

DATE: June 30, 2023
 TO: TRPA
 FROM: ECONorthwest
 SUBJECT: Summary of Tahoe Resiliency Dashboard Project Interview Notes

Overview

In May and June 2023, the consulting team led by ECONorthwest engaged 20 stakeholders in 16 different sessions working in housing, transportation, economic development, environment, energy, and local and state governments in the Lake Tahoe region. The table below summarizes the organizations and individuals that our team connected with across different categories during this process.

Exhibit 1. Stakeholder Interview Summary*

Source: ECONorthwest

Category	Organizations	Interviewees
TRPA	TRPA	<ul style="list-style-type: none"> • Alyssa Bettinger • Karen Fink • Michelle Glickert • Kat McIntyre • Dan Segan • Rachael Shaw • Jacob Stock • Beth Vollmer
Jurisdictions	City of South Lake Tahoe	<ul style="list-style-type: none"> • Sara Letton
	Placer County	<ul style="list-style-type: none"> • Angel Green
State Agency	California Tahoe Conservancy	<ul style="list-style-type: none"> • Whitney Brennan • Joseph Harvey
Nonprofits	League to Save Lake Tahoe	<ul style="list-style-type: none"> • Laura Patten
	Mountain Housing Council	<ul style="list-style-type: none"> • Kristina Kind • Nicole Reitter
Science	Tahoe Science Advisory Council	<ul style="list-style-type: none"> • Bob Larson
Business	South Tahoe Lodging Association	<ul style="list-style-type: none"> • Jerry Bindel
	Tahoe Chamber	<ul style="list-style-type: none"> • Mike Glover
Utilities	Liberty Utilities	<ul style="list-style-type: none"> • Jennifer Guenther
	NV Energy	<ul style="list-style-type: none"> • Marie Steele

*Our team also approached but was unable to meet with the Washoe Tribe, Washoe County, Tahoe City Downtown Association, and Tahoe Climate Group

This memo summarizes the key takeaways from these interviews by theme and includes notes from individual conversations. The goal for these interviews was to:

- Improve the team’s understanding of critical project partners working in the Tahoe Regional climate action landscape.
- Ask about the existing sustainability dashboard and how different stakeholders are using it and how they wish it could be used.
- Learn about what different organizations are currently measuring or planning to measure regarding climate resilience, including details on relevant measurement update projects, including the timing, and the scope of the update.
- Gain a current snapshot of the issues, stories, and outlook for measuring climate action in the region, including new efforts underway, stories that should be recognized, and lessons learned.
- Hear about tips associated with how to make this dashboard add value at a regional level and serve as a tool people will use to support more progress.
- Learn about priorities – particularly those shared by the broader community involved with climate action.

Key Takeaways by Theme

Overarching Goals and Format

Stakeholders agreed that the Dashboard should provide consistent information for TRPA staff and partners as well as accessible information for public users. Different audiences are likely to use the Dashboard in different ways. For public use, it may be a tool for advocacy, finding resources, and sharing success, while for regional partners, funders, and regulators it may be more regularly used to inform new funding and programmatic initiatives. It is particularly important for the Dashboard to align regional goals and use consistent metrics for storytelling, reporting, planning, and grant applications. Stakeholders also indicated that information on the Dashboard should be condensed, easily consumable, and aligned with the public message and state level goals in order to reach both decision makers and the public.

Well-defined goals are crucial for demonstrating progress, which the Dashboard can aggregate in one place as much as possible. This central resource can help to identify priority strategies and integrate peer-reviewed climate science about ongoing changes to the Basin. Stakeholders also expressed that the Dashboard should present strong narratives, graphics, maps, and accessible data to enhance its usefulness for various audiences. Ultimately, the Dashboard should make climate challenges tangible and inspire action among the public, while streamlining work for decision makers, regional partners, funders, and regulators.

Specific Indicators and Metrics

Track Changes in Local Conditions

Stakeholders agreed that ongoing changes in the Basin should be a central part of the Dashboard. To highlight climate science, the Dashboard can communicate the work being done to track measures like air quality, Lake Tahoe's water level, precipitation, and extreme temperatures. Stakeholders from TRPA and other science-oriented organizations in the Basin indicated that there are a number of these metrics already being tracked which provide vital baseline information about how climate change is affecting the region. These key metrics can be linked with social, built, and natural systems to clearly state the connection between different phenomena and trends in Tahoe with climate change.

Support Resilient Social Systems

Stakeholders across different types of organizations indicated that climate resilience work in the Tahoe Basin requires an assessment of key demographic factors and identification of vulnerable populations to target equitable climate resilience outcomes. Different groups may be more vulnerable to different aspects of climate change, and it is important to acknowledge the variety of challenges based on existing disparities and specific household needs. Access to housing, employment, transportation, outdoor recreation, and emergency services are all important considerations that are linked to climate.

Tracking a range of socioeconomic information in the Dashboard over time such as total population, income, age distribution, race and ethnicity, employment types (such as seasonal workers), cost-burden, limited English proficiency, and persons with disabilities will help to inform a variety of policies. The ability to disaggregate data by demographic groups and across different geographies will make the tool more useful to more audiences. In some cases, state law also requires this to be a consideration for many climate-related efforts. Overall, new climate work needs to be inclusive and have a role for everyone who lives and works in Tahoe.

Stakeholders emphasized that tourism is a critical industry for the region which faces a variety of challenges related to climate which the Dashboard could track. Measuring the impacts of events like wildfires, lack of snow, and extreme weather on tourism facilities and recreation sites can demonstrate important consequences of climate change for the region's economy.

Further, understanding commuting and remote work trends, seasonal employment, changes in tourism indicators, and the ability of businesses to adapt to changing climate are all essential. Collecting comprehensive data on these aspects allows for informed decision-making and effective climate resilience strategies in the Tahoe Basin, including developing more sustainable tourism, targeting workforce housing initiatives, and connecting businesses with existing programs for energy efficiency and wildfire resilience upgrades.

Support Resilient Natural Systems

Many stakeholders and organizations are aware of and use the current Environmental Improvement Program (EIP) tracker. That work should be linked to this project, but there should be distinct uses for both. EIP thresholds for stormwater, AIS, water infrastructure, sustainable recreation, forest health, water quality, trees per acre, and fire risk are currently being updated. The Dashboard should reflect and link to these updates (as appropriate) and make sure that it is making the specific connection to climate and the broader narrative of increasing natural disasters and resilience work in Tahoe.

Stakeholders working with scientific and environmental data indicated that air and water quality are some of the most important indicators to measure and understand environmental impacts. Interpreting these metrics and making the connection to other impacts of climate change should be an important part of the Dashboard. There are a number of climate-related metrics connected to air and water quality including smoke and ash from wildfires, nutrient loading, forest fuel reduction, vehicle miles traveled (VMT), and economic impacts of tourism. These metrics are often relevant for congressional representatives and funding, so it is important that they can be used to effectively advocate for necessary action.

Measuring forest health is important for stakeholders working in the natural environment, as well as preventing wildfire events. There are several metrics that indicate and warn against changes in forest health including monitoring species migration, tracking the presence of new and existing species, healthy forests (acres treated and wildfire risk), decommissioned forest service roads, and upgrading infrastructure against storms and landslides. Interviewees noted that the new Dashboard should serve as a valuable communication tool to tell the story of forest health and in doing so, should help make the case for additional funding to support forest health efforts. This should communicate the co-benefits like reducing wildfire risk.

Climate resilience work should include protecting biodiversity. Stakeholders indicated specific metrics should consider wildlife habitat, including surveillance and monitoring of invasive species, new species, boat inspections, and water temperature and nutrients that make the Lake more receptive to invasive species to act quickly. As climate change impacts surrounding regions, Tahoe may also see more new species migrating to the region for refuge from extreme heat. Many organizations are starting to think about the future implications of these changes for Tahoe's ecosystems.

Support Resilient Built Systems

Stakeholders identified a number of metrics related to transportation that are critical for climate mitigation and increased resilience in Tahoe. Metrics related to vehicle miles traveled (VMT) and travel modes are crucial for climate and transportation planning to reduce automobile emissions and air pollution. Basin residents are increasingly interested in active transportation, particularly traveling on bicycles and e-bikes. These modes should be monitored through metrics like bike lane miles, low-stress network coverage, safety improvements, and uptake of e-bikes as much as possible with other TRPA efforts. Both private electric vehicles (EVs) and electrifying transit systems play a role in reducing emissions. The availability of

infrastructure for these vehicles is essential to their utility in the region. However, there are potential tradeoffs between EVs, safety, and reliability due to some data that suggests that these vehicles are more frequently involved in bicycle and pedestrian crashes.¹ Disaggregated transportation data by residents, workers, and visitors may help to connect VMT and travel patterns with specific equity implications.

Transportation system resilience is also vital for natural disaster response, evacuation routes, and increasing wildfire risks. In the Tahoe region, transportation systems need to be able to function as a part of natural disaster response. EVs need to be able to function during emergencies, while evacuation routes from wildfires and snow-blocked roads can create safety issues in the Basin. These are tied to several other critical conversations around density in town centers, stormwater capacity, and electrical grid reliability. There is already some work being done, such as tracking trails and areas that frequently flood.

Decarbonization, transitioning to renewable energy sources like wind and solar, and grid resilience are key metrics for utility providers in the region. Grid reliability and resilience are crucial for consistent service with the shift to renewables, requiring initiatives like pole replacement, vegetation management, and microgrids which are tracked through utility providers. Annual metrics for power generation by type are available and reporting is required by state governments, but more difficult to track at smaller geographies. Current affordability programs offered by utility providers encourage energy efficiency upgrades for homes and businesses, with a growing emphasis on low-income households.

Stakeholders working with housing and land use in Tahoe emphasized the importance of location efficiency, affordability, and accessibility for meeting climate goals. Housing metrics in the Dashboard should track total housing stock, prices, rents, income levels, tenure, and affordability and make the connection with their relevance for climate resilience. Addressing the gap in affordable and workforce housing through moderate density and new housing in town centers can increase quality of life and decrease reliance on automobiles for commuting. Second homes and vacation rentals impact affordability and availability, requiring better monitoring to understand trends for Tahoe residents. Home energy upgrades, weatherization, and electrification enhance climate resilience, but are often less accessible for renters or low-income households. Disaggregated housing data can provide insights into demographic factors over time and help inform strategies for climate-friendly housing and communities.

¹ Pardo-Ferreira MC, Torrecilla-García JA, Heras-Rosas CL, Rubio-Romero JC. New Risk Situations Related to Low Noise from Electric Vehicles: Perception of Workers as Pedestrians and Other Vehicle Drivers. *Int J Environ Res Public Health*. 2020 Sep 14;17(18):6701. doi: 10.3390/ijerph17186701. PMID: 32938012; PMCID: PMC7558663.

Interview Notes

TRPA (Dan Seagan)

- **Goals and Purpose.** Setting targets and measuring progress is challenging, especially in the context of climate goals. It's hard to agree what to measure, and even harder to set targets. The Dashboard should be a tool to aggregate climate information in one place, particularly for climate-related funding in California because there is more available.
- The dashboard should provide consistent information for staff and partners. For partners, it is particularly important to align their goals and use consistent metrics for storytelling, advocacy, and grant applications.
- Metrics related to **climate and weather variables** should be used, such as firewise communities, houses with defensible spaces, cleared utility corridors, and other adaptive actions.
- For **transportation**, more energy-efficient solutions like electric vehicles and electrifying transportation are the most important. VMT (Vehicle Miles Traveled) is a commonly used metric for climate impact, but mode share (percentage of trips taken by different modes of transportation) is the better metric for climate analysis.
- Metrics related to **disaster resilience** should primarily be related to wildfires and extreme storm events, such as undergrounding electrical lines, evacuation/shelter-in-place plans, home hardening, and wildfire fighting infrastructure (fire hydrants, pipe size, etc.).
- For **natural systems**, metrics can include monitoring species migration, new/old species, healthy forests (acres treated and wildfire risk), lake clarity, decommissioned forest service roads, and upgrading infrastructure against storms and landslides.
- Existing **housing** metrics are inadequate, such as second home data, but the project should look at how much affordable housing is provided in town centers and the number of units affordable to workforce housing.
- **Energy efficiency** can be tracked through utility and federal programs.

TRPA (Beth Volmer)

- **TRPA Data and Metrics.** TRPA is updating the Environmental Improvement Program (EIP) performance metrics and avoiding input data that is hard to collect. What data is available is most important. TRPA also does the in-house monitoring projects, dealing with thresholds including air quality, bicycle and pedestrian data, stream surveys, SEZ, wildlife, and might help with scenic resources.
- **Stream Environment Zones (SEZ).** The term SEZ is being replaced with "wetlands and meadows." They have a partner wide agreement SEZ restoration and are working on updating, and updating thresholds (which require approval). TRPA is in the process of switching to measuring SEZ conditions and acres of high-quality wetlands/meadows. They have met their SEZ thresholds already so need new thresholds.

- **EIP measure updates** will include a change in the tracker before November 1st covering stormwater, AIS, water infrastructure for firefighting capacity, sustainable recreation, and forest health (hardening of utility lines and some other updates will emerge).
- **Dashboard Direction.** More context, background, rationale, and interpretation associated with the data being provided would be helpful, as well as maps and good visuals. The Dashboard should use best possible data as much as possible. It is hard to survey people so avoid doing that kind of primary data collection.

TRPA (Karen Fink and Alyssa Bettinger)

- **Housing Metrics.** TRPA measures use of density bonuses and where, percentage of commuters, unmet demand for housing units by income, and tracking. Their Housing Needs Assessment data report was completed in the last five years and gives some key data.
- Key data that TRPA housing staff work with are median income, median home price, median rent, tenure, and vacation rentals. They would like to look more at disaggregation by race/ethnicity and age over time. Permit data shows projects in pipeline, how bonus units have been used for affordable housing, and where units are built (such as Town Centers, Multifamily Areas, and the Bonus Unit boundary).
- **Other Key Metrics.** The School enrollment, subsidized school lunch eligibility, persons without cars (% of zero care households), persons with disabilities, and number of vehicles per households would be important to see for resilience and climate planning.
- **Commuting Metrics.** Tahoe has seen an influx of remote workers, who may anecdotally be buying second homes and increasing median income, but there is not enough data to track those trends. Many people are also now commuting – there are full-time residents, seasonal populations, and workers who live outside of Tahoe.
- There is a story around the change in permanent population over time and fluctuations of visitors. Data could also help to show disaggregation of race/ethnicity and age groups, but focus on what is consistent over time,
- **Commuting and Housing.** People having to move and commute and transportation decisions impacts climate change. For telling the story of housing, affordability, and climate the influx of full-time residents during COVID has pushed up prices. While the value of second homeownership wealth increases, rent increases have not kept up with wages. But densifying housing options to reduce commuting is receiving pushbacks about traffic and evacuation routes.

TRPA (Jacob Stock and Cat)

- **Dashboard Use.** Nobody uses the current dashboard. The new Dashboard could be used for funding and as a communication tool. The EIP tracker is good for presentations and highlighting accomplishments – it is a place to show projects and share details. It would be great if it would better tell the story of forest health that are still supported by peer-reviewed sources. It would also be helpful to see it illustrate the connection between density, transportation, environmental performance, and affordability and multiple benefits for lake clarity, traffic, and so on.

- **Population.** It is important to see what the actual population is in the Basin because there is a lot of disagreement. Some people think population is increasing, but actually decreasing.
- **Housing.** There have been some code changes for height and density that allows more middle housing and disincentivizes luxury housing. They have a Complete Communities initiative as well, but there is an ongoing gap for workforce housing.
- Metrics for housing could include total housing stock. The point in time number is not updated and there is not a good source for all five counties in two states.
- There are three categories of people for housing goals: full-time residents, seasonal works, and workers who are not able to afford to live in Tahoe. There is a gap of 4,000-12,000 units Basin-wide, but a cap on total units that they have to allocate. There is a climate impact of people commuting for work.
- **Stormwater systems.** TRPA is in the process of trying to reduce impervious surfaces; they do not have urban stormwater systems.
- **Forest Health.** EIP thresholds are being updated including forest health, water quality, trees per acre, and fire risk. Goals should be set based on historical, **natural range of variability (NRV)**.
- **Biodiversity.** Metrics include surveillance and monitoring of invasive species, new species, boat inspection, water temperature and nutrients that make the lake more receptive to invasive species to act quickly.
- **Water Quality.** They need metrics that address urban stormwater runoff (which is the greatest polluter) so they can talk to congressional representatives.
- **Evacuation.** Lots of residents are nervous about evacuation planning, which is handled by fire districts to track real-time perimeters. It is not in TRPA's scope to evaluate evacuation by neighborhood.
- **EVs.** It is important to think about what the energy mix is that energy vehicles are using, as well as environmental impacts and lifecycle costs.
- **Energy Resilience.** Biomass is banned in the Basin, but have a pilot project in South Tahoe Refuse that has gotten 10,000 tons of chipped waste out of the Basin. Small biomass energy can help with resilience by providing back up energy for snow, wildfire, recreation centers for evacuation, fire and place, wastewater treatment facilities, and hospitals.

TRPA (Michelle Glickert and Rachel Shaw)

- **VMT.** Their primary metric for climate is VMT reductions and demographics/disparate needs. Air quality aspect can be overlooked sometimes. Air quality exposure can be overlooked - "VMT exposure" per capita could covers both safety and air pollution (but is less about climate). It is hard to find a data source for the total number of visitors that is agreed upon. TRPA is doing a data purchase that will help to disaggregate by residents, workers, and visitors connected to VMT and travel patterns.
- Average daily VMT can be measured in different ways (for example, total paths per vehicle as a total ratio). There is a consultant-provided database with trip lengths.

- There are tradeoffs for VMT and equity. VMT reduction might mean the residents/workers might not have access to alternative transportation options. For disadvantaged communities to participate more in economy, VMT might come up.
- VMT is good overall for telling the story as a primary overarching metric to show more bikes, transit users, etc.
- **Active Transportation.** They want to count and monitor bike lane miles, but also need more protected bike lanes and low stress environments. There is an active transportation plan in progress that will talk a lot about e-bikes, and surveying bike shops to find a quantifiable way to tell the story. Mode share is really important but tougher to measure.
- Safety is the one thing they can get everyone to agree on, it's a great way to get people coalesced on certain things. They definitely use it in conversation a lot, especially with DOTs
- **Adaptation.** They aren't doing much about adaptation yet but would like to see things be more proactive.

Mitigation. They track trails that flood on a regular basis, need to rebuild elevated greenways, and planning for wildfire mitigation (as well as preparation for climate refuge from hotter/more vulnerable areas). Persons at one time (PAOT) is an important question about the carrying capacity of the basin that could be measured but is not now.

- **Seasonality.** There are very different conditions in summer and winter; the average travel times goes up in summer with people driving in. TRPA is not in the business of planning for peak day in August for cars, but would love to see things like bike trails planned for it.
- **EVs.** There are tradeoffs with safety and EVs. They can get in more crashes with pedestrians and cyclists, especially larger vehicles.
- **Top 3 Metrics:** Average daily VMT per capita (strongest connection to climate), pick one of each from the categories in the slides. Mode share is really important but tougher to measure. Total ridership.

Placer County (Angel Green)

- **County Planning.** The Placer County Sustainability Plan has 121 strategies under adaptation, which staff in various departments are implementing. It has been challenging to manage the plan and do annual reporting and inventories for it. They envision a restructure of program, going back to the board to identify key priorities for next focus.
- Their Sustainability Plan measured for vulnerability by tracking extreme temperature days (including both hot and cold days). Appendix E of their sustainability plan has reasonable assumptions for quantifying reductions, time frames, and so on.
- **Renewable Energy.** They are also working on an EV Readiness Guide. It has been hard to get information about power – they have tried to work with PG&E and Pioneer but there's a lot of confidential information about where power comes from.

- **Goal Setting.** Well-defined goals are important and would be helpful to show progress. It helps with identifying strategies to move forward – they have a lot that they are working with. Storytelling is also very helpful to show work that has been done.
- **Identifying Metrics and Tracking.** After their Sustainability Plan they've gone through to find what is quantifiable and narrow down metrics to work with. Another effort was a regulatory walk through; it was a good tool where they take each regulation and how measures were being implemented already and measured, timeframes for compliance. Helped to identify responsible parties to maintain inventory, track progress and those sorts of things. Consultants helped to develop a workbook to use to quantify reductions in emissions. They have not formally gone through the process of completing updates every 3-5 years.
- **Emissions.** Their plan saw a reduction when looking between 2005 and 2010 attributed to cleaner energy sources. A lot of GHG emissions come from the landfill. Best practices would be helpful to showcase about dealing with methane emissions from solid waste. Any opportunity to showcase biomass efforts is helpful.
- **Vulnerable Communities.** Placer County did not have any vulnerable communities as defined through the state definition, but analysis showed areas near Kings Beach with higher risks (in Adaptation of Sustainability Plan). They focus on areas with high risk as well as demographic factors, including people who speak English as a second language, disabled persons, seniors, and families with children.
- **Emergency Preparedness.** Important areas for TRPA to think about are forest health, emergency evacuation, and air quality. Connectivity in emergency evacuation routes is critical.

South Tahoe Lodging Association (Jerry Bindel)

- **Dashboard Purpose.** The Dashboard should be able to justify projects to the public who want to know more about adaptation information and other climate subjects.
- **Transportation.** The goal of Lake Link is to reduce car usage backed by data about shared rides that could be included in the dashboard. Data that is available monthly, quarterly, or real time is very useful because it is more relevant especially for transportation. Their webcam gets the most traffic because people want to see things real time.
- **Micro-transit.** A goal of Lake Link is to allow people to get around the south shore with an app for shared rides that mean less cars, similar to Uber (but requires more funding). This would provide a link between neighborhoods, while buses go down major corridors.
- **Transportation Data.** South Tahoe Lodging Association gathers data on ridership, location, rates of users, wait times, and heat maps and destination/origination information for Lake Link. The North Shore link ride is different from their system (TART Connect). Transit ridership should include the van share ridership information.
- **Workforce Issues.** Measuring average wages in the tourist lodging industry and commuter miles of employees would be important because workforce housing issues

mean more people driving in for work. The high cost of living and gaps in bus service are issues that mean they have a lot of seasonal/student workers who they rely on but who require housing.

- **Tourism Data.** Transient Occupancy Tax data and tourist lodging revenue data are interesting metrics to look at. Lower occupancy and higher rates could be linked to climate (less rooms rented means less travelers). Hotels want revenue and occupancy at decent level (ideal 40%) because they don't have enough staff for full occupancy.
- **Lost Revenue.** Monetizing the amount of revenue lost monthly/annually due to smoke and lack of snow, extreme weather, or wildfire events could help to tell the story of climate change impacts.

Tahoe Science Advisory Council (Bob Larsen)

- **Dashboard Use.** The public should have some accessibility to the data. The public needs to know why that is important. Credibility of the agency and science supports the work they are doing, which academics and scientists trust.
- For executives and decision makers, it needs to be much more bite sized and condensed and aligned with the public message. There is a gap in social science that they are aware of and trying to address. Health departments are thinking about climate health.
- It would be good to show federal and state funding and initiatives (like the CA state climate bond). There is an opportunity to make climate challenges and impacts more concrete through data. Make sure people have the information that they need to do the work they need to do.
- **Metrics.** Natural environment metrics are best to give clear indicators of climate change. It is important to link them to everything else and describe physical factors. Science and climate should be integrated into everything. Discussions of programs and policies related to sustainable recreation should also be integrated into the science.
- **Housing and Equity.** Things have changed dramatically since the pandemic. There has been an increase in second homes and more people using their second home vs renting them out. There are different residence patterns and visitor patterns. There are now questions about who works in the Basin and where they live.
- **Tourism/Recreation.** There are gaps in transportation and recreation and visitor experience. There has been a change in visitor patterns, with more people interested in trails, outdoor recreation, and restaurants, but they are all spread out. Visitor patterns and pressure impacts on economic elements, equity and who can come here. More people come when it is hot. It is hard to measure sustainable recreation.
- **Lakes and Forests.** Climate is impacting the lake's clarity. White fir is dying and the forest is changing because of drought conditions; which is also changing the watershed. New species like rattlesnake are coming in. River systems used to be heavy snow, then melt, but now systems are changing in ways we don't understand. Some habitat changes are more significant than others – monitoring is more difficult than for transportation and recreation.

- The Council does modeling to understand the process, data collection for monitoring, and science delivery communication. They are trying to build a relationship between scientists and managers (and the public).

League to Save Lake Tahoe (Laura Patten)

- **Climate Science.** Climate science and the acknowledgment of ongoing changes should be part of the Dashboard. It also needs to recognize of state initiatives and should be aligning with broadly recognized/consistent goals.
- Climate resilience is about sustaining environmental protection to ensure biodiversity is not impacted, developing in town centers, not encroaching on additional natural systems, more aggressive with mitigation, and reducing GHG emissions.
- **Dashboard Use.** The Dashboard can't do everything, it should be an agency tool rather than for the public. It could highlight project prioritization, to help get funding, especially for projects with multiple co-benefits and those with interagency partners. It should spotlight successes and show where there are current gaps.
- The Dashboard should build on CTC reports and existing work/resources. Focus on agencies, but still important to have good graphics. For any audience there should be clear next steps and demonstrated values (not collecting data for the sake of collection).
- **Communication.** League would like to see centralized climate messaging for the Basin they can use to communicate to legislatures and for writing grants. It would be great to message the Dashboard to bring people up from DC, allow partners to pull from this information, and having consistent messaging. They are always working on their messaging. They have a communications manager. They have advocacy ENews. They get involved in a lot of different projects.
- **Current Metrics.** The League to Save Lake Tahoe works with a lot of story maps, messaging. They reference the EIP tracker and work on aquatic invasive plant work (Eyes on the Lake, Caldor fire, Bebot). They partner with the water board on harmful algae bloom messaging (last year this appeared on the lake proper).
- **Priority Metrics.** Water quality is the most important focus (move away from the term SEZ). As a part of this, measure wildfire metrics like smoke and ash, nutrient loading, forest fuel reduction, VMT, economic impacts to tourism, and carbon sequestration. California is looking into mitigation banks/carbon offsets to help restore acres, but it is hard to quantify now.

Liberty Utilities (Jennifer Guenther)

- **Vulnerable Populations/Equity.** They manage a CARE program with low-income rates for income-qualified customers. They also work with vulnerable customers for public safety power shutoffs – such as seniors, families with children, people with disabilities, people with transportation challenges, low-income households, and pregnant persons. Nearly 80-90% of customers fall into one or more categories, but they don't necessarily have access to data. They do collect information on medically necessary equipment for public safety power shutoffs.

- **Affordable Housing.** Liberty Utilities has collaborated with affordable/workforce housing projects (about 2-3 per year). They also have an energy savings assistance program for income-qualified customers for weatherization and new appliances.
- **Dashboard Use.** Using dashboard like this could be useful for collaborating with various utilities to save communities and constituents money through better vegetation management and wildfire resilience work that prevents issues down the line. A comprehensive list of rebates and incentives in one place would be helpful.
- **Power Generation.** All of Liberty Utilities power generation comes from Nevada. They are not part of Cal ISO but publish their power mix on their website with systemwide data. It is not available online for specific areas, but they do have two large solar facilities. There is a summary for South Lake Tahoe about big projects in the region. A lot of usage data is aggregated, so can't give real time data right now.
- **Solar Incentives.** The previous solar incentive program sunset with the last general rate case. They are interested in equity and prioritizing low- and moderate-income households. Rather than a first-come-first-served program, it will be more like a grant, with criteria for higher scores.
- Liberty Utilities is still in net metering 1.0 – still giving a kWh for kWh trade. All other investor-owned utilities just give a credit for generation. For residential customers they do audits.
- **Businesses.** There is up to a 50% rebate for qualifying commercial measures as well. In South Lake Tahoe they did a project with Heavenly where they upgraded snow blowing guns to be energy efficient, as well as energy efficiency improvements with a ski resort. Smaller businesses don't always have money to invest.
- **EVs.** They have incentives for chargers/mobility hubs for residential and small businesses to install or upgrade systems. They are also working on several projects for electrification of school buses. They track uptake of programs, and it is geographically segregated about where projects have been implemented.

Tahoe Chamber (Mike Glover)

- **Metrics.** To measure tourism, Transient Occupancy Tax (Tourist lodging) reflects impacts on the community. The number of job openings, numbers and types of businesses help bring real information, not anecdotally, but it is hard to get this information comprehensively. The Chamber also tracks business licenses and types of businesses.
- **Hiring.** Businesses have a hard time hiring and finding employees. This really limits the talent pool available for jobs. Many people move down into the Carson Valley and many are driving now.
- **Business Energy Improvements.** NV Energy and Liberty Utilities energy efficiency incentive program for businesses, including car charging programs. They have really old businesses, built a long time ago and retrofits are super expensive (including Barton Hospital). It is often cheaper to buy land and build from scratch than retrofitting.
- Snow load had caused many roofs to collapse. Railey's grocery store collapsed and they decided to fold. Now Target will be going there.

- **Dashboard Use.** It would be helpful for understanding severe weather information and trends for businesses. Preemptively identifying things like there will be a strong El Nino year would give time to prepare businesses. Tracking how many vehicle miles are coming into the basin and how long they stay (average length of stay for hotels, revenue per room) are all helpful.
- **Tourism.** There needs to be a good understanding of the connection between weather impact. The economy is dependent on tourism. The Dashboard should educate on the importance of tourists and initiatives to get visitors and tourists to understand and make better choices. Sustainability also helps improve the tourist experience (preserves it) but need to balance driving large numbers of people in town. Rather, make people's experience better (polish the apple) so they have a better experience (brand). Sustainable Tourism could be considered under built systems: the industry is dependent on weather (drought, snow, heat) and wildfires. Heat is not as big of an issue since it is cooler than other nearby areas and people visit Tahoe to escape the heat. When a road is blocked by snow, this is a major impact due to limited routes.
- **Undergrounding.** Undergrounding utilities could be problematic but should be explored. They could put in fiber optic for the internet. People need power to work remotely.

Mountain Housing Council (Kristina Kind and Nicole Reitter)

- **Current Metrics.** Mountain Housing Council tracks transportation data from ACS (not localized), some tracking of natural systems for funding around acres restored. Forest Futures program doesn't necessarily measure their own data but reference from remote sensing on dead trees from state data, CalFire, Forest Service risk level across landscapes, Weather Service, NOAA, and County Air Resources Control Board for individual prescribed burns. School closures are an indicator for air quality.
- There is a nonprofit specific to the Tahoe Truckee School District boundary called **Community Organizations Active in Disaster (COAD)** that collaborates on disaster resources as well that they work with.
- **Geography.** It would be helpful to expand to other areas right outside of the basin to contextualize Tahoe. It is a small area, but breakdown between north and south shore is helpful too. Having as much possible data on different geographic distributions can make data useful for specific info (prescribed burns, project sites, education, etc.)
- **Racial Equity.** New environmental work and climate work needs to be inclusive and have a role for everyone. Not everyone has the same access to natural beauty and recreation as the Tahoe area. It would be interesting if we could quantify co-benefits for restoration and fuel reduction work.
- **Housing and Climate.** One way that they see that they can help loosen land use and zoning issues is through VMT. Having one climate and housing strategy can help buy support by telling the story about commuting, affordable housing, and density in designated centers. There is concern about more cars and congestion as well as issues for wildfire evacuation. Visitation rates related to cars on the road seasonally would be interesting to see when the population grows in summer months.

- **Dashboard Users.** Most of the numbers shown for acres treated in forest health dashboard page are probably from publicly managed lands – not accounting for private property piece. Linking to private property funding opportunities, funding, resources for information on fire resilience and education would all be good action steps for Dashboard users.

NV Energy (Marie Steele)

- **Air Quality Metrics.** NV Energy reports on all the things that are required related to carbon for Nevada. They follow renewable portfolio standard and SB 358 decarbonization targets. For demand size management, their targets are related to KWH reduction overall.
- **Climate Initiatives.** The big pillars for renewable energy are sustainability, reliability, affordability. Sustainable energy also needs to work and be accessible. Decarbonization is first, followed by reliability and resilience.
- **Energy Efficiency Programs.** They also measure the uptake of energy efficiency of homes and commercial building related rebates – including who is participating in their programs and total market potential of participation in programs. NV Energy is launching a project marketplace to help people understand what they can do. They also do energy audits for individual homes.
- **Businesses.** There is a large program called Business Energy Services which provides technical advice for businesses on renewable energy transition and battery storage. Part of their work on infrastructure is also related to tourism/state parks, and making sure that there is a renewable power network for tourist activities.
- **Resilience.** NV Energy has a natural disaster plan related to natural mitigation, resiliency, and wildfire. They file required updates every 3 years, and there is a big focus is in the TRPA area around system hardening.
- As part of EV program, they are hoping to work with microgrids at emergency hubs once their grant funding comes through.
- **EVs.** Their current EV program (Economic Recovery Transportation Electrification Plan) focuses on strategic electrification of public infrastructure, school buses, and transit. They are considering critical infrastructure (like backup battery power) and how to live in a world where EVs are the standard and needed in emergencies. There is also a new construction codes program, including a line extension program for EVs so that municipalities can implement ahead of time.
- **Equity.** NV Energy has income-based assistance for energy and customer programs related to income like qualified appliance replacement, AC tune ups, and EV incentives. Nevada statute specifies vulnerable communities based on housing cost burden, low English proficiency, tribal communities, and rates on free lunches at school. They have it mapped in their system and in their website.
- Language accessibility is very important, and culturally accessible services.
- Affordability is critical for not leaving folks behind from renewable energy improvements, resilience, climate related work.

City of South Lake Tahoe (Sara Letton)

- **Climate Planning.** Climate action planning has been more mitigation than adaptation. The City has been tracking metrics for the built environment and transportation. There are big buckets: land use, watershed health, transportation, energy.
- Current initiatives: There is an affordable housing project with a microgrid. The City is purchasing electric buses.
- **Dashboard Use.** The Dashboard could be useful for regional grant applications (like workforce grants, green workforce development, building decarbonization, retrofit incentives, and electric ferries). It could help to tell the story and capture data.
- **Reach Codes.** Reach code for new building stock. Translate that into the GHG savings. Very little new development. The city isn't trying to align with TRPA on reach code – adopting the state code.
- **Resilient transportation systems.** Transportation is the biggest topic for TRPA. Electric transit will need to plan for grid resilience. The city is a main investor in the transportation system, including microshuttle service. Financially, it doesn't make sense, but looking to make more links.
- **SB 1383.** They need to be compliant with SB 1383 to keep organic waste out of the system. The city is interested in how can they get biomass energy projects, but there is a moratorium in the Basin.
- **Building Electrification.** They are not worried about measuring it yet, but working on building the programs and systems to get things off the ground. They will develop a dashboard per facility, which hopefully they can automate and look at current vs historic energy use. There are different impacts for cost effectiveness for different types of buildings like commercial, single family, ADUs and restaurants.

California Tahoe Conservancy (Whitney Brennan and Joseph Harvey)

- **Equity.** There is a big push to think about equity, with all of their programs and how to measure progress. There are issues for natural access, balancing out the tourism industry with natural resources.
- **Marsh Restoration/Sequestration.** Metrics include acres restored, acres treated, and infrastructure removed. CTC is struggling to find the right metrics. State metrics are high level, but there is a need for resilience metrics at a regional scale (more granular than the state).
- **Watershed projects.** These are also trying to track wildlife metrics; it is hard to determine what is climate and what isn't. Could be linked to EIP tracker. Some environmental metrics are only tangentially climate. Forestry and stream restoration has a co-benefit of climate resilience.
- Stream restoration and “more support.” Or less opposition. Wetlands can be restrained by neighborhoods and development in the wrong place leads to flooding. Homeowners don't like how stream restoration changes their day-to-day life.

- **Dashboard Purpose.** The Dashboard should show progress towards specific goals. It would be helpful to point to the dashboard or a one pager for leg staff. Think through the jurisdictional roles so agencies can show they are doing their part in the carbon requirements to the state.
- **Climate Refugia.** Connectivity to the area is important for surrounding regions. People come up to the Basin to get away from the heat as well as wildlife. Climate is making the weather more extreme. It is about risk reduction and make it easier for fire fighters to fight the fire.
- **Forestry.** Under forestry, the story is being told, but more support is needed. It's hard to get people to support using fire for management and help people understand why they are doing it. Most people are opposed to controlled burns, but best efforts don't guarantee no fire.
- **Climate vulnerability/equity.** Seasonal workers have challenges, and workforce housing is challenging. There are inequities with who can evacuate easily – it is harder for people without cars who rely on buses. A lot of folks didn't have places to stay, staying in parking lots and exposed to smoke. Need to align definitions of equity priorities as a community.

