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STAFF REPORT

Date: May 17, 2023

To: TRPA Regional Plan Implementation Committee

From: TRPA Staff

Subject: Informational Presentation on Proposed Regulatory Code Amendments to Support Climate-Smart Communities

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Project Summary:
TRPA seeks to integrate climate adaptation and resiliency into all aspects of its work to protect and enhance Lake Tahoe's natural and human environments. In October 2022, the TRPA Governing Board directed staff to develop amendments to the Code of Ordinances to incorporate climate-smart regulations. Over the last six months, a group of graduate students from the UC-Davis Environmental Policy and Management (EPM) Policy Clinic team worked with staff to research and develop priority code amendments through a collaborative public engagement process.

The Policy Clinic team will provide an informational overview of the research and present recommended code amendment language addressing four (4) policy areas: traffic reduction associated with temporary events, regulations for electric vehicle chargers, regulations for solar energy generation, and standards to reduce light pollution.

This item is for informational purposes and no action is required.

The EPM Policy Clinic Team:
The Policy Clinic team is made up of second-year students pursuing a MS degree in Environmental Policy and Management at UC-Davis. The team includes:

- **Diana C. Giraldo**
- **Kamryn Kubose**
- **Thomas McNairn**
- **Michael Macon**
- **Flor Rizo**

Jacob Stock, AICP, Senior Long-Range Planner, is the TRPA project manager for the partnership and proposed Code update. The Policy Clinic team also worked closely with Devin Middlebrook and Kira Smith to research and develop the proposed amendments.

Background:
During the summer of 2022, MS student Kamryn Kubose completed a research project exploring best practices for climate-smart communities. Her project resulted in a 100-page memo covering: traffic

congestion; energy conservation; energy generation; zero-emissions vehicles; waste diversion; sustainable construction and development; water conservation; carbon sequestration, forestry practices, and vegetation; adaptation and resilience; and workforce housing. She and her TRPA supervisors presented to the TRPA Governing Board in October 2022, who then directed staff to develop regulatory code amendments that support climate-resilient practices.

Kamryn's research and the Governing Board's subsequent direction formed the basis for the EPM Policy Clinic team's work to develop proposed code language, beginning in January 2023. These recommended amendments represent the first phase of Climate Smart amendments to the Code of Ordinances and policy updates.

Project Description:

The Policy Clinic team researched and developed priority code amendments and policy recommendations in four (4) regulatory focus areas: vehicle miles traveled (VMT) reduction for temporary events, electric vehicle (EV) charging infrastructure, solar energy generation, and dark sky standards. The team developed the regulatory language in close collaboration with TRPA staff through an iterative process in which interested stakeholders with technical knowledge of regulatory implementation provided crucial input.

The EPM team began the project by reviewing the key regulatory issues identified by the Governing Board last year. The initial research served as a tool to narrow the list of key issues to the four priority areas listed above. The team benefited from weekly virtual meetings with TRPA staff, an in-person site tour, and three stakeholder meetings.

Based on their research and stakeholder outreach, the Policy Clinic team and TRPA staff developed proposed code amendment language and policy recommendations along with training and educational materials aimed at aiding implementation.

Participation and Outreach:

The Policy Clinic team created an Outreach and Participation strategy that defined and detailed how and with whom the team would engage through the stakeholder outreach process. In coordination with TRPA staff, the team developed a list of interested parties involved in implementing TRPA regulatory language, including local jurisdictions, the US Forest Service, architectural/engineering consulting firms, and the Washoe Tribe. Workshops engaged with interested parties with a high level of technical knowledge to identify implementation barriers, gather expertise and opinions, and refine the proposed regulatory language. The team conducted three "working group" technical workshops to receive feedback on the code language and regulatory approaches.

Recommended Code Updates:

The Policy Clinic team and TRPA staff propose regulatory and policy amendments in four focus areas: traffic reduction associated with temporary events, electric vehicle (EV) charging, solar energy generation, and standards to reduce light pollution. The specific proposed regulatory and policy language is detailed in a table of amendments (Attachment A). Based on RPIC's input and direction, TRPA staff will complete any necessary revisions along with Regional Plan conformance and environmental documentation before bringing a full amendment package to the Advisory Planning Commission and RPIC for a formal recommendation to the Governing Board.

Traffic Reduction Associated with Temporary Events
Tahoe experiences many temporary events and activities throughout the year, attracting visitors to the Basin but causing traffic congestion and pollution. To reduce reliance on personal vehicles and incentivize alternate modes of travel, TRPA should work with local partners to ensure that temporary events prepare a transportation plan supporting non-motorized transportation. Temporary event transportation plans should include a map of fixed-route public transit stops, pedestrian access, and bike access. The plan should also consider including bike valet, shuttle services, or rideshare drop-off locations and include strategies for encouraging alternatives to personal automobiles. TRPA may consider including a temporary event transportation plan as a submittal requirement for temporary use permits.

Electric-Vehicle (EV) Charging
The increased use of electric vehicles (EV) in the basin has created the need for electric vehicle charging standards. The code changes propose to formally codify definitions for electric vehicle chargers and installation features. Chargers should also be defined as accessory uses in all land use types to streamline installation. Additionally, to remove barriers to installation, up to five EV chargers per parcel should be partially exempt from coverage limits. Finally, to increase the development of accessible chargers, parking areas with a minimum of twenty spaces should be required to include an EV parking space capable of supporting a universal charger in ten percent of the lot. TRPA may consider applying the same requirements to redeveloped parking lots.

Solar Energy Generation
To remove barriers to installing solar energy systems, several requirements for solar energy systems should be updated. These include qualified exemptions for rooftop solar, general standards to minimize reflectivity in scenic corridors, and setback requirements for solar mounting structures. Additionally, ground-mounted solar should be allowed a limited coverage reduction like that provided to bear boxes across the Tahoe Basin. Finally, all solar energy systems should not be counted against the scenic score if in compliance with the updated general design standards including standards aimed at limiting reflectivity, removing uncertainty for property owners while ensuring that scenic quality is preserved.

Dark Sky Requirements
Outdoor lighting requirements should be updated to minimize light pollution, glare, and sky glow, and to promote dark skies. This includes standards limiting light output, utilizing cutoff shields, and promoting 'cooler' temperature lighting.

Contact Information:
For questions regarding this agenda item, please contact Jacob Stock, at (775) 589-5221 or jstock@trpa.gov

Attachments:
A. Draft Climate Code Amendments Table

Attachment A

Draft Climate Code Amendments Table

ATTACHMENT A

DRAFT CLIMATE CODE LANGUAGE

Traffic reduction associated with temporary events

Code	Draft language	Approach	Notes
22.7.6.A	Rewrite 22.7.6 as 22.7.6.A	N/A	
22.7.6.B	A temporary event transportation plan must include a map of fixed route public transit stops, pedestrian access, and bike access. The plan must consider including bike valet, shuttle services, or rideshare drop off locations and include strategies for encouraging the use of alternatives to personal automobiles.	Temporary activity Transportation plan as part of temporary use permit. Define transportation plan requirements.	See City of South Lake Tahoe additional requirements for temporary events (CSLT Code, 6.55.230.A.c.i).
22.7.6.B	For each criterion listed below that is not provided by the event, the temporary event permit fee will increase. ● Bike valet ● Shuttle plan ● Rideshare drop off ● Pedestrian access ● Bike access		Alternate option.

Electric vehicle (EV) charging

Code	Draft language	Approach	Notes
90.2	"**Electric vehicle charge**r" means off-board charging equipment used to charge an electric vehicle. "**Electric vehicle charger level 2**" means a 208-240 volt electric vehicle charger. "**Electric vehicle charging space**" means a parking space intended for use of EV charging equipment and charging of electric vehicles. The minimum length of each EV space shall be 18 feet. The minimum width of each EV space shall be 9 feet. "**Electric vehicle charging station**" means one or more electric vehicle charging spaces served by electric vehicle charger(s) or other charging equipment allowing charging of electric vehicles. See also "Electric Vehicle Supply Equipment (EVSE)." "**Electric vehicle direct current (DC) fast charger**" means a 400-volt or greater electric vehicle charger. "**EV Capable**" Installation of the enclosed conduit that forms the physical pathway for electrical wiring to protect it from damage and adequate panel capacity to accommodate future installation of a dedicated branch circuit and charging station(s). "**EV Installed**" EV Ready plus installation of a minimum number of Level 2 or DC electric vehicle supply equipment (EV chargers). "**EV Ready"** EV Capable plus installation of dedicated branch circuit(s) or electrical pre-wiring, circuit breakers, and other electrical components, including a receptacle (240-volt outlet) or blank cover needed to support future installation of one or more charging stations. "**Universal EV Charger**" Electric vehicle charging station that is compatible with all electric vehicles, regardless of the input.	Define electric vehicle charging stations in code	
21.3.1	A. Accessory uses such as garages, green houses, homeowner association offices, art studios, workshops, swimming pools, storage structures, tennis courts, dog runs, emergency facilities, hope occupations, accessory dwelling units,	Accessory use definition	

	electric vehicle stations, and other uses listed in the definition of a "primary use" as accessory. B. Accessory uses such as garages, parking lots, swimming pools, tennis courts, bars and restaurants, equipment rental, maintenance facilities, laundries, gymnasiums, coin operated amusements, meeting rooms, managers quarters, child care facilities, emergency facilities, employee facilities other than housing, accessory dwelling units, restricted gaming (Nevada only), **electric vehicle stations,** and other uses listed in the definition of a "primary use" as accessory. C. Accessory uses such as garages, parking lots, emergency facilities, maintenance facilities, employee facilities other than housing, accessory dwelling units, restricted gaming (Nevada only), storage buildings, **electric vehicle stations**, and other uses listed in the definition of a "primary use" as accessory. D. Accessory uses such as garages, accessory dwelling units, **electric vehicle stations**, and emergency facilities. E. Accessory uses such as garages, emergency facilities, childcare, related commercial sales and services such as ski shops, pro shops, marine sales and repairs, parking lots, maintenance facilities, swimming pools, tennis courts, employee facilities other than housing, accessory dwelling units, outdoor recreation concessions, bars and restaurants, **electric vehicle stations**, and other uses listed in the definition of a "primary use" as accessory.		
34.4.1	Ten (10) percent of the total number of parking spaces on a building site with a minimum of 40 (forty) spaces provided for all types of parking facilities shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes. EV spaces will count toward the total amount of parking spaces. 1. The development of EVSE applies to new development and redevelopment when the project requires a permit.	EV capable language for commercial, multi-family and hotel/motels with more than 40 units	Borrowed from Cal Green.

	2. The following are exempt from the above requirement: a. Deed-restricted housing		
30.4.6. G	1. Public Universal EV chargers are exempt from coverage standards regardless of the land use types unless located in a stream environment zone (SEZ). 2. Public Universal EV chargers are exempt from coverage standards given there are less than 5 chargers within a parcel, regardless of the land use type. The coverage exemption for each EV charger will be equal to or less than the average footprint of a level 2 charger or DC fast charger, or 2 square feet per charger, whichever is less.	Coverage approach	

Solar energy generation

Code	Draft language	Approach	Notes
90	Definitions "**Solar energy system**" means any solar collector or other solar energy device or any structural design feature of a building whose primary purpose is to provide for the collection, storage, and distribution of solar energy for space heating, space cooling, electric generation, or water heating. "**Solar Collector**" means a device, structure or a part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy. **"Photovoltaic (PV) Systems"** means an active solar energy system that converts solar energy directly into electricity. See also "Solar Panel." "**Active solar energy system**" means a solar energy system whose primary purpose is to harvest energy by transforming solar energy into another form of energy or transferring heat from a solar collector to another medium using mechanical, electrical, or chemical means. "**Passive solar energy system**" means a solar energy system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger. Examples of passive solar may include skylights or passive solar water heating systems such as flat-plate collectors. "**Solar Mounting Devices**" means racking, frames, or other devices that allow the mounting of a solar collector onto a roof surface or the ground. "**Solar Reflectivity**" is the ability of a material to reflect solar energy from its surface back into the atmosphere	Define solar panels (PV) and related energy storage equipment, passive solar	

2.3.6.A.12.	**Installation of Roof-mounted PV Systems** The installation of Photovoltaic (PV) systems on the rooftops of existing structures provided: a) Solar mounting devices do not extend beyond the rooftop perimeter and do not intrude into setback standards established in 36.5.4 b) Structure does not create height greater than that allowed by Table 37.4.1-1 and exception 37.4.3.A c) If the structure is located inside of a Scenic Travel Corridor, the Shoreland, or visible from Lake Tahoe, then solar panels shall be constructed of non-reflective materials to minimize glare	Qualified exemption for rooftop solar energy systems. Require predictable scenic threshold standards when in scenic threshold travel routes and shoreland.	Qualified exempt if it is outside of scenic corridors, otherwise, we point to the building standards with specifications for nonreflective materials. Solar panel material can significantly reduce reflectivity.
21.3.1	A. Accessory uses such as garages, green houses, homeowner association offices, art studios, workshops, swimming pools, storage structures, tennis courts, dog runs, emergency facilities, hope occupations, accessory dwelling units, s**olar energy systems,** and other uses listed in the definition of a "primary use" as accessory. B. Accessory uses such as garages, parking lots, swimming pools, tennis courts, bars and restaurants, equipment rental, maintenance facilities, laundries, gymnasiums, coin operated amusements, meeting rooms, managers quarters, childcare facilities, emergency facilities, employee facilities other than housing, accessory dwelling units, restricted gaming (Nevada only), s**olar energy systems,** and other uses listed in the definition of a "primary use" as accessory. C. Accessory uses such as garages, parking lots, emergency facilities, maintenance facilities, employee facilities other than housing, accessory dwelling units, restricted gaming (Nevada only), storage buildings, s**olar energy systems**, and other uses listed in the definition of a "primary use" as accessory. D. Accessory uses such as garages, accessory dwelling units, s**olar energy systems**, and emergency facilities.	Define solar energy systems as accessory use	

	E. Accessory uses such as garages, emergency facilities, childcare, related commercial sales and services such as ski shops, pro shops, marine sales and repairs, parking lots, maintenance facilities, swimming pools, tennis courts, employee facilities other than housing, accessory dwelling units, outdoor recreation concessions, bars and restaurants, s**olar energy systems**, and other uses listed in the definition of a "primary use" as accessory.		
Table 21.4-A	Power generating Establishments engaged in the generation of electrical energy for sale to consumers, including biofuel facilities, hydro facilities, gas facilities, **solar facilities,** and diesel facilities. Outside storage or display is included as part of the use. The use does not include biofuel facilities accessory to a primary use. Transmission lines located off the site of the power plant are included under "Pipelines and Power Transmission." Electrical substations are included under "Public Utility Centers."	Expand primary use "Power Generating" to include solar facilities.	
30.4.6.F	**F. Exemption for Ground Mounted Solar Energy Systems for Residential Use** **Land coverage underlying ground mounted solar energy systems on a solar mounting device anchored to a below grade concrete base shall not be included in calculation of land coverage if the solar collectors are elevated at least 18 inches off the ground. The base supporting ground mounted solar shall count toward the coverage calculation. This exemption shall apply only to residential parcels on non-sensitive lands provided the solar energy systems meet all applicable requirements of this Code.** **a) Applicants seeking a coverage reduction for ground mounted solar energy systems must demonstrate that roof mounted solar is infeasible or that ground mounted solar will require the removal of fewer trees.**	Provide coverage exemption for ground mounted solar	

36.5.4.A.1.	Decks (except decks for off street parking), stairs, canopies, building, **solar mounting structures,** or roof overhangs shall not intrude into the 20-foot setback established in this subparagraph.		
37.4.3.A.	Chimneys, flues, vents, antennas, **solar energy systems,** and similar appurtenances may be erected to a height ten percent greater than the otherwise permissible maximum height of a building, or a height of six feet, whichever is less.	Expand the height exemptions to include solar energy systems.	
61.1.4.C.1	TRPA may approve the removal of healthy trees **on the applicant's property** provided TRPA finds that the trees unreasonably impede the operation of an **active or passive** solar energy system and that the solar energy system is properly located so as to minimize the need for tree removal, and provided it does not cause a reduction in the scenic score for the property pursuant to section 66.3.4. **TRPA will prioritize tree removal for solar systems that support human health and safety.**	Expedited tree removal for installation of solar panels and equipment related to healthcare service projects, for energy storage (Table 21.4-A).	
66.3.4.D	**Solar Energy Systems** **Solar energy systems shall not be counted against the scenic score if the system is found to comply with Sec. 36.6.1.C**		

Standards to reduce light pollution

Code	Draft Language	Approach	Notes
36.8.1.E.1	**a**. Exterior lighting should be minimized to protect dark sky views, yet adequate to provide for public safety, and should be consistent with the architectural design. **b**. Exterior lighting should utilize cutoff shields that extend below the lighting element to minimize light pollution of stray light. Light shall be directed downward with no light emitted above the horizontal plane of the fixture. **c**. Overall levels should be compatible with the neighborhood light level. Emphasis should be placed on a few, well placed, low-intensity lights. **d**. Lights should not blink, flash, or change intensity except for temporary public safety signs. **e**. Total outdoor light output shall not exceed fifty thousand (50,000) lumens per developed commercial acre, and ten thousand (10,000) lumens for parcels one-half (acre), or larger in size in residential areas. Parcels smaller than one-half (½) acre shall be permitted five thousand (5,000) lumens of lighting regardless of parcel size. Total outdoor light output of any multifamily residential development including five (5) or more separate lots or units shall not exceed twenty thousand (20,000) lumens of lighting per developed acre. **f.** All exterior lighting shall utilize light sources with correlated color temperature not to exceed 3,000 Kelvin (K).	Update TRPA's lighting standards, include color temperature, shielding,	Taken from area plan language and updated to better reflect dark sky requirements.
13.5.3.F.5	The standards set in 36.8.1.E.1 must be met.	Bolster area plans requirements. Point to 36.8.1	