Integrated Climate Adaptation and Resiliency Program
Technical Advisory Council Resilience Metrics Work Group Meeting

Meeting Minutes

July 21, 2021 | Zoom Video Conference | 10:00 AM – 12:00 PM

Item 1 | Welcome and Roll Call

Present: Jacob Alvarez, Grant Davis, Laura Engeman, Jana Ganion, Sydney Chamberlain (Alternate for Michelle Passero), Nathan Bengtsson (Alternate for Heather Rock), Malinda Dumisani (Alternate for Yana Garcia), Jonathan Parfrey

Absent: Karalee Browne, JR De La Rosa (Alternate for Christina Curry), Jason Greenspan, Amanda Hansen, Linda Helland (Alternate for Mark Starr), Nuin-Tara Key, David Loya, Dan McDonald, Sona Mohnot, Darwin Moosavi, Andrea Ouse, Brian Strong, Gloria Walton, John Wentworth, Wilma Wooten

Item 2 | Approval of Draft Meeting Minutes

DISCUSSION

Juliette Finzi-Hart opened discussion for review of draft meeting minutes from the 4/21/2021 work group meeting.

ACTION

Councilmembers voted to approve draft meeting minutes. Jonathan Parfrey motioned to approve, Jana Ganion provided a second.

Aye: Jacob Alvarez, Laura Engeman, Jana Ganion, Sydney Chamberlain (Alternate for Michelle Passero), Nathan Bengtsson (Alternate for Heather Rock), Malinda Dumisani (Alternate for Yana Garcia), Jonathan Parfrey

PUBLIC COMMENT

None.

Item 3 | Discussion on Resilience Metrics

Juliette Finzi Hart summarized the results of previous resilience metrics meetings, interagency meetings, existing state plans, programs, goals, and metrics. Juliette proposed a conceptual framework for how these elements can inform the state's

resilience metrics and opened the floor for TAC questions and breakout discussions focused on the following questions:

1. Who is your audience?
2. What type of indicator/metric will help you (qualitative/narrative and/or quantitative?)
3. How will these help you in your work?

Jonathan Parfrey: There seems to be a preponderance of examples from the natural side. I'm wondering if there's an overrepresentation as compared to the social.

> Juliette Finzi Hart: That's what we'd like to determine throughout our discussions.

Malinda Dumisani: Are you wondering if this framework makes sense to us? What type of feedback are you looking for?

Juliette Finzi Hart: Yes, does it make sense? Any questions?

Jonathan Parfrey: Is there going to be an analysis of exposure? Or is it blended into sensitivity or risk?

> Juliette Finzi Hart: Some plans and programs might fall under the risk and exposure side, while others might fall more under adaptive capacity. We haven't yet categorized the metrics under the risk, sensitivity, or adaptive capacity buckets.
>
> Jonathan Parfrey: Buro-Happold has done some notable work on the social vulnerability side. Examining how impacts affect communities and potential responses are really important.

Rosanne Ratkiewich: Are the resilience metrics intended to reflect changes (increases or decreases) in resilience which might be detectable after major disruptions?

Juliette Finzi Hart: Yes, this is something we'll discuss during the breakout sessions. We want to show decrease in climate related risks/disruptions/chronic impacts and increases in resilience.

Rosanne Ratkiewich: When I think of resilience, I think that we are only as resilient as the most vulnerable among us. Ecosystems are the most vulnerable and marginalized communities; their resilience could be a more telling indicator of how resilient we as a community dependent on that world can be. I was thinking of the earlier objection to the natural world metrics focus.

> Juliette Finzi Hart: It remains to be seen if they are actually skewed towards the natural.

BREAKOUT ROOM 1

Juliette Finzi Hart facilitated a discussion with participants on local uses of resilience metrics.

Lucy Andrews (PHD Candidate & Researcher at UC Berkeley): I staff Cal-Adapt, and also contract with CNRA to do 30x30 planning on freshwater ecosystems, where we're looking at how to identify ecosystems to achieve climate resilience benefits via nature based solutions alongside social and equity dimensions.

Jana Ganion (Sustainability and Government Affairs Director, Blue Lake Rancheria, a federal tribal nation in northwest CA): I co-chair the National Working Group for Energy and Infrastructure for Tribal Nations at the US Department of Energy (DOE), and am a Pacific Region Technical Advisory committee member for the National Congress of Indians. I work at the intersection of Federal, tribal, and state initiatives and policy.

Jonathan Parfrey (Executive Director, Climate Resolve of Los Angeles): We're focused on Southern California climate resilience and mitigation.

Jacob Alvarez (City of Coachella Assistant to City Manager): I work on local climate and sustainability projects.

Michelle Jesperson (Department of Water Resources, Eco Restore branch): I focus mainly on carbon sequestration maximization in DWR projects.

Julian Enis (Utilities Engineer, Energy Division at CA Public Utilities Commission): I'm working on valuing resilience, and making better electric system investments to reduce social burdens of power outages resulting from overlapping threats.

Stephen Chastain (Air pollution specialist at CA Air Resources Board): I work on data collection and management for 70+ cap-and-trade investments and how we start quantifying resilience and improve how we track resilience in those programs.

Nikki Caravelli (Assistant Planner, OPR) I manage the State Adaptation Clearinghouse and take minutes here.

Juliette Finzi Hart: Who is your audience for your use of metrics?

Jana Ganion: My audience is tribal and rural governments and communities. Both qualitative and narrative indicators would be useful. A good story can be more helpful sometimes. A crucial number answers whether we are reducing emissions. We need to improve community-based organizing around these transitions and adaptations, and need to simultaneously decarbonize. Many on this call have made mitigation commitments that inform their adaptation, but now we need to show progress on emissions reductions, so we need a number. It is great to have a paradigm and a clear goal that communities and governments are driving toward. When the tribe set its goal of resilient lifeline sectors paired with zero net carbon emissions by 2030, that presents paired mitigation and adaptation. These metrics help prove whether we are achieving

resilience, and creating social and economic benefits that result from decarbonation and improve resilience at the same time.

Lucy Andrews: In the 30x30 work the goal is to identify social, economic and climate benefit strategies to inform State conservation goals. The language around resilience is not well defined in this effort; and many other efforts, and not all conversations are happening in an integrated fashion. I hope the metrics and indicators also inform my work in that space and help define what a resilient fresh water system is, how we can choose lands that provide resilience benefits. I also recognize that we need to think about community resilience, and the contributions of natural and working lands, waterscapes, urban heat island reductions, public access and cooling benefits to communities. The metrics need a geospatially explicit dimension, to inform an area-based conservation and restoration scheme. I need quantification in my work. We don't believe there's a one size fits all approach, there may need to be some layer of ecoregions to it; for example, urban vs. rural. My audience is readers of the 30x30 pathways document (coming out later this fall).

> Juliette Finzi Hart: Just a note that we are coordinating the State Adaptation Strategy and resilience metrics efforts with the 30x30 effort.

Jonathan Parfrey: I have three separate audiences; first is local government planners in our technical assistance work preparing municipalities for adapting to climate impacts and mitigation efforts. The data that could come from a resilience metric would be helpful especially with SB 379 compliance and subsequent legislation. Secondly, some state agencies cause logjams by not releasing data; for example the Office of Statewide Health Planning and Management doesn't release data on heat impacts, or if they do, it's very late; we need to know the impacts from heat waves much sooner, not 2-3 years after the fact. We're separating the event from the impact in the public and policymakers' eye; so having an emphasis on metrics could get all the agencies on the same page about delivering data more quickly. A third audience is state legislators, and regional actors, to identify and understand gaps. Metrics will be especially helpful for policymakers at the state and regional levels new to the adaptation and resilience context, especially at the MPO level.

Juliette Finzi Hart: What scale should the numbers be? Would they work at a regional scale? How do we ensure they're meaningful?

Jonathan Parfrey: If you have too micro view, it may not be meaningful. It's difficult to get meaningful numbers with a small sample size – i.e. too small a population for statistical significance and to greater impact when communicating the analysis. That said if the numbers are small even after analysis, this is important to note.

Jacob Alvarez: Grant managers and agencies are our audience; we have minimal tax income so we need extra money to do projects. More fluent audiences, such as Environmental Justice non-profits and munipical planning organizations will look at the data. Sometimes at the city level, this depends on the jurisdictional staff culture. What grabs our priority is politics and current issues. At the subregional level, aggregated data tells a better story. In our region, our boundaries are well defined. We are

responsible to the subregion. Narratives and observational data can also be helpful. As we implement state funded projects we're learning as staff, but we're also teaching our contractors and the on-the ground workers what the vision is so they can help continue and spread the work.

Julian Enis: At CPUC we are looking at electric system resilience. Our audience is at the nexus of local governments, tribes, utilities, community-based organizations, and state regulators. We're developing a planning and investment framework to figure out what sort of electric system infrastructure investments will be the most resilient and cost effective. We're working with Berkeley and Sandia Labs and their tools to assess economic impacts and social burdens resulting from outages. We're investigating what kind of electric investments would reduce those burdens. We're looking at quantitative metrics to ascertain the best course of action. Numbers are preferred but narratives are also good to keep in mind; we're engaging a diverse set of stakeholders through this process to address all the diverse resiliency needs of the community. Our framework is meant to be scalable for an individual, county, utility, or state level in terms of electric infrastructure investments. This ties into the broader framework of climate adaptation in the electrical system. Electric demand is increasing with high heat. There's a nexus within the larger scale planning process especially as the state moves to decarbonization and achieving SB 100.

Lucy Andrews: It would be great for the metrics to not only characterize "current resilience" but also offer insight into where resilience can be "improved" - where are our greatest opportunities? For example, what about potential climate refugia for vulnerable species/assemblages, that could show gains in resilience due to prospective investments?

Michelle Jesperson: The public at large is also our audience, in addition to other audiences mentioned. State efforts are accountable to people of the state.

BREAKOUT ROOM 2

Nicole Hernandez facilitated a discussion with participants on local uses of resilience metrics.

Sydney Chamberlain (The Nature Conservancy and ICARP TAC member): I have a natural and working lands role and audience, such as land owners, ranchers, land managers, individuals, and larger agricultural operations - people who are managing and stewarding our lands.

Nathan Bengtsson (PG&E Climate Resilience team): I work on microgrids and energy system resilience. Our audience includes engineers who run the system – they need info to make investments to serve people well. Others include regulators who need metrics to show they are caring for people and the system appropriately given expected conditions.

LaNette Zimmerman: (Citizen, Carmel-by-the-Sea City Climate Change Committee). I'm working on an adaptation plan; understanding potential metrics and how to

communicate them is important to this effort. My audience includes the city council and citizens. Segments of populations feel small and often see us as monolithic. Better understanding of the audience segments will be helpful in measuring success.

Deborah Glaser (Adaptation consulting firm): We have a broad range of clients, such as local and national governments, NGOs, private sector folks, and partnerships, who we work with to improve adaptation through strategic planning, resilience success metrics and other services. I used to work with the LA regional climate collaborative. Another audience is the financial sector and their client base, and getting them to include resilience metrics in their work.

Rosanne Ratkiewich (Resiliency and microgrid team, CPUC): Primarily I'm interested in the impacts of the electrical system on ratepayers. Our audience is ratepayers and investor owned utilities. Ratepayers are shouldering the investments for resiliency and reliability. We need to be able to assure that increases of resilience investments benefit all ratepayers. A way of looking at the problem of resiliency is to see that local governments and tribes and tribal nations are often picking up the pieces or the gaps where investments fall through.

Sydney Chamberlain: I'd also add local government planners

Deborah Glaser: I used to work on sustainable development goals and setting indicators and goals in British Columbia. Adaptation and resilience is context-specific. It would be challenging to develop one-size-fits-all targets and indicators, they must be regionally specific. Sustainability is defined different among First Nations vs. other government groups. Carbon emissions targets vs. access to traditional to hunting grounds and storytelling is an example. There must be space for qualitative measurements, and they should be inclusive since the quantitative metrics will not resonate with all communities.

Rosanne Ratkiewich: The electricity system is measured in kilowatts and kilowattj hours delivered. Outages are zero on the scale. We'd use these to measure the impacts of that outage. There might be direct impacts or harder to quantify social burdens and impacts of that outage. Those impacts might have a longer recovery period. For instance, a two day outage might impact income that never comes back. We need metrics to reflect the social burden of energy disruption. We're trying to find a measurable way to talk about that difference in social burden and how to decrease that social burden.

Sydney Chamberlain: Quantifying social burden is very difficult. It's probably a mix of quantitative and qualitative. It doesn't have to be a number, but we do need the ability to compare for the purpose of rigorous assessment.

Deborah Glaser: World Bank metrics might be worth looking at.

Nathan Bengtsson: The type of indicator depends on the question you are trying to answer. Planning and investing well means different things for different users. For PG&E we need a way to comprehensively understand vulnerability to a variety of threats.

We're interested in serving people equitably and understanding each climate change impact; our equipment is sensitive to different things than the community, for instance. But we need to meet the expectations and needs of the community. We are having a metrics discussion but there are some policy decisions we need from the State to know where we are going. To measure, we need to know where we want to go.

Clay Downing (County of Ventura, Sustainability Division executive office and planning division on resilience). We're thinking through phases on the resilience cycle and how to determine readiness, recovery, response, and how to measure and continue adapting. Our audience is unincorporated communities. Rural and existing community needs are high. Vulnerable communities are our greatest focus. We're looking for a resilience pathway for how to get from disasters like the Thomas fire back to recovery and into readiness. We don't know the indicators and metrics but want them to focus on both response and recovery components, especially for vulnerable communities.

Both quantitative and qualitative are needed. We need indicators for understanding what we are doing and how well, then adapting to the future, for example in our farmworker resource program. We'd like if OPR hosted a resiliency decision-making platform as a first step, and then found where it deviates. We adopted our updated General Plan in September 2020. We've worked to achieve SB 1000 compliance by identifying disadvantaged communities through CalEnviroscreen (CES) and other factors, tying those to specific communities, and lifting up engagement. State data that goes across the board and consistent was key, such as socioeconomic status and pollution exposure.

Rosanne Ratkiewich: We'd like to leverage metrics collected from other sources and use them as inputs, and need the metrics to reflect the demographics of ratepayers. For example, how hard they are working to get their needs met? What are those needs? These kinds of metrics would be helpful. For our work we'd put the metrics into a modeling format, and use them for baseline assessments and post-disruption to understand if investments in infrastructure have decreased the effort communities need to put in to reach their need.

We're talking to tribal nations a lot. CES rules out a lot of tribal communities for a variety of reasons. We need another way. The Healthy Places Index does a great job of bringing in other factors like access to groceries, ice, gas, and transportation. Metrics that would be helpful would reflect marginalized communities' issues and be a centralized dataset that we as an agency can access and map in ArcGIS.

Clay Downing: In terms of a framework for data on shocks and stresses, we could think of stresses as underlying things like water scarcity, overcrowding, lack of job availability, etc. Then impacts from a wildfire – poor air quality, and inability to work – those impacts of shock are exacerbated because those disparities are already there. Some kind of dashboard could help us understand our vulnerabilities, as well as quantitative data in a GIS layer. Qualitative data would be harder to visualize, but is needed.

BREAKOUT ROOM 3

Taylor Carnevale facilitated a discussion with participants on local uses of resilience metrics.

Malinda Dumisani (CalEPA): OEHHA metrics are for regulators and decisionmakers within the state. We want to ensure data and metrics we choose reflect the current condition of California and state agency priorities.

Laura Engeman (CA Sea Grant): Metrics can serve as a driver for collaboration, especially for the Technical Advisory Council and connecting actors across sectors and levels of government. They provide opportunities to both integrate efforts and find where things aren't working - gaps. Local and regional actors can work with the state to enhance the bigger picture of resilience. They're also an opportunity to build a framework for more accurate social data, utilizing state's data combined with local community participatory sources.

Grant Davis (Sonoma Water): OPR's metrics can inform regional and collaborative efforts and focuses, and how the state effectively might support adaptation planning.

Laura Engeman: There is a gap in measuring the severity, damage, and intensity of episodic climate events (public infrastructure impacts, impacts on social and economic systems) and the long-term impacts of climate events and the increasing frequency of climate events on built, natural and social systems.

Grant Davis: We need numeric features to measure scale.

Laura Engeman: Metrics could be helpful in dam management and emergency response, and also in creating regionally relevant thresholds that are unique to specific areas of the state. Local and regional efforts need to inform the state framework and any regional-specific work, and vice versa.

Malinda Dumisani: We need to have space for qualitative narratives, especially for adaptation practices by indigenous populations that were never measured quantitatively. This will allow us to better capture all the context. Also, qualitative narratives can help capture the social vulnerability aspect more accurately.

Michael Harrodson (CARB): It would be helpful if these metrics could be winnowed down to project-level metrics.

Michael Harrodson: We want to use these metrics to prioritize investments – existing tools like CES don't adequately tell the picture of where investment is needed.

Malinda Dumisani: Metrics can support an exact, surgical approach to resilience. Additionally, OPR's metrics have potential to bridge state and local/regional efforts and the different outcome metrics.

Juliette Finzi Hart: One of our final questions is how we deal with risk, sensitivity, and adaptive capacity and how they fit into the metrics conceptual framework. Is it important to call these out?

> Clay Downing: From my perspective in Ventura County's resilience work, those seem important to think about. What do you mean when you're saying sensitivity? Is it data sensitivity/resolution, or weighting of shocks and stresses? Weighting is hard, but doable. Regarding shocks and stresses it's important to make sure data addresses underlying things that make communities more vulnerable when shocks hit them such as availability of jobs, etc. that help them make it through the recovery processes.
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> Juliette Finzi Hart: In this context, it comes from the adaptation planning context, where sensitivity is the degree of impact – for instance being a vulnerable population member, i.e. if you're an older adult and/or you are someone with asthma, those make you more susceptible to more damage/burden than other people.

PUBLIC COMMENT

None received.

Item 4 | General Public Comment

None received.

Item 5 | Closing, Future Agenda Items, and Meeting Adjourned

Juliette Finzi Hart: The next meeting will be on August 19 to cover the Community Development Block Grant - Mitigation citizen advisory committee and a procedural vote on whether or not to proceed. The next resilience meeting is August 25, and the next quarterly meeting is September 10.