that this partnership is required to support a just transition. She also appreciated Darwin Moosavi's updates about IJJA funding opportunities to support a pipeline to local communities. She concluded by thanking Jenn Phillips for sharing the update on the State Adaptation Strategy Annual Report and for elevating the need for nature-based solutions. She asked if there are opportunities to better connect nature and communities to ensure this information on nature-based solutions and protecting lands is about protecting local communities.

Linda Helland thanked Gloria Walton and shared that CDPH is providing support to interagency bodies on the mental health impacts on farmworkers. She mentioned that they hosted a workshop in the Fall on farmworker health and hosted a

workshop with the Turner Center and the Public Health Institute to develop a series of short videos that highlights the farmworker experience with extreme heat, smoke, and wildfires. She mentioned that CDPH is working the Community Healthcare Access and Information Organization, which is administering a \$281 million program to train 15,000 healthcare workers in climate change and the health impacts of climate change. She concluded by agreeing that it is important to connect this work to the labor and care sector.

Public Comment

Deirdre Des Jardins stated that there is a real systemic vulnerability that has been shown by the state and local response to flood events that exceed flood system capacity, specifically in the Tulare Lake basin. She expressed that it is difficult for local jurisdictions to make real-time decisions to reroute waters to protect vulnerable populations. Climate change is going to generate more flood flows that exceed the system capacity in both the Tulare Lake basin and San Joaquin Valley. She expressed hope the state and agencies address this challenge. Emergency services are good at moving people out of the way, but they are not well set up to make difficult choices in real time, while handling everything else.

Denise Kadara expressed her agreement. She noted that the community of Allensworth is vulnerable to floods, and her community is being told that flooding is inevitable, and they will not have road access. She shared that she has had conversations with state and federal partners who have expressed that fixing this flooding issue will take a long time because of planning, design, and land rights issue. She expressed frustration that the City of Malibu can quickly address mudslides and is quickly given the necessary accommodations to resolve these issues. She shared that for these communities, there is no fight with transportation agencies and traffic can flow in a matter of weeks, which is not the case for vulnerable communities. In Allensworth, there are only two ways in and out of the community and residents are struggling to get out of their homes when flooding occurs along the west side of HWY 43. It has been a stressful time since March 11.

Mark Roest shared that there are low-cost materials, besides pontoon bridges that are elevated guideways to provide access to people during floods.

Action

No action.

Item 4 | ICARP Programmatic Updates

Sloane Viola provided an update on ICARP's programmatic efforts. First, she introduced new staff. Beth Hotchkiss was promoted to a Senior Planner for Wildfire and Forest Resiliency. Allie Larman is ICARP's Assistant Planner on the new Extreme Heat and Community Resilience Program team and Mariah Padilla is an Assistant Planner who will be working on the Cooperative Technical Partners 2022 grant.

Next, Ms. Viola shared that the Fifth Climate Change Assessment's Tribal Research program established its Tribal Advisory Group, which will provide guidance and insight to support the integration of tribal knowledge and tribal-led research into the state's climate research. Additionally, the team released Draft Guidelines for the Tribal Research Grant Program, which will award \$3.625 million to tribes and tribal organizations over the span of the next three and a half years. Through many listening sessions and consultations, the team has created a draft with hopes to make this funding meaningful and accessible to all California Native American tribes.

She also shared that the Resilience Adaptation Planning Map continues to undergo updates to create a more comprehensive and detailed snapshot of local climate planning across California. Most recently, Staff added information on climate adaptation planning progress of 132 cities in the LA region. Of these, at least 53 cities have assessed climate vulnerability and developed adaptation strategies and goals, and at least 29 have updated and adopted safety elements in the last few years. Additionally, the Adaptation Clearinghouse has received over 16,832 unique users and now hosts over 1,000 unique resources.

Ms. Viola concluded by sharing that the Regional Resilience Grant Program released its draft Guidelines for public comment and conducted seven workshops that engaged over 270 people. Staff are integrating that feedback into the final guidelines, which will be available next quarter.

Public Comment

Deirdre des Jardins shared examples of record-breaking rainfall and other efforts to better forecast extreme events. She referenced California's climate change technical advisory group's 2015 recommendation to develop worst case scenario scenarios and using them for emergency planning and climate adaptation investments. She emphasized that climate change is accelerating in ways we don't completely understand, and the climate models weren't capturing this unprecedented rainfall. She urged the TAC to think about how to integrate these events into ICARP's programs.

Jenn Phillips asked Ms. Des Jardins if she could share the guidance she is referencing.

Deirdre des Jardins responded that the study is from climate scientists at the California Department of Water Resources.

Gloria Walton thanked Ms. Des Jardins for her comments and her sense of urgency for elevating these climate driven issues in other countries. She mentioned the importance of cultivating and developing narratives that can build relationships across communities, equalizing knowledge and understanding, and sharing solutions already underway. She expressed the need to elevate this story-telling component within the TAC space.

Michael Schmeltz, a faculty member from California State University, East Bay, shared that ICARP's 2022 Impact Report highlighted that Science Advisory Group will be leveraging members that already serve on advisory groups. He suggested that it may be beneficial for OPR to seek a wider range of expertise on these topics to bring new perspective.

Sloane Viola responded that later in the meeting ICARP staff will present on the Science Advisory Group structure and will discuss this further.

Michael Schmeltz shared that the Department of Insurance put out a Request for Applications on developing the extreme heat ranking system through AB 2238. He suggested that the ranking system should be broader than just an insurance perspective. He expressed that the request had a narrow scope, and it should be expanded to consider other considerations associated to extreme heat when finalizing a final ranking system.

Linda Helland responded that the California Department of Public Health is also involved in the implementation of AB 2238. She shared that there will be more information coming out to support a heat warning tool, such as the health and economic harms of not having insurance. CDPH will update the temperature threshold of health impacts for every census tract across the state. This information will be shared with CalEPA to develop the heat ranking tool and the health-based heat tool.

Sloane Viola responded that OPR is involved in the implementation of AB 2238 to develop an extreme heat ranking system. She stated that AB 2238 takes a multi-prong strategy to address heat risk, with the Office of Environmental Health Hazard Assessment developing the ranking system while the Department of Insurance is directed to look at insured losses due to extreme heat. She shared that the narrowness of the Department of Insurance request likely relates to the specificity of the legislation directing this work.

Gloria Walton thanked Mr. Schmeltz and Ms. Helland for mentioning AB 2238. Ms. Walton highlighted that the Adaptation Clearinghouse received 16,800 visits. She asked if these statistics are broken up geographically.

Nikki Caravelli responded that OPR can track visitors to the Adaptation Clearinghouse based on their metropolitan area and that the Clearinghouse receives more visitors from larger cities or metropolitan areas. She also shared that there are significantly more visitors from the Bay Area, Southern California, and Sacramento. There are few users from more rural parts of the state. She concluded that she could share more specific data offline.

Action

None

Item 5 | ICARP Impact Report

Sloane Viola presented on ICARP's 2022 Impact Report. Based on the feedback the TAC provided at the January special meeting, the report now includes an Executive Summary, which will be available in multiple languages. She thanked the TAC for the direction to take this step with the Impact Report to share the core messages of the report with wider audiences. The translated summaries, in addition to other helpful resources like an outreach toolkit, will be available alongside the fully designed Impact Report in the coming weeks.

Ms. Viola went on to share details of the report's narrative case studies. In 2022, ICARP's Fifth Assessment Team initiated a process to identify topics to guide the scope of Assessment's original research and other products. The team established a partnership with the California Council on Science and Technology to convene expert roundtables to narrow the list of topics. This process engaged academics and researchers, community-based organizations, business leaders, tribal communities, and government agencies to consider the broadest possible range of expertise. This diverse input ensures that the Assessment's research provides actionable climate science. Additionally, establishing a strategic partnership at an early stage in the Assessment allowed the team to increase capacity, leverage unique networks, and broaden engagement.

She continued by sharing that the Plan Alignment Toolkit provided another high-quality resource to support local governments' resilience planning efforts. This suite of tools will help planners navigate the complex processes to balance multiple planning priorities, include risk and vulnerability assessments, advance equitable outcomes and community engagement, and identify funding to plan and implement solutions. The Guides emphasize the importance of collaboration and equitable planning processes to achieve holistic results that benefit the entire community. Community-wide collaboration during the planning process can build capacity, empowering vulnerable communities to shape adaptation efforts and enjoy the benefits of a more resilient community. The Plan Alignment Guides had over 1,000 views in their first four weeks and are the second-most visited resource on the Adaptation Clearinghouse.

Ms. Viola noted that ICARP's new grant programs advance ICARP's statutory charge to develop a cohesive, equitable, and integrated response to the impacts of climate change. The guideline development processes for the Adaptation Planning Grant Program and Regional Resilience Grant Program collectively engaged over 1,000 individuals to ensure the programs would be responsive to on-the-ground needs. Through these processes, participants identified ways ICARP's grant programs could explicitly and meaningfully prioritize equitable outcomes, particularly in California's most vulnerable communities. Based on the feedback, the teams developed programs that provide flexible funding to meet multi-sector planning needs and embed equity into the planning process. Both programs will use a phased application process for potential applicants to propose their ideas, which will provide early feedback that mis-aligned applications are not competitive or create an opportunity for staff to provide technical assistance where appropriate.

Ms. Viola concluded by highlighting the final narrative case study. The TAC directed Staff to develop a Gantt chart that depicts state funding programs' timelines so prospective applicants can sequence their applications for state grants. Developing the Gantt Chart leveraged the interagency coordination structure of ICARP, demonstrating the value of the program, the TAC, and its working groups in identifying opportunities and supporting coordination to meet local implementation needs. By providing comprehensive information on state funding opportunities, the Gantt Chart can help applicants more efficiently navigate the complex environment of state funding opportunities and access funding to reduce climate vulnerability.

Allison Brooks reflected that in her role, she focuses on what happens at different scales of government. She shared that most of the work happens at the community

level, but state and regional agencies have a role to help achieve these goals. She asked how the Gantt Chart can help us achieve these goals in our communities, given the unprecedented amount of grant funding and the differing goals of each program.

Sloane Viola thanked Ms. Brooks for this question and shared that ICARP's Gantt Chart has several versions, one being a universal Gantt Chart that included over 50 grant programs. Other versions of Gantt Chart are specific to types of applicants, such as research institutions, local governments, and tribes. She noted that Staff has received useful feedback about how we can improve these charts, which will include information on whether there are set asides for priority populations, or whether there are match funding requirements. Ms. Viola concluded by welcoming feedback to strengthen Gantt Chart utility, and shared that the Gantt Chart is supposed to complement the State Grants Portal by providing a landscape analysis of funding opportunities.

Kim Clark shared that she also appreciates the Gantt Chart. She expressed that a lot of local agencies and jurisdictions often are not aware of available funding opportunities or face challenges accessing these grants because of limited resources. She expressed that having this information is helpful to make sure the money gets on the ground to communities most in need.

Jenn Phillips asked about the next steps for the Impact Report. She thanked ICARP for coordinating with the State Grant Portal. She asked if the State Grant Portal has plans to update the portal to include this information, so ICARP staff are not burdened with constantly updating a Gantt Chart.

Ms. Viola responded that the draft Impact Report is currently undergoing final design edits and the TAC will be voting on the report content today. The Impact Report will have additional materials, such as one-pagers and executive summaries. She concluded by noting that OPR is exploring collaboration opportunities with the State Grants portal to integrate with the Gantt Chart.

Allison Brooks shared that there are likely some overlapping activities these many programs are funding. She expressed that it is important that resources are distributed in an integrated way to help us achieve these goals. She stated that it would be helpful to have more detail on the type of gaps these grants are helping achieve, such as growing capacity. One example she mentioned was Caltrans' SB 1 Grant Program. She shared that it would be helpful to learn from the grantees about the challenges they experienced and what was achieved through these investments. She suggested that at future TAC meetings, grantees should be invited to help share their experiences to help us draw connections between this work and the learning component to help better develop resources to achieve these goals.

Sloane Viola thanked Ms. Brooks for her comments and shared that the State Grants Portal has a new requirement to share information on grant awards. Once this data becomes available, it would be interesting to see where there are opportunities to identify lessons learned. She also noted that the SB 1 program has case studies posted on the Adaptation Clearinghouse.

Roberto Carlos Torres thanked ICARP staff and said he enjoyed reading the Impact Report. He mentioned the importance of defining equity and tying it back to communities that have been impacted and disproportionately impacted by these impacts. He expressed that this should be tied to meeting the needs of vulnerable communities.

Public Comment

Deirdre Des Jardins mentioned the importance of collaboration and co-learning. She shared that some of this effort is being organized through integrated regional water management, which supports cross-regional stakeholder dialogue. She suggested that ICARP staff think about how to better collaborate across grantees to support co-learning.

Michael McCormick from Farallon Strategies, Bay Climate Adaptation Network, and executive committee of the Regional Collaboratives thanked OPR for creating the Gantt Chart to help better understand funding flows. He shared that the Gantt Chart was valuable across the regional collaboratives in California that are working on climate adaptation and resilience. He referenced a collaboration through the California Resilience Partnership to produce a report called *Climate Crossroads*, which looked at funding pathways, their value, and the equitable distribution of that funding. They interviewed over 500 different practitioners working across California on resilience and developed recommendations for the state or local governments or regional entities and how to collaborate around these historic funding opportunities.

Action

Ayes: Nathan Bengtsson, Allison Brooks, Kim Clark, Sheeren D'Souza, Grant Davis, Jana Ganion, Alex Ghenis, Jenn Phillips, Virginia Jameson, Denise Kadara, David Loya, Saharnaz Mirzazad, Sona Mohnot, Darwin Moosavi, Jr De La Rosa, Enrique Huerta, Linda Helland, Roberto Carlos Torres, Gloria Walton, John Wentworth, Jo-Ann Julien

Ayes (14)

Noes (0)

Absent: Jacob Alvarez, Veronica Beaty, Michelle Passero

Item 6 | Science Advisory Group

Ben McMahan presented on the Science Advisory Group. He noted that previously, the TAC has highlighted Science Advisory Group priorities, which include elevating some of the emerging science priorities and identifying some of the best available data and scenarios. This will allow practitioners to make sense of the wide range of climate science available, with the larger goal of connecting that science to the decision-making process.

In 2022, ICARP Staff completed a landscape review of similar groups to better understand the different functions these groups serve. Some provided a review of science and technical information and an overview of the state of the science. Others offered use case guidance and translation of those science principles, including alignment, integration, and coordination across different organizations for policy and planning. He noted that a key

focus of these groups is connecting between science and climate-related decisions, and a secondary emphasis was an ongoing process to identify research areas and gaps to stay current state with the state of the science.

Mr. McMahan continued that decisionmakers face a wide range of climate data and information, which can be challenging to navigate, and guidance on the use of that information can be challenging to comprehend. One of the key recommendations for the science advisory group framework is to draw on subject-matter experts to provide some scientific and technical guidance to better facilitate the use of climate science. He the high number of working groups and advisory groups that are already in place and providing this guidance within their areas of expertise. He noted the desire to avoid creating a new group with a duplicative function with some existing advisory groups, so this flexible approach could be another resource to help align policy.

Mr. McMahan continued by noting that the Fifth Assessment is already helping identify science priorities in a systematic process, and these existing groups could also highlight new areas of concern. The science advisory group would work in close coordination with both the Fifth Assessment and these existing groups to identify or elevate opportunities for new working groups that respond to some of these emergent priorities.

He continued by describing the implementation of this concept. Staff is envisioning this as a network of networks to leverage expertise to support the use of climate information and decision making. The role of the ICAP Staff would be to help facilitate organizing questions the group might respond to, connecting to some of those existing working groups, and then summarizing the information that comes in through that process. The general workflow process would involve identifying questions, communicating with existing groups, reporting back on the results of that question or what the outcome of those discussions might be, and then coordinating with the TAC.

To build out the network, Staff plan to start working with some of these existing groups. Mr. McMahan noted that an inclusive approach could also help integrate input from a wider range of perspectives. This could include some of the community-based or even local governments that could help share some of the key challenges that they're facing. Staff is also considering ways to allow flexible participation that respects the time commitment and only asks for input and bandwidth for questions that are particularly relevant.

He concluded by sharing discussion questions: "Does this seem like a feasible approach to address the priorities we referenced earlier?" and "What would be an optimal cadence for regular Science Advisory Group meetings and report outs to the TAC?".

John Wentworth thanked Mr. McMahan for his overview. Mr. Wentworth posed an open-ended question to all TAC Council members, asking how everyone is digesting all this available data. He expressed that everyone is dealing with a lot of information and asked how we should digest this information and efficiently get it to decisionmakers.

Ben McMahan responded that one way to address this challenge is by approaching it from a problem statement framing. He said that this approach can help identify if there are groups already engaging in this question. Approaching the work from this perspective will help bring forth work to the Science Advisory Group network and if there isn't a structure in place to address this issue, then a new group or cluster can be formed to help address the question.

John Wentworth thanked Mr. McMahan and shared that the next item he would like to discuss and prioritize is the challenge of aligning science and data to implementation for mitigation and adaptation.

Enrique Huerta asked about the focus of the Science Advisory Group and expressed that there appears to be a divergent goal. He posed an additional question about keeping topics relevant to climate science and broadening the perspective, so it is an inclusive process.

Ben McMahan responded that science can be narrow in its focus since scientists are experts in a particular field, and that Climate Resolve could help address this challenge. He suggested that one approach is to ask how science connects to the experiences of people in communities and how a particular science question or the outcome of that question matters for a particular community. He shared that one of the considerations for the Science Advisory Group is not just an emphasis on scientific expertise, but also process expertise, such as science communication or community-based research. Mr. McMahan concluded by expressing that focusing on methods and processes can help better draw that connection and expand the Science Advisory Group.

Enrique Huerta thanked Mr. McMahan for his response.

Roberto Carlos Torres thanked Mr. McMahan for his presentation and asked if there is a way for community-based organizations that work with vulnerable communities as well as local governments to be included in the network of networks to leverage their expertise. Incorporating these views is important to help to ground truth the science.

Ben McMahan thanked Roberto for his comment.

Gloria Walton thanked Mr. McMahan for his presentation and Mr. Torres for his comments. She underscored the expansion of methodologies to incorporate various methods to reach different communities. She shared that doing so can help have a representative swath of environmental justice organizations and various regions. She noted that there are a lot of community organizations that also identify as scientists and technologists. She expressed that ICARP has an opportunity to really track the depth of actionable science at the community level, as well as the data capture that's happening at the community level, which has existed for decades. She expressed

interest in seeing that integration with a formal structure, even if it's just an acknowledgement or reference to that data. She concluded by stating that the Solutions Project is more than happy to help because they are connected to an infrastructure of grassroots organizations across the state with some groups that are doing some science and data collection.

Ben McMahan thanked Ms. Walton for her response and stated that he sees this aligned with the Vulnerable Communities Platform, where local expertise around the experience of climate will be integrated, which dovetails with this effort.

David Loya thanked Mr. McMahan for his presentation and shared that a lot of this information isn't available to local decision-makers. He agreed with Mr. Huerta's comments and shared that he sees this as an iterative process. He seconded Ms. Walton's suggestion to find people who are working at that intersection of environmental justice and science. He said that doing so will be helpful to develop recommendations that consider the impact of people on the ground. A lot of the work at ICARP and other organizations seeks to recommend a cross-sectoral approach to identifying solutions, but these can differ when considering the impacts to people on the ground. Mr. Loya concluded by expressing appreciation for the idea of dovetailing this with the other efforts that you talked about and look forward to seeing the work as it progresses.

Enrique Huerta shared that he wanted to dovetail his last comment. He noted that the latest IPCC Assessment Report paints a grim picture about our immediate future, and it seems like there's a need to reevaluate a lot of the climate adaptation strategies that are popularized among the community. Many of them quite frankly are maladaptive for communities in the face of rising temperatures, for example. He emphasized that there's a lot of new information out there that needs to be disseminated so that communities can create new tools and strategies to adapt to a totally different world than what we're used to.

Ben McMahan thanked Mr. Huerta for his comments.

Denise Kadara thanked the TAC members for their feedback on this item. She shared that it is important to incorporate environmental justice groups, who have experience working with vulnerable communities, from the start. She added that it is important to incorporate education, especially for young people. She shared that there was a similar experience with recycling, where kids were responsible for teaching their parents about the importance of recycling. Ms. Kadara shared that the community of Allensworth has been teaching their young people about environmental justice and water quality to help them understand regenerative agriculture because it is critical for their future.

Gloria Walton asked about federal funding opportunities, specifically Justice40, where 40% of those benefits are ostensibly benefiting the most impacted, low-income frontline communities. She shared that as we are amplifying the importance

of being structurally connected and in relationships with frontline communities, it might be worthwhile to see if there are ways to support local efforts with those federal dollars. She concluded by sharing that she is interested to hear if ICARP is exploring these opportunities at all.

Ben McMahan responded that there is funding available through the United State Environmental Protection Agency's Environmental Justice funding to work with vulnerable communities and that ICARP is currently exploring that.

Alex Ghenis referenced Ms. Kadara's comment about science and communicating with youth. He asked if there is an opportunity for collaboration to figure out how to distill down that complex information to people who might otherwise tune out or feel overwhelmed by the science. He shared that this is a big barrier a lot of community organizations face. Likewise, given the circumstance we are in, working with scientists and other partners on the communications component so that people don't become emotionally overwhelmed and can't be engaged. We need to bring them in as partners to help in the fight for climate adaptation and mitigation.

Ben McMahan responded that this is an excellent point about science communication and finding ways that this information can resonate with people's experiences and understanding.

Gloria Walton responded by thanking Mr. Ghenis and Mr. McMahan for raising these points. She shared that community groups can help translate this information and data in a way that is digestible and popular.

Public Comment

Deirdre Des Jardins mentioned that she spent eight months doing a climate literature review, which found that what they formerly thought were natural cycles have been forced since 1950. That means the shift we saw toward the 21st Century megadrought could be forced and continue for another 30 to 80 years. There are teleconnections with processes in the North Pacific that cause extreme droughts in California. She expressed that it's profoundly changing the science and the models for climate adaptation. They're starting to discover it doesn't capture the trends in sea surface temperatures in the tropical Pacific, and the Arctic due to major limitations. She expressed that none of the agency scientists have the deep background in climate dynamics that you need to understand it, and recommended consulting with the world class climate scientists.

Ben McMahan thanked Ms. Des Jardins for her comments and said that she raised excellent points about cascading impacts and those connections to science experts.

Action

No action.

Item 7 | Local Transportation Climate Adaptation Program Guidelines

Rebecca Light from the California Transportation Commission (CTC) presented on the Local Transportation Climate Adaptation Program (LTCAP) guidelines. This program was created through SB 198, enacted in June 2022, and directs the CTC to develop and administer a program to support local transportation infrastructure projects that promote resilience to climate change. First, she shared that there are three goals every project should be able to meet: increasing resilience of at-risk transportation infrastructure; demonstrating consistency with any relevant climate adaptation plans, strategies, reports, and sustainable communities strategies; and prioritizing equity. Applicants can seek funding for resilience improvements to an existing transportation asset so that it withstands impacts of climate change. The program also supports activities to harden or increase the resilience of at-risk coastal infrastructure. The last category is community resilience and evacuation routes to reduce the loss of life.

There are numerous eligible applicants, but the focus of this program is local, regional, or tribal governments. She highlighted the eligible facilities identified in federal legislation for the PROTECT funds and an additional restriction associated with a \$148 million state appropriation of funding for this program coming from the State Highway Account. The funding is split into two cycles: the first cycle under development will have \$296.5 million, and the second cycle has \$141 million from PROTECT.

Ms. Light referenced numerous requirements incorporated into the guidelines. The program had to adhere to SB 198 and the numerous federal requirements associated with PROTECT. These projects need to increase climate resiliency and protect at-risk infrastructure using California's climate projections as stipulated in the 2017 *Planning and Investing for Resilient California* guidance. The state, regional, and local climate adaptation reports and the Adaptation Planning Guide should be considered as well.

She referenced a previous question regarding equity, and noted the program's guidelines currently include a glossary that defines climate vulnerability and climate equity. Additionally, she shared that applicants will need to demonstrate how their project increases equity for climate vulnerable, under-resourced, or underserved communities as directed via SB 198 and Justice 40. Instead of only 40% of the benefits reaching these communities, the guidelines stipulate that every project funded through this program will provide a direct benefit to those climate vulnerable, underserved, and under-resourced communities. Ms. Light continued that additional guidance and frameworks are incorporated in the guidelines to align with the SB 1 Program, the Climate Action Plan for Transportation Infrastructure (CAPTI), and the LTCAP Program. LTCAP is a new program that is not in CAPTI, but the program seeks to align with our land use, housing, climate, and transportation goals throughout the state.

She continued by noting the program's goal of increasing equity conflicts with the PROTECT requirement for a 20% match, which can be very high for some applicants. The CTC is allowing applicants to request that their match requirement be covered from that

state appropriation, and will prioritize this option for rural, underserved, and tribal applicants. Additionally, the PROTECT program limits preconstruction activity work to 10% of the total appropriated amount. The guidelines sought to increase that for the first cycle through that state appropriation because partners may not have any projects to nominate for construction. Applicants can also request that the state appropriation fund their project if they're in that pre-construction phase, the preliminary analysis, and design or right of way phases.

Next, Ms. Light referenced Allison Brooks' comment about the importance of bringing together grant recipients and noted that she will see if that is possible through this program. The data collection components of the program seek to ensure that the benefits that applicants are suggesting that their project will provide are measured so the LTCAP Program is aligned with the CTC's accountability and transparency guidelines. After five years from the completion of construction, the applicant will need to account for the benefits that they said that their project would provide and share if those benefits have been realized and provide an explanation if not. The data portion will help demonstrate the need for permanent funding for climate resilience.

Ms. Light concluded by reviewing the program timeline. They are about halfway through the program development and must quickly finish these guidelines because of the budget liquidation period. They have presented to Caltrans and CalSTA to incorporate equity considerations. During the program's fifth public workshop on April 26th, they are hoping to engage with stakeholders and will present the final guidelines in May. Staff recommendations for this grant will be released by Winter 2023.

Saharnaz Mirzazad thanked Ms. Light for her presentation and shared that she had an opportunity to review the guidelines. She expressed that there is one component in the guidelines that is misaligned with OPR's work, specifically funding projects that increase roadway capacity. She shared that OPR has worked for several years to develop guidance for using vehicle miles traveled to evaluate the transportation impacts of projects, and the resources from the guidelines clearly state that adding road capacity leads to an increase in vehicle miles traveled. As an agency that advocates to reduce vehicle miles traveled to lower the transportation sector's contribution to climate warming emissions, it is difficult to see roadway capacity projects eligible for funding under a climate-oriented transportation program. She asked Ms. Light to explain why this type of project is included in their eligibility list.

Rebecca Light thanked Chair Mirzazad for her comment. Ms. Light expressed that they heard similar feedback from the Commission in March. Roadway capacity is eligible under the PROTECT Program, but they heard vehemently from stakeholders that this should only apply to evacuation activities. Applicants need to demonstrate that their current evacuation routes are not adequate to move out the number of people they have, so this category is very limited.

Saharnaz Mirzazad responded that there are other ways to support emergency evacuations and shared that OPR is about to release an Evacuation Planning Technical Advisory and suggested that they consider these guidelines when developing their program. She added that increasing highway capacity is counterproductive to what we're trying to achieve because it will increase greenhouse gas emissions. She suggested that the California Transportation Commission revisit roadway capacity eligibility because it might not achieve the goals they are intending.

Shereen D'Souza echoed the comments that Chair Mirzazad raised. Ms. D'Souza shared that CalEPA, given its role in both climate adaptation and climate mitigation, doesn't see how roadway expansion is the best solution. She expressed that she understands the need to be able to evacuate people efficiently and safely. She offered to work with CTC, OPR, and CalSTA offline to explore other solutions to evacuate people. She continued that from her perspective, roadway expansions not only increase greenhouse gas emissions and VMT, but then lead to additional people living in those places, which will have cyclical effect of needing to evacuate more people who are inadvertently living in high-risk areas. She expressed that she understands the federal government is willing to support this activity, but it is not in alignment with California values.

Rebecca Light thanked Ms. D'Souza and mentioned that the guidelines incorporate evaluation criteria requiring applicants to describe their strategies for reducing greenhouse gas emissions and VMT. She shared that she will take Ms. D'Souza's comment back to the Commission.

Shereen D'Souza asked for clarity on which roadways would be eligible for roadway expansion. She shared that Ms. Light mentioned that major evacuation routes would be eligible, but it would be helpful to know what percentage of roads would be eligible for expansion.

Rebecca Light responded that she doesn't know what percentage of roadways would be eligible. She shared that under CTC's Demonstrate Consistency Goal, we would want to see this documented in their Safety Element or Local Hazard Mitigation Plan. She shared that they want applicants to document these goals in the plans local or regional governments have produced.

John Wentworth shared that he is from a community that is under local, county, state, and federal disaster declarations directly related to climate change. He expressed that he is in solidarity with Ms. Kadara, Ms. Walton, and Ms. des Jardins for their experience with flood risk. He expressed his eagerness to learn more about this program and shared that his communities were isolated for weeks due to the snow emergency and had major avalanche concerns. He posed a question regarding actions to mitigate the effects of climate change on infrastructure and communities. He elaborated by noting that infrastructure resilience requires meeting near-term

needs because we are experiencing climate impacts now. Mr. Wentworth requested a copy of the slide deck because he is Chair of his local Transportation Commission and would like to share the information with them. He concluded by noting that his community needs snowplows because CalTrans equipment was not sufficient to deal with this season's snowfall.

Allison Brooks thanked Ms. Light for her presentation and Mr. Wentworth for his comments. Ms. Brooks noted that she has supported previous CalTrans Adaptation Planning Grants. She asked what assets the grants could support if CalTrans district offices are not eligible grantees. She also asked Mr. Moosavi to clarify the role of CalSTA in these grants and the goal of CalTrans and CalSTA to advance these projects and concept ideas. She expressed that often staff are participating in planning efforts, but the projects do not reflect the agency's organizational goals, how these projects will fit into the State Highway Operation and Protection Program (SHOPP), and how these projects will support decision-making. She expressed a need to clearly communicate how projects move from planning to implementation and how projects support statewide and agency goals. She also asked the agency's commitment to move these projects forward, not just through grant funding but through agency decision-making, at the local and state-wide offices. She concluded by asking about data collection and how grants support decisions that increase resilience.

Rebecca Light sought clarification if Ms. Brooks' question was about how the grants are moving the needle of progress and that's measured. Ms. Light shared that the CTC assesses performance metrics through reporting methods. She shared that applicants should demonstrate meaningful engagement with climate vulnerable, underserved, and under resourced communities, and these communities must be connected to the project in some way. Applicants also must align their project with goals for their local government, region, or tribe. The applicant must clearly demonstrate how this project will protect at-risk transportation infrastructure and other critical infrastructure. It is important to demonstrate how the applicant's project has meaningful engagement and work to prove that this is the best possible project and not a one-off project. She concluded by offering to follow up offline.

Darwin Moosavi responded to Ms. Brooks by noting that this program is for locally driven projects, but CalTrans has a responsibility as the owner and operator of state highways. When this program was created, there was also a parallel state program and embedded into the SHOPP for CalTrans-led projects. He expressed that it might be interesting to invite CalTrans staff to a future TAC meeting to share the work they are doing to implement the planning work. He shared that it can be quite challenging given how the SHOPP is set up to be asset management, which in some ways, is very much connected to climate change and in other ways is driven by basic performance metrics that don't really capture all the complexities.

Alex Ghenis shared an anecdote from Berkeley, where they are working on turning a designated evacuation lane into a safe street with bike lanes. He shared that there have already been conflicts about evacuation width of that street and the ability to add bike lanes. He added that he wants to make sure that we aren't just focusing on cars as the only way that people can evacuate. He also encouraged any sort of incorporation of accessibility- and disability-focused transportation methods within the criteria narrative and the upgrading of fixed-route transit facilities. He concluded that being more accessible to the disability community is a huge boon to independence and quality of life.

Denise Kadara referenced the nature of the one-time funding for the program to support numerous goals, including equity. She expressed that these grant programs are designed to fail because vulnerable communities must jump through so many barriers to apply for funding. She asked how the CTC is measuring equity and how will vulnerable communities access this funding to support evacuation routes.

Sona Mohnot thanked Ms. Light for the presentation and the focus on resiliency and equity. Ms. Mohnot shared that the slides focused on outreach and public engagement get at the procedural part of equity, but expressed desire for a better understanding of how equity contributes to the scoring of projects. She asked a second question regarding consideration of unintended consequences, such as increasing VMT or just potentially exacerbating existing harm in communities.

Rebecca Light shared her email and a link to the discussion draft. She shared that they are not penalizing anyone for their projects because they do not want to discourage people from applying. In the guidelines there are multiple threshold criteria, ranging from low, low to medium, and medium to high, with the equity considerations being about half of the criteria that applicants will be scored on.

Saharnaz Mirzazad asked for the deadline to submit public comments to the draft guidelines.

Rebecca Light responded that comments should be submitted a week from April 26th.

Public Comment

Deirdre Des Jardins shared she has been advocating for modeling of extreme events, such as extreme heat and precipitation. She shared that it would be beneficial for understanding evacuation needs, such as Highway 99 being blocked by the Consumnes River flooding, which would be disastrous for Sacramento.

Mark Roest expressed that he is thinking about a multi-level, multi-agency process that addresses these different questions and brings together landscape architects, engineers, and material scientists to think through these challenges to identify what is possible. He stated that he comes from a Bucky Fuller Institute perspective that focuses on geoscope for large scale planning to generate scenarios where multiple solutions can apply. One

example of a solution would be for fire and flood, there's a thing called ultra-high-performance concrete, which has been used around the world and the most challenging applications through structural geometries.

Action

No action.

Item 8 | California's Fifth Climate Change Assessment

Neil Matouka provided an overview of the California's Climate Change Assessment, which is an evolving series of processes and products that evaluate the impacts of climate change on California and provide the foundational knowledge and data to support climate action adaptation and planning efforts across the state. The Assessment currently underway is the fifth climate change assessment undertaken in California, which builds on the foundation of previous assessments and the feedback from our partners. OPR is the interagency coordinator of the Fifth Assessment in partnership with the California Natural Resources Agency (CNRA), the California Energy Commission (CEC), and Strategic Growth Council (SGC).

The Assessment will produce a suite of research and tools that identify the impact and risks of climate change. The Energy Commission is leading the production of downscaled climate change projections and data, including climate scenarios such as a wildfire and hydrologic models. These will be incorporated into Cal-Adapt and future research products. The Energy Commission is also leading the development of original climate research focused on the energy sector. OPR is working with the California Natural Resources Agency to produce original climate research not covered by the Energy Commission's program. This novel research is specific to California and will fill gaps in our knowledge, a key distinction between our charge and that of the National Assessment. Building on lessons learned from the Fourth Assessment, the Fifth Assessment includes a first ever Tribal Research Program. The program will be prioritizing early, often, and meaningful consultation with California Native American tribes, especially through our tribal advisory group and the CEC's Tribal Research Grant Program that will support tribally-led climate research.

Mr. Matouka continued that the synthesis of the climate projection data and original climate research will culminate in a series of reports that will call attention to broad climate issues across the state. Per the Assessment's statute, this will include a tribal report and a report on environmental justice. However, the Assessment will support additional topics based on the feedback received in the coming months. The Assessment will also include regionally specific information to help guide communities with responding to the impacts of climate change that affect their particular areas. These synthesis reports may incorporate novel research and information but are primarily synthesis activities to gather the new and existing data and research and provide focused information for relevant parties and communities. Finally, a statewide summary report led by OPR's Fifth Assessment Team highlight major findings and lessons learned.

The Fifth Assessment is a five-year process, ending in June 2026, but public engagement and outreach is an ongoing process throughout the entire assessment. Staff are working tirelessly to make sure that engagement with partners within and external to the state is an ongoing process that includes opportunities for feedback at various points on individual products and processes as well as the overall assessment. Today's discussion is one of these opportunities for valuable input from TAC members and the public that will be incorporated that into program design moving forward.

Mr. Matouka provided an overview of recent accomplishments of the program. In the last year, the Fifth Assessment undertook a research topic identification process. This process collected over 600 proposed topics from more than 200 individuals and organizations, which was refined into a final list of 26 research topics, or research gaps. The Assessment will fund research on some, but not all, of these topics, so the list provides value for highlighting unknowns for researchers and communities. These are also under consideration for potential topics in the regional reports, and staff are seeking more input on which of these topics are cross-cutting or particularly relevant for specific regions.

Next, Elea Becker Lowe provided more context on the Fifth Assessment's Regional and Topical Synthesis Reports to inform TAC member discussion. These reports acknowledge and synthesize various key findings, lessons learned, and information established throughout the Fifth Assessment's various research efforts through a regional lens. These will include locally-specific details about the nuanced climate change impacts affecting the built, natural, and social systems throughout the state, and they'll also consider a variety of more general themes – which is what we're here today to begin discussing.

The Fourth Assessment created this model for the nine regional reports. Ms. Becker Lowe acknowledged and recognized that there's no perfect way to group the state in a way that adequately addresses all the nuanced concerns at a local level, nor transboundary issues. She posed a question regarding an approach to address these various locally-relevant concerns throughout the regional reports and integrate them across all these products. With the Fifth Assessment, unlike the Fourth Assessment, the state has funding and time to figure out how to address these issues and develop locally supportive materials that help communities better understand and act on issues of climate change in their regions. Staff have already begun and plans to engage with a variety of partners and advisors, to gain diverse perspectives on the scope of these reports and the process to design and implement them throughout the rest of this year.

Early next year, staff plans to confirm authorship teams and then the real work begins, culminating in 2026 with the complete package of Fifth Assessment products. Ms. Becker Lowe noted that staff is seeking feedback on the proposed framework, including the general and locally-specific themes that will be addressed in these regional reports. The team will issue a formal request for information next week. They will also convene four associated listening sessions to gather input on the scope of the regional reports. Additionally, staff are conducting interviews with community-based organizations and engaging with California Native American tribes and tribal organizations. There's a variety of in-person community engagement events scheduled throughout the summer with local

leaders and residents. Staff are also setting up campus visits to universities and colleges, conducting a variety of interagency collaborations and hosting webinars, public gatherings, and so many more opportunities.

Ms. Becker Lowe concluded by noting that a few of cross-cutting themes that came up through the research topic identification process include issues of governance, economics and financing, the integration of traditional knowledges, and monitoring and evaluation. She highlighted that there are a few other broad issues reflected in many of the 26 research topics that were mentioned earlier. These include things like climate impacts from a health public health perspective, impacts to the workforce, and various other concerns for the state's built, natural, and social systems in the face of a changing climate. She underscored that this discussion seeks input from the TAC and the public on what additional general themes should be included in each of the Fifth Assessment Regional Synthesis Reports.

Jo-Ann Julien noted that the projections, data, and modeling mentioned focused on wildfire risk and hydrology, and asked these products will also include air quality related to wildfires and smoke, as well as heat. She also asked about which topics were included on the list and whether she could provide input and if there was information to share so others could also contribute. She concluded by recommending that the regional report topics consider the health impacts of excessive heat, air quality as it relates to wildfire smoke, and vector-borne diseases.

Neil Matouka responded by stating that the hydrology and wildfire modeling are two of the scenario models that are being developed, and the general downscaled climate projections enable modeling of heat impacts. The Cal-Adapt website includes Fourth Assessment projections, and it's not unreasonable to expect updated tools for the Fifth Assessment. He continued that Staff are not anticipating, at this point, doing air quality modeling. Mr. Matouka concluded by noting that anyone can reach out to the team directly to provide input on the research topics and the regional reports, and there will be an RFI to share input.

Nathan Bengtsson shared one observation that the climate vulnerability assessment process is sort of a pivot table of interests: hazards, people, economics. He noted that social equity is not one of the five listed themes, and while he expects it to be incorporated throughout the report or one of the topical reports, it should also be in the regional reports. From an end user perspective, the regional reports are a guide to engaging with and understanding what is important to that region in terms of adaptation, and social equity is as critical as governance.

Neil Matouka responded that they are using the Strategic Growth Council's Climate Change Research research model and that is a community-led research process. Staff are making sure that community members, NGOs, community-based organizations, and local governments are involved in the entire research process starting from the scoping phase. Staff will be clear about expectations for the authorship teams and the leadership teams on

these regional reports to include not just academic authors, but also members of the community.

Elea Becker Lowe added that the topical reports are one place where the Assessment will spend some specific attention on issues of equity and environmental justice. It's absolutely a priority and critical to bring that forward throughout everything we're doing.

Nathan Bengtsson referenced the distinction between information for long-term planning on a decadal scale versus addressing hazards that are happening right now and characterizing the difference is an important frame for this work.

Enrique Huerta shared his appreciation for the research topics' inclusion of the effectiveness of cooling strategies for buildings and neighborhoods and indoor heat exposure. He noted that extreme heat impacts, particularly on marginalized communities, typically focus on physiological effects, but there's an evolving understanding of its impacts on mental health and cognition. He expressed interest in considering how home weatherization might have unintended consequences for mental health because of isolation in homes.

Sona Mohnot expressed appreciation for including equity in all the reports. She also stressed the importance of ground truthing the data against community expertise and lived experience. She asked if there will be grants available for communities to participate in the Assessment research, similar to the Strategic Growth Council's Climate Change Research Program.

Neil Matouka responded that there will be funding for all the reports, rather than asking people to do pro bono work. He shared the expectation that if community members and community organizations are working to support a regional report they will be compensated in some way. Mr. Matouka also noted that the team is considering how to connect the report teams so, for example, the team working on the environmental justice report connects with the other report teams so they can learn from each other and make sure the information or guidance is consistent and builds on other resources.

Denise Kadara asked how the reports will be presented to youth, who have taken a lead on climate and equity issues. She advocated for the reports to include information in a format that's useful to and understood by young people so they can get involved.

Neil Matouka responded that youth groups can participate in the regional report scoping, and that the team will incorporate youth engagement as they hold regional workshops. He noted that they are also collaborating with agency partners to identify best practices for research communication and are considering plain-language summaries of research and accessible public presentations of the findings.

Saharnaz Mirzazad shared that OPR has been trusted to establish the Youth Commission which will hopefully provide an opportunity to get feedback on the Fifth Climate Assessment.

Allison Brooks thanked Ms. Kadara for bringing up the importance of incorporating youth. She mentioned the opportunity to work with California schools to create a curriculum around the Fifth Assessment and connect them to government.

Denise Kadara highlighted her work with UC Berkely to develop a curriculum for middle school students about public health, including air quality and water quality. She noted that a curriculum to engage youth on climate change will help engage them and address these issues and support vulnerable communities. She concluded by expressing appreciation for staff's presentation.

Jo-Ann Julien highlighted work undertaken in San Diego, with the encouragement of CDPH, to work with local partners to communicate about the public health impacts of climate change. They undertook this effort in partnership with 15 other organizations, and engaged community members, nonprofits, and community-based organizations. She suggested that once the regional report is complete, those partnerships could be leveraged to build out the material.

Enrique Huerta expressed interest in studying the economic impacts of extreme heat and other climate impacts to local jurisdictions. He referenced the Fourth Assessment's statistic that heat illness and death will cost \$50 billion by 2050 and noted that understanding these impacts across sectors would be useful.

Public Comment

Mark Roest shared that multiple layers in a geographic information system can be used to manage cross boundary research as well as cross cutting issues and relationships among causes and effects across the landscapes.

Martha Segura offered to share data from the City of Los Angeles, who is trying to get more granular data than what's available through the County's climate vulnerability assessment, particularly for health disparities. She noted that heat's effect on air pollution is responsible for emergency room visits and death, particularly in areas of high chronic illness.

Neil Matouka responded that the team is open to any data and doesn't want to preclude jurisdictions from contributing more granular data. The goal of producing original data for the Assessment is to provide a solid foundation of data relevant to California at a more granular scale than the global projections.

Michael Schmeltz noted his hope for the Assessment to explore variables that emphasize vulnerability, especially social vulnerability, for environmental justice communities. He noted that this may be difficult to quantify, but that cumulative hazard exposure will be highly valuable. He continued with a question of whether the reports will be able to identify and

communicate cross-regional impacts of maladaptive decisions or climate impacts, and used an example of how flooding in the Central Valley might affect food prices across the state.

Neil Matouka noted that the research topics are not exhaustive and intentionally broad. Staff anticipates the approaches to addressing the research gaps could be varied, which could generate numerous reports. The issue of cascading and compounding impacts is of high interest, especially for trans-regional impacts. The RFI process is seeking feedback on how to approach these questions.

Action

No action.

Item 9 | Workshop: Extreme Heat

9a: Extreme Heat and Community Resilience Program

Abby Edwards provided an overview of the Extreme Heat and Community Resilience Program. Extreme heat events are identified as consecutive, unusually hot days. The recent IPCC report found that climate change has already increased mortality from worsening heat waves, and this will continue to increase as climate change worsens. She noted that different regions of the state experience extreme heat differently.

She continued by acknowledging that rising temperatures impact people differently and vulnerable populations – including aging populations, children, indoor and outdoor workers, and those with certain health conditions – are at a higher risk. Moreover, combining these characteristics and existing health inequities with additional factors such as poverty, linguistic isolation, housing insecurity, stress on the grid, cost of cooling, and the legacy of racist redlining policies can put individuals at a disproportionately higher risk of heat-related illness and death. According to the IPCC report, adaptation is highlighted as most effective when it includes long-term planning and multi-sector approaches.

Ms. Edwards continued that OPR, through ICARP, received funding in the state budget to support the Extreme Heat and Community Resilience Grant program. The program will invest in local, regional, and tribal heat reduction and mitigation activities through planning and implementation projects. This can include activities like the development of local comprehensive heat action plans, built and natural infrastructure projects, projects that provide passive or low energy cooling strategies, or social and communications-based projects like warning systems and information campaigns. Additionally, this program will provide technical assistance for grant applicants as well as awardees to support the development of some of these projects.

Over the past couple of years, Staff have conducted extensive outreach as they developed several of ICARP's grant programs and the State's Extreme Heat Action Plan. Ms. Edwards expressed gratitude for everyone's support in shaping these programs and plans. Staff plans to utilize key findings as the basis for the formation of this new program. From the Extreme Heat Action Plan engagement, Staff learned that extreme heat impacts individuals, communities, and regions in six main ways: extreme heat severely impacts public health and

safety; exacerbates existing inequities; increases the threat of wildfire, drought, and poor air quality; burdens energy infrastructure; has economic costs, including disruptions to the supply chain and key industries; and it threatens the health and well-being of natural systems including biodiversity, wildlife, and our forests.

Staff also asked respondents questions about the state's role in extreme heat action and the most prominent responses called on the state to support coordination and collaboration across levels of government between utilities, the private sector, NGOs, community-based organizations, and beyond. Additionally, local climate adaptation action through funding opportunities and technical assistance across the different action tracks of the extreme heat action plan is necessary and a bottom-up approach to extreme heat action that drives unique needs, priorities, and expertise of communities. Finally, actions should maximize CO2 benefits in addition to reducing risk so projects can reduce greenhouse gas emissions, increase public health, provide economic opportunity, and increase access to nature.

ICARP's engagement on the Adaptation Planning Grant Program and the Regional Resilience Planning and Implementation Grant Program will help inform this program. Commenters expressed that these programs should meet organizational needs through eligible costs and activities. That means directly funding staff time for planning and having set-aside funds allocated for climate vulnerable communities. Another recommendation emphasized connecting planning grant activities to implementation funding, including connecting climate vulnerable communities to additional resources and expert help. Increasing accessibility can be achieved by providing hands on assistance throughout the application process and creating a simple application. Other recommendations were to coordinate with similar programs when developing the program to fill gaps and leverage existing resources, as well as encouraging strategic partnerships that prioritize vulnerable and disadvantaged communities to build long-term capacity.

Abby Edwards introduced key questions for feedback and meeting participants provided feedback within breakout rooms.

Breakout Room 1

What type of extreme heat planning and implementation activities could this program support? What obstacles are in place that prevent communities who are vulnerable to extreme heat from implementing these activities?

Mark Roest pointed to an example project on Highway 101 where an irrigation pipe created a mist and emphasized the success of traditional methods of creating outdoor microclimates.

Enrique Huerta noted that many of LA County's 88 cities are small, dense, and have capacity issues that constrain their primary concerns. These cities need support in updating their General Plans to recognize the threats of extreme heat and develop comprehensive heat action plans. He voiced his support for the technical assistance the program will provide. He concluded by emphasizing the need for integrated projects that advance innovative solutions, such as cool pavement, integrated bus shelters, and shade structures.

Jana Ganion referenced a previous series of Climate Science Symposiums, which communicated regional climate impacts and the state of climate science. She noted that it would be helpful if efforts like this were part of the planning initiatives. Ms. Ganion seconded Mr. Huerta's comments on capacity constraints.

Mark Roest voiced his agreement and added that we should incorporate technologies that are available at low cost and have high likelihood of success.

The budget language for this program requires multi-stakeholder partnerships. What partnerships and collaborations do you think are needed for a project's success?

Nathan Bengtsson referenced his experience running the PG&E Community Program, which required municipal entities to demonstrate longstanding partnerships with at least two community groups. Because local heat action plans have energy considerations, it would be helpful to collaborate with utilities. He concluded by suggesting that application scoring award additional points based on the extent of applicants' partnerships.

John Wentworth requested consideration of the effect of extreme heat on population movement because there are increased risks, including to natural and working lands, resulting from this population movement.

Enrique Huerta suggested that partnerships include communities and schools. He also emphasized that public health officials should be leaders in these conversations so we can better understand and address the impacts of extreme heat to improve public health.

Mark Roest noted that Ports have a shortage of energy to power trucks, which can affect downstream communities.

How can this funding work in coordination with other state investments? What opportunities exist to align this program so recipients can leverage other funding opportunities?

Enrique Huerta recommended integrating a suite of solutions instead of funding one solution at a time.

Breakout Room 2

What type of extreme heat planning and implementation activities could this program support? What obstacles are in place that prevent communities who are vulnerable to extreme heat from implementing these activities?

Denise Kadara noted that there isn't funding to address extreme heat for vulnerable communities; there may be funding for a cooling center, but not long-term staffing and maintenance.

Sona Mohnot asked if there is opportunity in the program for applicants to self-identify their projects because there may be other solutions. She further inquired about the rationale behind identifying vulnerable communities and extreme heat strategies, and whether the identified communities would be able to participate in identifying strategies.

The budget language for this program requires multi-stakeholder partnerships. What partnerships and collaborations do you think are needed for a project's success?

Denise Kadara emphasized that public health and public education are critical and should be involved in the process to avoid exacerbating existing problems.

Alex Ghenis noted that people with disabilities are critically vulnerable due to physiology, sociology, and mobility. He recommended that the program focus on centers for senior living or other facilities where vulnerability can be concentrated.

How can this funding work in coordination with other state investments? What opportunities exist to align this program so recipients can leverage other funding opportunities?

Jen Phillips referenced the Strategic Growth Council's Community Resilience Centers program and that we should be clear about which program is most suitable for certain projects. She further recommended that the program connect applicants to multiple sources of funding.

What would success in achieving heat resiliency in your sector or community look like?

Alex Ghenis cited concerns about air conditioning and grid stability and suggested encouraging group use of air-conditioned facilities to ease strain on the grid. He concluded that extreme heat warnings are critical, and that social media can be a useful tool.

How can the state best support community scale action on extreme heat?

Sarah Church pointed out that there are many partners relevant to extreme heat, and that the program should encourage cross-agency collaboration. She continued by expressing interest in facilitating partnerships between health workers and community groups.

How can this program address existing climate related inequities and support the communities most vulnerable to extreme heat?

Denise Kadara emphasized that the most vulnerable communities should be at the forefront because other populated, urban areas tend to be a priority.

Sona Mohnot noted that mitigating heat exposure for impacted communities requires capacity building and technical assistance to be competitive applicants. She referenced a lesson learned from the Community Resilience Centers program that there isn't broad understanding of what's required to build a resilience center.

Denise Kadara said that most people suffer through extreme heat without awareness of cooling centers. She underscored that plans and guidelines need to include participation by impacted people to be successful.

Alex Ghenis referenced economic inequities that limit access to housing. He identified a need to connect with community members and encourage conversations so that information and awareness radiates out, but that "train the trainer" models are inefficient.

Breakout Room 3

Virginia Jamison referenced the upcoming presentation from the state veterinarian, Annette Jones, about livestock mortality during extreme heat events. The agricultural community could use help with activities to address this challenge, such as increasing water troughs or

fans for animals in barns. Ms. Jameson concluded by identifying lack of awareness of programs like this as a potential obstacle to accessing programs.

Allison Brooks identified a need for greater understanding of responsibilities across sectors and the types of activities that can address heat. This could serve as a "starter kit" that identifies authorities, actions, partnerships, and best practices.

Roberto Carlos Torres referenced the obstacles vulnerable communities face, which aren't limited to lack of resources, but also includes educational components in the community and local government. He noted that the current emphasis on cooling centers doesn't account for the low chances vulnerable community residents walking outside in the heat to access a cooling center. He underscored that holistic strategies that consider both the community's infrastructure and residences, including addressing urban tree canopy and weatherizing old homes so they stay cool without significant energy demand.

Kim Clark noted that the Energy Code and Green Building Code include recommendations, but not requirements, for shading and energy efficient cooling in new buildings. New development will produce energy exhaust that makes the neighborhood hotter, so understanding these challenges as communities face housing crises is difficult. She called for more information and tools, as well as understanding how zoning and building standards can reduce the impacts new buildings have on the urban heat island effect. She concluded by pointing out that information on low-cost solutions for cooling buildings would be a useful resource.

Edgar Reyna referenced a lack of coordination with local health departments and medical facilities in Fresno County, which impedes data collection about which communities are most vulnerable to heat and how they experience health impacts. This information would allow public health personnel to coordinate with city planning and public works divisions to create infrastructure that can improve public health outcomes during extreme heat events.

Nicole Wong noted that communities that she works with cite a need to focus on extreme heat in both residential settings (especially for elderly populations and mobile home residents) and outdoor work environments, which require different strategies and actions. She also referenced the intersection of extreme heat and air quality, which bridges climate resilience and environmental justice. Ms. Wong referred to Ms. Clark's comments and added that there might be cost burdens on low-income tenants and potential displacement, examples of cascading economic impacts that require greater attention.

Clesi Bennett referenced the high level of interest in the Natural Resources Agency's and CalFire's grant programs that support nature-based solutions to extreme heat, including a new program at CalFire to green schoolyards. She emphasized the importance of technical assistance for applicants to help identify if nature-based solutions are appropriate and the associated long-term maintenance needs and costs.

Jo-Ann Julien noted upcoming convenings of health systems representatives in San Diego in August on extreme heat. She referenced Mr. Torres' comment about weatherization and air conditioning and continued that in San Diego roughly 40% of households have air

conditioning. Increasing nighttime temperatures and increasing humidity are problematic, which aren't solved by cooling centers because they're only open during the day. She referenced a webinar hosted by the State of Arizona, which explored why people weren't accessing cooling centers. Awareness was one barrier, but the presenters also found that transportation to the centers and lack of activities in the centers kept people from using them. She underscored that it's informative to learn from other jurisdictions, which in this case demonstrated that cooling centers aren't a silver bullet because they don't meet everyone's needs. Ms. Julien continued that collaboration with planners and engineers would be productive because they understand the complexity of building and energy codes. She added that existing housing stock can lack air conditioning and called for solutions for existing buildings.

Allison Brooks built off Ms. Bennett's comments regarding green and nature-based solutions to extreme heat, noting that permeable surfaces in urban environments have heat and flood mitigation benefits. She also noted that the transportation sector has a role to play. She suggested looking to sub-Saharan Africa, the Middle East or other societies that have lived in hot environments for a long time and use natural systems more effectively to reduce heat. She concluded by cautioning against goals for widespread installation of air conditioners because they add to long-term problems with greenhouse gas emissions.

Clesi Bennett referenced the Natural Resources Agency's urban greening program and CalFire's urban and community forestry program and suggested that they coordinate with other extreme heat programs to address heat at a community or regional scale. This would integrate nature-based solutions, built infrastructure, public awareness and outreach, home weatherization, and public health funding to address extreme heat. She concluded by suggesting that these planning dollars could bring together these pieces and prepare applicants to apply to other opportunities.

Nicole Wong suggested coordinating with the new building decarbonization program at the California Energy Commission and the Strategic Growth Council's Community Resilience Centers program.

After returning to the main session, Abby Edwards concluded by discussing next steps for the Extreme Heat and Community Resilience Program. Staff plans on hosting listening sessions throughout the spring and early summer before releasing draft grant guidelines for public comment in the fall. Staff aims to release applications later in 2023-2024. The regional and sector-based listening sessions in May and June will have a lot more time to dive into some of the details of the program and get more feedback then.

9b: Extreme Heat Awareness Campaign

Yumi Sera, Executive Director of the new Office of Community Partnerships and Strategic Communications (OCPSC) provided an overview of their Extreme Heat Awareness Campaign. OCPSC is housed within the Governor's Office of Planning and Research and manages the State's highest priority community engagement and public awareness efforts, including extreme heat, COVID vaccines, and water conservation.

Ms. Sera began by recognizing the work of the people in this room and expressed appreciation for the depth of knowledge and diversity of perspectives on the TAC. She noted that the work she leads is different from the adaptation conversations thus far and focuses on the State's highest priority community engagement and public awareness efforts. OCPSC is building on the model of the 2020 Census outreach, where Ms. Sera was Deputy Director of Statewide Outreach, and the Vaccinate All 58 COVID-19 campaign.

Ms. Sera connected OCPSC's extreme heat awareness campaign to the Extreme Heat Action Plan's track related to public awareness, specifically Goal 1 to build public awareness on extreme heat through a targeted communications campaign. This will consist of collaboration with state agencies, rapid response campaigns, and activating resources to keep Californians safe from extreme heat. Through their partners, OCPSC will educate people about what extreme heat events are, how to stay safe during them, and what resources are available to help.

OCPSC's approach centers on data and equity. In the case of extreme heat, they will analyze where people live and what languages they speak to provide targeted and accessible information. They also use data to ensure equitable approaches and use robust monitoring and tracking for accountability. By collecting and drawing on lessons learned, the team will amplify voices from the field. OCPSC's engagement includes focus groups and learning labs, as well as regional meetings and statewide convenings.

In addition to media campaigns and message content development, OCPSC conducts outreach through a network of trusted community messengers. Ms. Sera characterized the trusted messengers as community-based organizations, local nonprofits, medical professionals, elected officials, faith leaders, and ethnic media outlets. She reinforced that OCPSC's messaging focuses on how vulnerable Californians can stay safe and prepare for extreme heat and will develop a media campaign for behavior change.

Ms. Sera concluded by noting her desire to hear from the TAC about how OCPSC can work with them and leverage their networks to best get messages to their communities. She posed several questions to guide the discussion: How can we leverage and support your own efforts that in the communities where you work? What information can you share about your communities either in the population or in a specific geographic area that would be useful for our campaign? What channels of communications and outreach approaches do you find most relevant and effective to reach the most vulnerable communities? What is the best way to provide information when we launch our campaigns?

Nathan Bengtsson sought clarification on whether the campaign was a general informational campaign and not a rapid response program.

Yumi Sera responded that it is a combination of both.

Nathan Bengtsson asked if there will be education and a warning element that helps people know when to worry or take action.

Yumi Sera responded that it will be informational, primarily for people to prepare. A lot of other offices do the real rapid response, but OCSPC will be working very closely with those other state agencies.

Nathan Bengtsson asked about the best way to share findings from local community engagement around high heat.

Yumi Sera responded that she will share her email in the chat.

Enrique Huerta referenced a workshop that Climate Resolve held in partnership with the Los Angeles Regional Collaborative on Sustainability and Climate Resilience that engaged local community-based organizations and medical professionals to discuss how awareness campaigns could better engage hard-to-reach communities. One finding was that low-income communities of color have well-established routines that they cannot alter to protect themselves from extreme heat, regardless of awareness campaign messages. The conversations also sought to identify ways to raise awareness among people seeking medical care for heat illness, and how to improve data sharing from local clinics to the California Department of Public Health. Mr. Huerta concluded by offering to share his findings directly with Ms. Sera.

Yumi Sera thanked Mr. Huerta for his comments and noted that she will follow up.

Jo-Ann Julien referenced San Diego County's Partner Relay, which has been in place for over 10 years and won the Nature Award. The network activates during events like heat waves, and partners with the Excessive Heat Taskforce to respond and disseminate messages. She highlighted another key partnership with the Aging and Independent Services Department in this effort. Throughout the year, the Partner Relay groups hold regular workshops, which sometimes focus on extreme heat and wildfire smoke events. She concluded by noting that the San Diego County Health and Human Services Agency has regional coordinators and community-based organization networks to support these communications.

Denise Kadara noted that vulnerable communities in the Central Valley are significantly impacted, and that schools could help distribute simple awareness-raising messages that children take home to their families. She also noted that information can be shared in water bills. She concluded by stressing the importance of getting messages out to vulnerable communities ahead of time so they can be prepared to protect children and the elderly during summertime heat events.

Alex Ghenis noted the value of social media platforms to share information because they provide quick, digestible information and get shared on other platforms. He emphasized that these short videos with catchy, engaging tups are a great way to reach youth.

Saharnaz Mirzazad thanked Ms. Sera for her presentation and noted that the awareness campaign is filling a key gap in the State's response to extreme heat. She applauded OCPSC's equity-centric approach. She concluded by noting that the

extreme heat campaign is laying a foundation for OPR's upcoming outreach on the extreme heat ranking system and expressed enthusiasm for partnering with them in that upcoming effort.

Public Comment

Sarah Church, from the Alameda County Office of Sustainability, asked if the messages would be co-created with community members and community-based organizations. She noted that her organization's work around extreme heat messaging targeted people recreating outdoors, and did not reflect trends predicted by climate science, such as hotter nighttime temperatures. They worked with the County's public health officer to develop more relevant recommendations, like putting a cool washcloth on your face and hands. She concluded by expressing her hope that communications can be more relevant to people and have a wider reach as a result.

Yumi Sera responded they have a lot of lessons learned from the Vaccination and Census campaigns on how to work with communities. They've been doing focus groups with some community groups, and they expect all their assets to be more community-driven.

Michael McCormick, from the Bay Climate Adaptation Network, noted that this region had a lack of coordinated communication, especially long-term, reliable communications infrastructure, during last year's extreme heat event. He noted that ad-hoc websites about cooling centers during specific heat events would be taken down after the event, making them an inconsistent and unreliable resource.

Yumi Sera thanked Mr. McCormick and said that his point was well taken.

Michael Schmeltz, from Cal State East Bay, shared his observation that email is no longer effective for engaging college students and the need to think of different ways to communicate with them for these types of events. He continued by noting that many have access to information about air quality, but don't have enough understanding to use that information to change their behavior.

Erin Kouts, from the LA Regional Collaborative, asked Ms. Sera if the team has A) funding to support folks doing on-the-ground distribution and B) staff time to provide campaign evaluation expertise.

Yumi Sera noted that their trusted messenger network is a funded community-based organization network, and that they plan on hiring an evaluator for these campaigns, but it's an evaluation and learning combination.

9c: Gaps and Opportunities Panel

Dr. Annette Jones, the State Veterinarian for the California Department of Food and Agriculture, provided an overview of how farmers and ranchers are adapting animal agriculture to extreme heat. California has the most abundant supply of crops and livestock in the country. The most valuable product is milk from dairy cows. Our dairy farms have been downsizing and leaving the state: every year, for the past decade, we're losing about 2

to 3%, but there are still over 1,000 dairy farms. The other major types of animal agriculture are beef cattle, poultry, aquaculture, sheep, and swine. Dr. Jones continued by sharing more facts on dairy, beef cattle, and poultry production.

Because animals also experience illness and death, extreme heat also impacts livestock. When livestock die, they primarily go to rendering, a service that recycles organics to the highest and best use products. Some ingredients can be used for feed, others can be industrial uses such as biofuels, cosmetics, paints, and more. Rendering is probably the best way to address mortality in terms of minimizing impacts on the environment because some go to landfills. It is okay to bury from an animal health perspective but there's a lot of environmental regulations, which also pose challenges for composting.

Dr. Jones stressed that farmers and ranchers care deeply about the livestock under their care. Unusual events like COVID, extreme heat, or freezes threaten the agricultural industry, but those with livestock have the added stress of ensuring their animals stay healthy. Feedlots have people regularly walking or riding among the pens to check on the livestock every day, and if there's an animal that's struggling, they will move it to a hospital pen for more intensive care.

She continued by sharing images from facilities that handle livestock and how the farmers and ranchers have adapted their practices to keep the animals safe and healthy under a variety of conditions. For example, computer systems and monitors check temperature, humidity, ammonia levels, and how much food and water are consumed. If any of these metrics are off, it will notify caregivers to respond. Farms also maintain air temperatures in indoor facilities and deploy fans and shade structures in outdoor settings. Occasionally farms will use misters or showers to cool cattle, but water availability can be a challenge.

Dr. Jones returned to the topic of rendering facilities. The Department of Food and Agriculture licenses about 50 rendering facilities, but only four of them take dead stock. This limits the options for where a farmer or rancher can take dead animals. The rendering facilities themselves also face challenges during extreme heat – their equipment requires a lot of heat and pressure to treat the product and can fail under increased heat. While slight increases in mortality during heat events can be absorbed in the system, heat increases decomposition, quickly creating an ugly problem. Increasing rendering capacity faces challenges associated with cost increases, regulatory pressures, and other factors. In some cases, capacity is becoming more limited – there are no renderers in the north coast. Dr. Jones concluded by welcoming questions from the Council.

Dr. Edward Flores faculty director for the UC Merced Community and Labor Center presented on their Farmworker Health Study, which includes the context for agricultural work and worker disadvantage, the threat of heat to agricultural workers, and how California policies could make the agricultural industry more resilient. He began by noting that California is the nation's top agricultural producer: in 2019, California accounted for 50 billion dollars in crop cash receipts, 13.5% of the nation's \$371 billion total. At the same time, California farmworkers have a profile of acute disadvantage. This largely immigrant, non-

citizen, and undocumented population earns a little over \$20,000 a year, and nearly one in two households live below a living wage.

Agricultural workers have historically experienced some of the least worker protection in the nation. California industrial agriculture was modeled upon the southern plantation. When modern day worker protections were established, such as the National Labor Relations Act or the Fair Labor Standards Act, the only two worker groups excluded from these protections were agricultural workers and domestic workers – the jobs where southern Black workers were concentrated. To this day, these groups don't have the same unionization, collective bargaining, or wage and hour federal protections. These exclusions were created to preserve a caste system and now they affect a largely Latino immigrant population that lacks the same formal rights as citizens.

Because farmworkers are immigrants, non-citizen, or undocumented, they often don't have access to unemployment insurance benefits. Also, they may hesitate to report non-compliance with wage and hour violations, or health and safety standards. This has allowed farmworkers to remain vulnerable to unsafe working conditions amid record-breaking heat waves. Farm workers' vulnerability as workers has made them especially vulnerable with increasing global environmental challenges facing workers. High temperatures are already a major occupational hazard to farmworkers because strenuous exercise during temperatures above 80 degrees can lead to heat illness and death as well as higher incidence of major chronic diseases. Climate change will continue to make agricultural work more dangerous. The number of days spent in unsafe heat levels is projected to double by mid-century.

In recent years, California has been a leader in creating policies for working standards that fill gaps or improve upon federal standards. The Cal OSHA heat standard is one example of heat illness prevention. It requires that all outdoor employers have a written heat illness prevention plan, monitoring on hot days with the thermometer, and when it's 80 degrees or hotter they must provide shade for all workers during breaks. When it's 95 degrees or higher, a 10-minute cooldown rest is required every 2 hours. However, many California employers – and many of the state's nearly 6000 labor contractors – are unaware of the heat standard in 2017. Cal OSHA conducted nearly 1500 inspections that resulted in citations for unsafe heat load conditions.

Dr. Flores continued with some statistics to illustrate how farmwork is among the most dangerous occupations. In 2019, US farmworkers experienced one and a half times the non-fatal injury rate of all workers. That same year, California farmworkers' non-fatal injury rate was nearly double that of all private sector workers. In 2019, California agricultural workers accounted for more than 10% of worker deaths in the state, despite only comprising a little bit more than 1% of all workers. However, these are likely highly undercounted, especially in the case of extreme heat, because heat death may not occur until after a shift is over, and underlying health problems may disguise the role of heat and occupational deaths.

The UC Merced Farmworker Health Study is the largest ever academic study on the health of farmworkers. Survey questions asked about climate adaptation, including topics such as employer compliance with the California heat standard, wildfire standard, and sanitation standards. The study found hundreds of cases of non-compliance with climate-related worker safety standards. 43% of respondents said that their employer had no posted heat plan and 32% said that when respirators were needed, they were always lacking. One in three also said they would be unwilling to report employer noncompliance that they witnessed. Among those, two out of three said they would be unwilling to report due to fear of retaliation, such as job loss or deportation.

Dr. Flores shared the report's policy recommendations for making agricultural work more resilient. This includes continuing to invest public resources in protecting workers' rights – such as more staff that speak the languages that workers speak at state regulatory agencies like Cal OSHA. The report also recommends aligning public investments to raise agricultural work standards. He referenced the High Road Economic Development Framework, which is premised on finding shared interest between industry, labor unions, environmental, or community groups, and investing in collaborations that raise industry standards. Aligning the state's tremendous public investment in agriculture through the California Department of Food and Agriculture and the UC Agriculture and Natural Resources program could do a lot to raise agricultural work standards. Dr. Flores concluded by mentioning that AB 227 is being considered this year to create an unemployment system for undocumented workers, which could expand the economic safety net and reduce the perceived risk of reporting non-compliance with worker health and safety standards.

Virginia Jameson asked if ranchers were implementing measures to address heat exposure for animals on rangelands.

Dr. Annette Jones responded by noting that ranchers can select breeds that are appropriately heat-tolerant for the location. Additionally, when there aren't trees to provide shade in rangelands, ranchers provide shade structures. Finally, ranchers also provide salt and other supplements to support livestock health in high temperatures.

Denise Kadara Dr. Jones and Dr. Flores for their presentations.

Linda Helland thanked Dr. Flores for his work and noted that the farmworker study is powerful and disturbing, highlighting a lot of work that needs to be done. She highlighted \$1.5 million that the California Department of Public Health's Occupational Health Branch is using to engage with some of these employers to educate them about outdoor heat standards. Ms. Helland asked Dr. Jones for more detail on why dead animals can't be composted, because it seems that this could be a solution to the need for more compost on farmland and ranches.

Dr. Annette Jones responded animal health and public health concerns limit the ability to compost dead livestock. Without knowledge of why an animal died, there's potential for a composted animal to spread disease and impact

human or animal health. They are working with Cal Recycle, the California Environmental Protection Agency, and regional boards and districts to consider how this might be approached safely.

Jo-Ann Julien expressed her appreciation for Dr. Flores' presentation and requested a copy to share. She also asked Linda Helland what local health departments can do to help the state and CDPH address these large-scale inequities related to farmworkers.

Linda Helland responded that she would follow up.

Public Comment

Mark Roest recommended maximizing the use of agro-voltaics, which is solar over crops, based on plant responses. Mistnets could be attached to them, cooling the microclimate while providing moisture to both workers and plants.

Action

No action.

Item 10 | General Public Comment

Michael McCormick highlighted a new report from Climate Resolve and Farallon Strategies funded by the Resources Legacy Fund that will support a better understanding of SB 379 implementation across the state. A key finding is that just slightly over half of local governments have adopted a safety element that addresses the requirements of SB 379, even though the implementation deadline has already passed. Most jurisdictions that have met this requirement did so through updates to local hazard mitigation plans, which aren't necessarily suited to address climate risk on a long-term scale. The report offers specific recommendations for how the state can improve SB 379 implementation, including recommendations relevant to ICARP and the Office of Planning and Research. They will also be setting up briefings with our state agency friends and others that may be interested, and Mr. McCormick expressed his willingness to speak with anyone who wants to make improvements across the community of practice.

John Wentworth offered some concluding remarks regarding emergency access and road construction. He advocated for a nuanced approach because a lot of rural communities exposed to wildfire risk don't have adequate emergency access and safe egress routes. He also shared that the comments about bicycles, e-bikes, and all kinds of different methodologies for emergency access and egress are something to think about.

Item 11 | Meeting Adjourned

Meeting was adjourned at 3:24pm