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DATE: **March 13, 2017**

TO: **Strategic Growth Council**
ATTN: Daniela Simunovic
1400 Tenth Street
Sacramento, CA 95814

Filed electronically at: tccpubliccomments@sgc.ca.gov

FROM: **Center for Sustainable Energy® (CSE)**

RE: **CSE's Response to the Revised Draft Scoping Guidelines for the Transformative Climate Communities Program**

Dear Ms. Simunovic:

The Center for Sustainable Energy® (CSE) is pleased to provide these comments in response to the Strategic Growth Council's (SGC's) *Revised Draft Scoping Guidelines for the Transformative Climate Communities (TCC) Program*.

CSE works with policymakers, public agencies, local governments, utilities, businesses, and civic leaders to transform the energy marketplace and accelerate the transition to a clean energy future. Our clean energy future depends on a strong, low carbon economy that provides abundant jobs and business opportunities, a high quality of life, and a clean, healthy environment. This includes the accelerated adoption of zero-emission vehicles (ZEVs) and transportation electrification technologies, renewable energy, distributed generation , energy efficiency , and building performance technologies—all of which can work together to contribute to air quality improvements and GHG emissions reductions to meet our long term goals.

CSE is pleased by the direction of the *Revised Draft Scoping Guidelines*, widely supports the SGC TCC Program initiative, and attests to the importance of energy planning and installing clean energy technologies in disadvantaged communities (DACs). Such investments reduce carbon emissions, as well as meet the additional TCC Program goals of increased economic vitality; cleaner air and improved public health outcomes; decreased consumption of water, energy, and other natural resources; and more efficient infrastructure and municipal services. CSE provides these comments to the *Revised Draft Scoping Guidelines*, in the following sections: (i) Thresholds, (ii) Strategies, (iii) Indicators, and (iv) Eligible Project Types.

THRESHOLDS

CSE supports all four threshold measures presented in the *Revised Draft Scoping Guidelines,* which will strengthen the program. CSE provides feedback on two of these categories:

- ***Ensuring Community Engagement***

    - **Support community- focused education and outreach activities.** CSE appreciates that the *Revised Draft Scoping Guidelines* prioritize education and planning activities to promote increased use of active modes of transportation, vanpools, and zero-emission vehicle car sharing programs.[1] The Guidelines specifically call for ongoing outreach, support, and technical assistance throughout all phases of the application process.[2] This will ensure coordinated, effective, streamlined messaging and will support the aggregation of key data to improve program design.

    - **Prioritize multi-lingual and culturally-sensitive education and outreach.** The *Revised Draft Scoping Guidelines* have not yet specifically addressed language and communication barriers to effective TCC education and outreach. The Census indicates that 6.7 million Californians 'Speak English less than very well,' with Spanish, Armenian, Russian, Korean, , Chinese, Vietnamese, and Tagalog speakers representing higher quantities of this identifier.[3] Recognizing California's diverse population, the TCC Program should facilitate a multi-lingual and culturally-sensitive consumer awareness campaign that helps overcome these language barriers, and increases knowledge of air pollution impacts.

    - **Create an 'Interested Organizations' database.** CSE agrees with the *Revised Draft Scoping Guidelines* that strong local engagement and cross-sector partnerships are critical to realizing the TCC vision.[4] To accomplish this, CSE strongly recommends the creation of a stakeholder and community contact database to streamline communications, facilitate the development of multi-stakeholder partnerships, and support a collaborative stakeholder structure.[5] Given the diversity of stakeholders and the short timelines to develop guidelines and partnerships, a tool to promote communication and coordination across

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[1] *Revised Draft Scoping Guidelines: Transformative Climate Communities Program, Page 8*
[2] *Revised Draft Scoping Guidelines: Transformative Climate Communities Program, Page 17*
[3] *2015 Census: American Community Survey; Website Access: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B16001&prodType=table*
[4] *Revised Draft Scoping Guidelines: Transformative Climate Communities Program; Page 4*
[5] *Revised Draft Scoping Guidelines: Transformative Climate Communities Program; Pages 6 and 7.*

stakeholder groups would be highly beneficial. A Request for Information that populates a list of 'Interested Organizations' could be an appropriate method to solicit this information. A similar tactic was successfully used for the US Department of Transportation Smart Cities Challenge Program.[6] This action would support stakeholder organizations by encouraging information sharing and dialogue. In addition, such a database would likely be transferrable to support other SGC initiatives, and other agencies. Groups in this database should include categorical identifiers, consistent with AB 2722, including:

- nonprofit organizations;
- community-based organizations;
- faith-based organizations;
- coalition or association of nonprofit organizations;
- community development finance institutions;
- community development corporations;
- local agencies;
- joint powers authorities;
- tribal governments;
- labor groups;
- workforce investment boards.

In addition, CSE recommends the inclusion of the following contact points, which will likely serve key functions in the TCC Program:

- agencies and authorities;
- cities;
- counties;
- air boards;
- other regional government;
- special districts;
- Clean Cities Coalitions;
- University of California;
- California State University;
- California Community Colleges;
- university extension services;
- Advanced Transportation Centers;
- University Transportation Centers (U.S. DOT);
- National Science Laboratories;[7]

[6] *U.S. Department of Transportation's Smart City Challenge; Smart City Challenge: Interested Organizations; Website Access: https://www.transportation.gov/smartcity/interested-organizations/list*
[7] *Website Access: https://science.energy.gov/laboratories/*

- Research Universities (U.S. DOE);[8]
- For profit companies;
- Investor Owned Utilities (IOUs);
- Philanthropists;
- 'interested funders' (discussed below);
- Clean technology incubators.

The assembly of this database will have a direct and positive impact on the program's delivery and is encouraged.

- ***Leveraging Funding***

  - **Ensure stakeholder 'skin in the game' with a 50% match.** CSE supports a 50% match as proposed. This "skin in the game" approach promotes project ownership, encourages stakeholder responsibility, demonstrates fiscal prudence, increases the likelihood of program participation and success, and promotes replicability and scalability. CSE also supports the inclusion of time, materials, and leveraged external projects as match funding. The previously suggested database should also include an 'interested funders' category that would identify potential sources of match funding or projects.

  - **Volkswagen (VW) settlement and 'Green City' project implementation.** The *Revised Scoping Guidelines* do not mention leveraging VW settlement funds. CSE strongly supports CARB's assessment on the opportunity to leverage Green City investments to demonstrate concentrated investments in a high density district or region.[9] This is fully consistent the SGC's TCC goals, and more broadly with State infrastructure policy. Leveraging VW settlement program investments in high-density districts will support Green City demonstration projects, which complement the catalytic function of the TCC Program. As such, CSE recommends that the SGC provide guidance on paths to leverage the VW settlement funds, and should categorize 'Green Cities Implementation Projects' as a potential TCC project investment. It is also noteworthy that CARB has provided advisory urging VW to make early, visible progress in the first 30 month spending cycle.[10]

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[8] *Website Access: https://science.energy.gov/universities/*

[9] *Volkswagen California ZEV Investment Commitment Public Input Workshop December 2, 2016; Green City Examples, Slide 27; 'A Green City project should include multiple types of investments, such as: a) Zero emission transit; b) Zero emission freight vehicles; c) Car Sharing; d) Vehicle grid integration implementation; and e) Incorporation of renewable energy with ZEV infrastructure. Website Access: https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/meetings/120216_present.pdf .*

[10] *California Air Resources Board's Guidance to Volkswagen on First 30 Month Electric Vehicle Infrastructure Investment Plan of the 2.0 Liter Diesel Engine Partial Consent Decree Settlement*

- **SB 350 Transportation Electrification (TE) Projects and Programs.** CSE appreciates various modifications in the *Revised Draft Scoping Guidelines* that link TCC Program investments to transportation and infrastructure plans. Recent regulatory activity may further support the SGC's initiatives, and CSE recommends the evaluation of potential points of collaboration—which may lead to fund-leveraging opportunities. Pursuant to SB 350 and CPUC ruling,[11] the three largest IOUs (i.e., Pacific Gas and Electric; San Diego Gas and Electric; Southern California Edison) filed Applications to accelerate widespread TE. These Applications present more than 20 utility-driven TE projects and programs for consideration, and propose more than a billion dollars (in ratepayer funds) in potential TE investment over the next five years.[12] It is highly likely that these programs, if approved, will have stringent DAC requirements to ensure equitable program access consistent with state policy. To complement TCC's focus on DACs and the SGC's goals to 'leverage funding',[13] CSE encourages the identification of TE projects and programs with TCC Program overlap as potential eligible project types in the TCC Program.

- ***Tracking and Monitoring GHG Emissions Reductions and Other Indicators***

  - **Collect robust data.** CSE stresses the importance of developing a robust and streamlined data collection plan. In this regard, CSE applauds the SGC's *Relationship of Program Objectives, Goals, Strategies and Indicators Diagram,*[14] which presents a strawman that—with further refinement—can lead to robust and effective reporting practices for the TCC Program. CSE's original comments (see website access below in reference 10) detailed CSE's perspective of an effective data collection plan. CSE strongly attests that this plan should include

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February 2017; Website Access: https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/documents/carb_guidance_021017.pdf

[11] Assigned Commissioner's Ruling Regarding the Filing of the Transportation Electrification Applications Pursuant to Senate Bill 350 Website Access: http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M167/K099/167099725.PDF

[12] Together, PG&E, SCE, and SDG&E submitted proposals to invest $1 billion in transportation electrification over an approximate five year period. A summary of the proposals is provided in this table (website Access: http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Infrastructure/RDD_and_Emerging_Programs/Alternative_Fuel_Vehicles/SB350Applications.pdf)

[13] Revised Draft Scoping Guidelines: Transformative Climate Communities Program, Page 4.

[14] Revised Draft Scoping Guidelines: Transformative Climate Communities Program, Page 11.

(a) Uniform data;
(b) Data with a defined purpose;
(c) Streamlined data reporting;
(d) Granular data; and
(e) Categorical data.[15]

Data and the Equinox Project

While CSE finds the SGC's preliminary organization of indicators as adding general design to this data collection plan, CSE reiterates the need for well-organized, concerted, and efficient collection of key indicators that will prominently display the program's public policy learnings. CSE's experience in implementing the Equinox Project highlights the need for developing this type of in-depth data collection plan as a means to capture key public policy indicators to inform the decision making process.[16] The Equinox Project has a robust history of local engagement and cross-sector partnerships, utilizing various partner organizations to collect data and provide local context around indicator areas. The Equinox Project provides a snapshot of regional trends by measuring a diverse range of indicators, many of which have TCC Program touchpoints.[17]

STRATEGIES

CSE agrees with the proposed 12 strategy categories, and supports the SGC proposal to set a minimum of at least six (6) strategies in order to achieve the TCC goals and objectives. However, CSE would also support a process with fewer strategies as long as the program is able to demonstrate effective alignment with the TCC Program's goals (i.e., GHG emissions reductions, and 6 other goals as

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[15] See CSE's detailed response here: Center for Sustainable Energy's Response to the Draft Scoping Guidelines for the Transformative Climate Communities Program, Filed 1/9/2017, Website Access: https://energycenter.org/sites/default/files/docs/nav/policy/research-and-reports/Center-for-Sustainable-Energy-Response-to-the-TCCP-Scoping-Guidelines-FINAL-PDF.pdf

[16] CSE's Equinox Project is a nonpartisan policy initiative that turns research into action to help the San Diego region achieve a more prosperous economy, healthy environment and outstanding quality of life for all its residents as it grows. Through in-depth research, policy analysis, communications and convenings, Equinox Project inspires, informs and engages the public and decision-makers in crafting better solutions to the region's growth challenges. As the San Diego region grows, Equinox Project strives to maintain and enhance exceptional quality of life for residents and the region's many visitors. Website Access: https://energycenter.org/equinox

[17] Equinox Project's San Diego Regional Quality of Life Dashboard, consists of 15 categorical indicators; Website Access: https://energycenter.org/sites/default/files/2016-equinox-regional-dashboard-report.pdf

proposed in the 'relationship diagram'). CSE recommends the following modifications to the strategies list:

- **Transit Access and Mobility**

    - **Prioritize transit commuter incentives.** A multiagency effort is evaluating strategies to "promot(e) infill development and reduced vehicle miles traveled" via transit commuter incentives, consistent with 'Vibrant Communities and Landscapes Draft.'[18] The TCC Program community provides an ideal environment to test this incentive strategy which, from CSE's perspective, should not be limited to a traditional 'bus voucher'. That is, CSE strongly encourages SGC to consider providing Transit Commuter Incentives to encourage shared-use mobility in a diverse array of communities, including bike sharing, car sharing, car rental, ride sourcing and ride sharing (via transportation network companies), and other types of public transit vouchers to the extent feasible. , CSE recognizes that some communities within the context of these programs may not have multiple shared mobility options.

      Regarding incentives, CSE has extensive experience as a program administrator for the Clean Vehicle Rebate Project (CVRP), the Self-Generation Incentive Program (SGIP), and the California Solar Initiative (CSI). CSE asserts both the value and effectiveness of providing consumer incentives to encourage clean technology adoption. For example, stakeholders could measure the usage patterns of the Transit Commuter Incentives, which could then serve as a program indicator. As such, CSE encourages SGC to prioritize direct consumer incentives in the TCC Program, and log and measure the results.

- ***Consider the deployment of innovative pilot elements that complement the mobility option ecosystem, such as Electric Bicycles (E-Bikes) and Electric Scooters (E-Scooters).*** When regions lack shared mobility options, the SGC should evaluate the use of innovative mobility options, such as E-Bikes and E-Scooters. From CSE's perspective, the TCC Program provides the opportunity to test innovative, community-scale mobility options and vehicle-sharing projects complementary to state policy that support local, community mobility activities with no GHG emissions. E-Bikes and E-Scooters complement SB 350 TE

[18] *Vibrant Communities and Landscapes A Vision for California in 2050 (Draft for Comment & Discussion), Website Access: https://www.arb.ca.gov/cc/scopingplan/meetings/091316/vibrant%20communities.pdf*

provisions targeting support to DACs,[19] fit within the definition of TE per SB 350,[20] and are consistent with the California Air Resources Board (CARB)'s Air Quality Improvement Program 2016-2017 plan, which recognizes E-Bikes as an eligible mobility option component.[21] Fundamentally, supporting E-Bikes and E-Scooter deployment provides an additional option of localized, active transportation that can be coupled with TE. This approach can test 'minimum viable product' technologies that replace fossil fuel miles with electric-miles and can deploy pilot projects that record and quantify E-Bike travel behavior and information (i.e., travel patterns and usage, charging patterns). Moreover, these vehicles could be charged from grid-connected or stand-alone clean DG resources, as demonstrated by California-based E-Bikes projects.[22] In densely-populated areas including San Francisco, companies are successfully deploying and scaling E-scooter programs.[23] As such, CSE encourages the SGC to add reference to E-bikes and E-scooters as an eligible project type,[24] and measure their respective E-miles as an indicator.

- **Urban Greening and Green Infrastructure**

  - ***Prioritize 'solar trees'.*** CSE strongly supports the urban forestry strategy, and recommends that solar PV trees—which can provide shading equal to natural trees—should be considered as a potential component of the urban greening strategy. At University of California, San Diego, for example, solar has been installed on the roofs of two of its parking structures to generate electricity for

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[19] Per SB 350, Section 740.12 (C) of Public Utility Code States: "[W]idespread transportation electrification requires increased access for disadvantaged communities, low- and moderate-income communities, and other consumers of zero-emission and near-zero-emission vehicles, and increased use of those vehicles in those communities and by other consumers to enhance air quality, lower greenhouse gases emissions, and promote overall benefits to those communities and other consumers.

[20] Per SB 350, Section 237.5 of Public Utilities Code states: "[T]ransportation electrification" means the use of electricity from external sources of electrical power, including the electrical grid, for all or part of vehicles, vessels, trains, boats, or other equipment that are mobile sources of air pollution and greenhouse gases and the related programs and charging and propulsion infrastructure investments to enable and encourage this use of electricity.

[21] Proposed Fiscal Year 2016-17 Funding Plan For Low Carbon Transportation And Fuels Investments And The Air Quality Improvement Program.

[22] Example: Bike Solar Oakland; The Future of Urban Transportation is Powered by the Sun: Website Access: http://bikesolaroakland.com/

[23] San Francisco has terrible public transportation, so people are using this electric scooter-sharing network instead; Website Access: http://www.businessinsider.com/what-is-scoot-2016-6

[24] While CSE does support E-Bike testing in the TCC Program, E-Bikes should not be the sole investment and ideally should be coupled with other car/ride sharing projects that promote mobility.

the campus and provide infrastructure for supporting electric vehicles,[25] which has dually contributed to the shading of the vehicles across this facility. Similar types of 'solar trees' could be deployed throughout the TCC Program, which the SGC should consider allowing.

- **Decarbonized energy and energy efficiency**

  - ***Prioritize Vehicle-to-grid integration (VGI) pilots.*** CSE is pleased that the goal to deploy smart-grid technologies remains from the original *Draft Scoping Guidelines*,[26] and CSE reiterates its recommendation that the TCC Program should prioritize plug-in electric vehicle (PEV) charging infrastructure as a component of smart grid design and deployment. Notably, California policy prioritizes the development of smart charging,[27] the use of PEVs as Distributed Energy Resources (DERs),[28] and is exploring the use of PEV charging with VGI capability.[29] This 'grid of the future' will be achieved through integrated charging and load management capability. As such, to support the evolving grid and later generations of California's PEV infrastructure, CSE recommends that priority be given to the deployment of technology with VGI capabilities, including networking, communication, demand response, and bidirectional charging.

  - ***Prioritize energy benchmarking for all commercial and multifamily building projects in line with statewide energy benchmarking and transparency requirements.*** CSE agrees with the proposed strategy to increase the amount of green buildings and green building retrofits that incorporate sustainability from design through construction, operations, and maintenance.[30] CSE strongly

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[25] UC San Diego and UC Davis Team to Boost Solar Power in California, April 15, 2009 Website Access: http://ucsdnews.ucsd.edu/archive/newsrel/science/04-09SolarTrees.asp

[26] Transformative Climate Communities Draft Scoping Guidelines (November 2016), Page 6.

[27] 2016 ZEV Action Plan; Website Access: https://www.gov.ca.gov/docs/2016_ZEV_Action_Plan.pdf

[28] From California's Distributed Energy Resources Action Plan: Aligning Vision and Action Discussion Draft: September 29, 2016: Wholesale DER Market Integration and Interconnection Vision Elements include: "Electric vehicle charging systems, and mobility and driving behaviors, can be predicted and overseen in the grid operations"; Website Access: http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Commissoners/Michael_J._Picker/2016-09-26%20DER%20Action%20Plan%20FINAL3.pdf

[29] 2016 Zero Emission Vehicle Action Plan, Page 28: "Support state- and federally-funded VGI pilots that help commercialize applications that aggregate vehicles as distributed energy resources, enhance communication, and control functionality between vehicle and grid infrastructure, and derive value for vehicles (PEV or FCEV) as flexible load and storage in grid support applications; Website Access: https://www.gov.ca.gov/docs/2016_ZEV_Action_Plan.pdf

[30] Revised Draft Scoping Guidelines: Transformative Climate Communities Program; Page 7

encourages SGC to require that commercial and multifamily buildings participating in an upgrade or retrofit through TCC be required to benchmark their energy and water consumption using EPA's ENERGY STAR® Portfolio Manager tool. This is consistent with the Energy Commission's forthcoming requirements for building energy benchmarking and transparency, existing city policies in Los Angeles, and the data access provisions of Assembly Bill 802.[31] This will also allow for uniform data collection, reporting, and case study development for buildings in different TCC Program cities/regions across the state.

- ***Prioritize projects that align with AB 693's policy framework.*** CSE also notes the nexus and emergent opportunity to align the TCC Program with AB 693 implementation. Pending a CPUC Decision, AB 693 will create a program providing financial incentives for qualified solar installations at multifamily affordable housing properties. Given the two programs' shared policy goals related to environmental justice and clean technology adoption, as well as complementary GHG emissions reductions, CSE strongly encourages the SGC to coordinate with AB 693's implementing agency, the CPUC.[32]

- ***Prioritize a low carbon, high renewable energy electricity strategy.*** CSE appreciates that the SGC proposes to use 'renewable energy as part of total energy supply' as a potential indicator.[33] However, CSE encourages the SGC to evaluate the inclusion of a more specific low carbon strategy as an essential component to support widespread de-carbonization of the electricity grid. Electricity generation alone creates 20% of California's GHGs.[34] A renewable energy electricity strategy for TCC investments is consistent with California's de-carbonization efforts embodied in SB 350.[35] Moreover, high renewable energy-content electricity is consistent with current CARB advice related to the Volkswagen settlement, in which CARB noted the incorporation of renewable

[31] *For example, per Assembly Bill 802 (Williams, 2014), all existing buildings meeting specified thresholds have access to whole-building energy usage information as of January 1, 2017.*
[32] *AB 693; Website Access: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB693*
[33] *Revised Draft Scoping Guidelines: Transformative Climate Communities Program; Page 9*
[34] *California Greenhouse Gas Emission Inventory: 2000 – 2014; VERSION June 17, 2016; Website Access: https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2014/ghg_inventory_trends_00-14_20160617.pdf*
[35] *SB 350 "requires that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50% by December 31, 2030. Website Access: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350*

energy with ZEV infrastructure (i.e., PEV and hydrogen) as an example 'Green City' investment.[36] But renewable energy investments must replace GHG-emitting assets and minimize dependence on fossil-fueled ancillary services for integration to achieve actual de-carbonization. As such, CSE strongly encourages the SGC to prioritize low carbon, high renewable energy electricity through specific targets. CSE supports rewards for projects that use low carbon, high renewable energy electricity with a baseline Carbon Intensity (CI) significantly below the California electricity mix average (which is 105.16 gCO2 e/MJ).[37] This can be achieved in a variety of innovative ways.[38] In addition, each TCC project could record and report their electricity generation profile through an identifier akin to a 'Power Content Label' with a clearly-defined CI for these projects.[39]

- **Materials Management**

  - ***Prioritize 'biogas-to-renewable transportation fuels or electricity.'*** CSE supports SGC's proposed waste-to-energy strategy.[40] The SGC should specify the use of renewable 'biogas-to-renewable transportation fuels or electricity' as an eligible project, which complements CARB's emergent 2030 Scoping Plan,[41] presents opportunities to increase recycling/waste diversion, supports the State's short-lived climate pollutants policy per SB 1383,[42] and supports other Mobile Source Strategy goals around federal and state air quality standards. This 'biogas-to-renewable transportation electrification' approach presents deployment opportunities in a diverse range of projects, including:

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[36] Page 6; Website Access: https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/documents/carb_guidance_021017.pdf

[37] As Reported in Low Carbon Fuel Standard Regulation, Table 6, the average mixture for California Electricity is 105.16 gCO2 e/MJ); Website Access: http://www.arb.ca.gov/regact/2015/lcfs2015/lcfsfinalregorder.pdf

[38] Examples include building a stack of resources with energy storage, dispatchable demand response, energy efficiency, smart inverters, and load management that all reduce dependence on carbon-based ancillary and peak services.

[39] California Energy Commission; About the Power Content Label; Website Access: http://www.energy.ca.gov/sb1305/power_content_label.html

[40] Revised Draft Scoping Guidelines: Transformative Climate Communities Program, Page 8.

[41] The draft 2030 Scoping Plan states the goal to: 'the increase organics markets which complement and support other sectors, citing examples which include renewable energy (biogas to renewable transportation fuels or electricity)', Page 123, Website Access: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

[42] SB 1383 by Senator Lara, among other things, directs dairy farmers to reduce methane emissions from manure to 40 percent below their 2013 levels by 2030.

- Electricity for light duty vehicles (which would be eligible for Environmental Protection Agency Renewable Fuel Credits);[43]
- Electrification along highly-traveled freight trucking corridors (as piloted by Southern California AQMD, using overheard catenary lines)[44], and/or rail corridors;
- Tri-Generation projects for generating renewable hydrogen for transportation;[45] and
- Electricity that could be used to propel future transportation electrification infrastructure, such as the California high-speed rail (CHSR) system. (Notably, the CHSR Authority plan to leverage a renewable energy portfolio consistent with the Authority's 100% renewable energy and ZNE strategy).[46]

Based on these overlapping policies and initiatives, 'biogas-to-renewable transportation fuels or electricity' represents a viable TCC Program undertaking. As such, CSE strongly encourages the SGC to add this as a potential eligible project category.

- **Workforce Development and Education, High-Quality Job Creation, and Local Economic Development**

  - ***Prioritize workforce training in clean energy technologies.*** CSE agrees with the TCC's focus on workforce development initiatives. CSE recommends that such workforce development activities prioritize the clean technology sector (i.e., transportation, renewable energy, and energy efficiency technologies)—all of which will have touchpoints on achieving TCC Program strategies. There is substantial growth in clean energy and transportation job markets in California,

[43] *Renewable Fuel Pathways II Final Rule to Identify Additional Fuel Pathways under Renewable Fuel Standard Program; "Electricity used to power electric vehicles produced from biogas from landfills, municipal wastewater treatment facility digesters, agricultural digesters, and separated MSW digesters", Website Access: https://www.epa.gov/renewable-fuel-standard-program/renewable-fuel-pathways-ii-final-rule-identify-additional-fuel*

[44] *Siemens eHighway; Website Access: http://www.siemens.com/press/en/feature/2015/mobility/2015-06-eHighway.php?content%5b%5d=MO*

[45] *Note: Tri-Gen can provide onsite power and leverage both the State's Self-Generation Incentive Program (SGIP) and the Low Carbon Fuel Standard (LCFS) program.*

[46] *California High-Speed Rail Policy Directive: Poli Plan-03, 8/19/2013, Page 7. Website Access: http://www.hsr.ca.gov/docs/programs/green_practices/sustainability/Sustainability_signed_policy.pdf*

with record growth in the solar industry,[47] a rapidly growing energy storage market,[48] and the continued growth in ZEV companies.[49] As noted in recent research by the Union of Concerned Scientists, Truck and bus electrification can be a catalyst for boosting economic opportunity in underserved communities, with many occupations in heavy-duty EV manufacturing increasing the need for electrical skills.[50] Recognizing Fresno's CHSR station as a likely epicenter of a TCC project investment, it is worth noting that there will be a substantial workforce needed to complete this statewide project, with estimates that constructing and operating the CHSR system will generate over 256,000 direct job years.[51] CHSR is positioned to operate as a 100% renewable energy powered, zero net energy system,[52] which will prompt the need for the workface capable of building and maintain this expansive system, and its clean energy technologies.

Fundamentally, the expansion of clean technology markets creates demand for skilled workforce training, education, and investment. These actions are consistent with practices with policies embodied in the ZEV Action Plan. As such CSE recommends the prioritization of clean technology workforce jobs as a primary strategy element of the TCC Program.

- **Utilize Innovation Incubators.** CSE appreciates that the *Revised Scoping Draft* discusses opportunities for business innovation and support.[53] CSE notes the opportunity to strengthen this policy by targeting and accelerating startup and business activities through the use of innovation incubators. The TCC Program does not mention the use of 'incubators' (many of which focus on technology development, financing, and entrepreneurship), and as such are primed to act as

[47] *The solar sector has added 75,000 new employees in the 2016; Los Angeles Times: http://www.latimes.com/business/la-fi-solar-industry-job-growth-20160209-story.html*
[48] *The energy storage market grew 243 percent in 2015 — the largest year on record; Green Tech Media: http://www.greentechmedia.com/articles/read/us-energy-storage-market-grew-243-in-2015-largest-year-on-record*
[49] *Business Insider: http://www.businessinsider.com/faraday-future-vallejo-second-factory-2016-5*
[50] *Delivering Opportunity How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California; Page 33. Website Access: http://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf*
[51] *Mineta Transportation Institute; "Estimating Workforce Development Needs for High-Speed Rail in California"; Page 4; Website Access: http://transweb.sjsu.edu/PDFs/research/1027-california-high-speed-rail-workforce-needs.pdf*
[52] *California High-Speed Rail Policy Directive: Poli Plan-03, 8/19/2013, Page 7. Website Access: http://www.hsr.ca.gov/docs/programs/green_practices/sustainability/Sustainability_signed_policy.pdf*
[53] *Revised Scoping Draft, Page 5 (in discussion of Equitable Development Implementation Plan; City of Seattle)*

innovation accelerants. Incubator activities are consistent with the TCC program's objectives to facilitate market stimulation.[54] Moreover, agencies such as the California Energy Commission prioritize investments in clean technology incubators,[55] providing a model for potential TCC program incubators. These incubators are multi-regional, and have touchpoints on some of the state's DACs.[56] This synergy is even richer when considering the benefits of organizing 'TCC Incubators' in communities that may have higher immigrant populations. Immigrants are nearly twice as likely as native-born Americans to start businesses and their entrepreneurship rates are especially high in engineering and technology."[57] In addition, regional or local incubators within TCC Program participating cities will have direct locational benefits, including infrastructure improvements, foot traffic and ancillary services, and as such are an ideal TCC program investment.

INDICATORS

See Appendix A. This appendix provides a detailed list of recommended, additional indicators that will strengthen the assessment of the TCC's Programs. CSE appreciates that the SGC has organized and presented the preliminary list of indicators, and strongly agrees that these indicators should be used to appraise the program's strategies. To strengthen the evaluation of these strategies, CSE recommends the addition of the following indicators. Note that these recommended indicators align with the added strategies (as outlined above), as well as the recommended eligible project type additions (as discussed below).

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[54] SGC states: "A targeted, catalytic public investment can provide needed financial support and market stimulation. Website Access: http://sgc.ca.gov/resource%20files/Initial_Statement_of_Reasons_TCC_Program_Allocation_FINAL_09-23-16.pdf

[55] Energy Commission Funds LA Energy Innovation Cluster to Aid Entrepreneurs; Website Access: http://www.energy.ca.gov/releases/2016_releases/2016-08-10_cec_funds_la_energy_innovation_nr.html

[56] The San Diego Regional Energy Innovation Network, for example, is comprised of four Counties (San Diego, Imperial, Riverside, San Bernardino). Website Access: http://cleantechsandiego.org/sdrein/

[5] Imported Entrepreneurs: Foreign-Born Scientists and Engineers in U.S. STEM Fields Entrepreneurship, Page 5. Website Access: https://www.sba.gov/sites/default/files/advocacy/rs432tot-Immigrant-STEM-Entrepreneurs.pdf

[57] Imported Entrepreneurs: Foreign-Born Scientists and Engineers in U.S. STEM Fields Entrepreneurship, Page 5. Website Access: https://www.sba.gov/sites/default/files/advocacy/rs432tot-Immigrant-STEM-Entrepreneurs.pdf

ELIGIBLE PROJECT TYPES

See Appendix B. This appendix details CSE's recommended eligible project additions. CSE appreciates that the SGC has organized and presented the preliminary list of eligible project types in alignment with the GHG emissions reduction goals of the California Climate Investment programs.[58]

Low Carbon Transit Operations

- **Direct Current Fast Charging (DCFC) in and around highly-trafficked intermodal facilities.** CSE appreciates that the SGC prioritizes development in and around intermodal facilities, and supports project development within a 1-mile radius around Fresno's CHSR station. This policy supports first/last mile solutions for transit centers, promotes connectivity and travel to and from the rail line, and specifically, supports efforts to encourage intermodal connectivity to the Fresno CHSR station and the downtown core.

  CSE also suggests that the SGC encourage this intermodal connectivity approach across all TCC programs. Pertaining to PEV charging, CSE suggests the prioritization of DCFC deployment in high-density, highly-trafficked, intermodal areas (such as along freeways, at airports, park-and-rides, transit depots, passenger rail stations, and other emergent intermodal hubs). Such a policy encourages seamless connections between ZEVs and public transit infrastructure, supports PEV drivers that may not have access to home charging, addresses range anxiety concerns, and promotes the deployment of public charging infrastructure that can be leveraged by complementary service providers -- such as ZEV taxis -- in and around public transportation facilities.

  Promoting this synergy is also consistent with State policy. It aligns with the 'mobility hubs' concept in the California Transportation Plan 2040,[59] and the 2016 ZEV Action Plan (which prioritizes 'infrastructure co-location opportunities').[60] It also complements the draft CARB 2030 Scoping Plan, which prioritizes more compact development patterns

[58] *Revised Draft Scoping Guidelines: Transformative Climate Communities Program; Page 12*
[59] *California Transportation Plan 2040; Website Access: http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/Final%20CTP/FINALCTP2040-Report-WebReady.pdf*
[60] *2016 ZEV Action Plan, Goal to: "Consider infrastructure co-location opportunities that can support light-duty, medium-duty and heavy-duty electric vehicle charging and hydrogen fueling station applications in connector site stations (stations along major routes that connect distinct areas of high potential for PEV and FCEV adoption)." Page 29; Website Access: https://www.gov.ca.gov/docs/2016_ZEV_Action_Plan.pdf*

that reduce vehicle miles traveled (VMT) and demand less energy per capita.[61] Such a policy could also accelerate PEV infrastructure planning and integration in and around the Fresno HSR station. As such, to facilitate unique mobility partnerships, encourage shared mobility options, while solving unique mobility challenges, the SGC should support and prioritize DCFC investments in and around intermodal facilities.

Low Carbon Transportation

- **ZEV rebates and incentives.** CSE applauds the inclusion of rebates for zero-emission passenger vehicles and for zero-emission public fleets, as well as zero-emission car share and vanpool programs as eligible TCC projects types.[62] As CARB's administrator of the Clean Vehicle Rebate Project (CVRP)[63], CSE encourages the SGC to coordinate efforts between these proposed TCC project types, and the existing suite of complementary statewide incentive programs, including the CVRP, as well as CARB's Enhanced Fleet Modernization Program (EFMP) and EFMP Plus-Up Pilot Project.[64] CSE seeks clarification regarding these rebates, and specifically if these TCC rebates would be in addition to the rebates offered via CVRP or other programs. To evaluate program success, CSE also recommends the addition of a metric to count vehicles retired under any TCC incentive and/or car scrap and replace program.

- **Curbside charging.** CSE recommends PEV charging pilot diversity and encourages SGC to consider testing various public charging models, including DC Fast Charging, as well as residential curbside charging that is accessible to all residents, especially in communities in which on-site opportunities do not exist and cannot be created.[65] This policy would be consistent CARB's example infrastructure projects that were used to advise VW regarding the California ZEV settlement investment; notably this plan discussed models such as Burbank's curbside program.[66] As an overarching strategy, CSE would encourage SGC to ensure public access to such curbside charging at all times (i.e., not specific to a single owner or user), with access to the infrastructure 24 hours per day, and 7 days per week.

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[61] *Discussion Draft, 2030 Target Scoping Plan, Table IV-1. Cross-Sector Relationships, January 20, 2017, Website Access: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf*
[62] *Revised Draft Scoping Guidelines: Transformative Climate Communities Program ; Page 12*
[63] *Clean Vehicle Rebate Project; Website Access: https://cleanvehiclerebate.org/eng*
[64] *CARB, EFMP; Website Access: https://www.arb.ca.gov/newsrel/newsrelease.php?id=730*
[65] *As an example, the city of Berkeley has a Residential Curbside Electric Vehicle Charging Pilot that can be used as a potential model. Website Access: http://www.cityofberkeley.info/evcurbside/*
[66] *California Air Resources Board's Guidance to Volkswagen on First 30 Month Electric Vehicle Infrastructure Investment Plan of the 2.0 Liter Diesel Engine Partial Consent Decree Settlement https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/documents/carb_guidance_021017.pdf*

- **EVSE rebates.** To supplement the ZEV rebates and deployment of public EVSE infrastructure, the SGC should also consider the use of EVSE rebates to reimburse a diverse array of installation costs in residential homes, with a focus on multi-unit dwellings. CVRP's PEV Owner Survey results indicate that receiving a subsidy significantly and positively influenced adopters to install a Level 2 charging station, with approximately 60% indicating that the subsidy was either "very influential" or "extremely influential."[67] As an indicator in the TCC Program, stakeholders would be able to measure the quantity and distribution of rebates at a granular level, such as at the census tract level or by housing unit. To accelerate EVSE adoption in the TCC pilots while recording key data indicators measuring program success, CSE encourages the SGC to utilize EVSE rebates.

- **California Energy Commission Block Grant for EV Chargers Program.** In the same vein as EVSE rebates, the SGC should also consider leveraging the upcoming Energy Commission Block Grant for EV Chargers Program (Block Grant Program), which will distribute $200 million over the next five years in grant funds through various EV charger incentive projects across California. The Block Grant Program is intended to accelerate the deployment of EVSE, and could successfully coordinate with the SGC program. In addition, the Block Grant Program will record EVSE geographical and performance characteristics, useful for monitoring and evaluation activities as well as research data that could support the TCC Program implementation.

- **Smart City Challenge proposal implementation.** Eleven California cities[68] participated in the creation of innovative proposals through the U.S. Department of Transportation's Smart City Challenge. These proposals touch on emerging transportation and infrastructure policies and visions that can inform TCC Program design. Specifically, the Smart City Challenge finalists' proposals identified more than 150 industry and nonprofit implementation partners pledging more than $500 million in resources, technology solutions, and technical support.[69]

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[67] Center for Sustainable Energy; PEV Vehicle Owner Survey February 2014 Survey Report; http://energycenter.org/clean-vehicle-rebate-project/vehicle-owner-survey/feb-2014-survey

[68] Smart City Challenge Proposals were submitted by the following California Cities: San Francisco, Chula Vista, Fremont, Fresno, Long Beach, Moreno Valley, Oakland, Oceanside, Riverside, Sacramento, and San Jose. Notably, multiple cities fall within CalEnviroScreen DAC tracts.

[69] US-DOT; Smart City Challenge: Lessons for Building Cities of the Future; Website Access: https://www.transportation.gov/sites/dot.gov/files/docs/Smart%20City%20Challenge%20Lessons%20Learned.pdf

- **Plug-in Electric Vehicle (PEV) readiness plans implementation.** TCC Program investments can support the accelerated deployment of PEV infrastructure by encouraging applications to make use of existing PEV readiness plans. A recent Idaho National Lab study demonstrates the value of such planning, indicating an 87% increase in utilization of PEV charging in 'planned' vs 'non-planned' areas.[70] The TCC applicants could also leverage the output from this planning (e.g., PEV readiness committees, streamlined PEV codes and standards, streamlined PEV permitting practices), which are key indicators of PEV readiness. There are a wide range of functional and existing resources—such as the PEV readiness plans—which should be tapped to support the deployment of PEV infrastructure in the TCC Program. Specific to Fresno, the San Joaquin Valley PEV Readiness Plan provides an in-depth tool with detailed assessment of a diverse range of PEV topics specifically designed to accelerate PEV adoption in the region.[71]

CONCLUSION

CSE appreciates the opportunity provide this response to SGC regarding the *Revised TCC Program Draft Scoping Guidelines*. The TCC Program presents an important opportunity to drive much needed resources to disadvantaged communities and support California's 'Grid of The Future' through the use of policies, programs, and indicators that leverage:

- *community- focused education and outreach activities;*
- *multi-lingual and culturally-sensitive education and outreach;*
- *an Interested Organizations database;*
- *stakeholder 'skin in the game' with a 50% match;*
- *VW settlement and 'Green City' projects and funds;*
- *SB 350 TE projects and programs;*
- *Robust Data Collection;*
- *transit commuter incentives;*
- *innovative pilot elements such as E-Bikes and E-Scooters;*
- *'solar trees';*

[70] *How Does Utilization of Non-Residential EVSE Compare Between those Installed in Oregon in Planned versus Unplanned Locations?; April 2015; Website Access: https://avt.inl.gov/sites/default/files/pdf/EVProj/UtilizationOfNonResEVSEInstallationVsPlan.pdf*

[71] *San Joaquin Valley PEV Readiness Plan, 2014; Website Access: https://energycenter.org/sites/default/files/docs/nav/programs/pev-planning/san-joaquin/san_joaquin_valley_pev_readiness_plan-web.pdf*

- *vehicle-to-grid integration (VGI) pilots;*
- *energy benchmarking for all commercial and multifamily building projects;*
- *projects that align with AB 693's policy framework;*
- *a low carbon, high renewable energy electricity strategy;*
- *'biogas-to-renewable transportation fuels or electricity' projects;*
- *workforce training in clean energy technologies;*
- *Innovation Incubators;*
- *DCFC in and around highly-trafficked intermodal facilities and hubs;*
- *ZEV rebates and incentives coordinated with existing and complementary resources;*
- *Residential EVSE rebates;*
- *The California Energy Commission Block Grant for EV Chargers Program;*
- *Curbside charging;*
- *The Smart City Challenge proposals; and*
- *PEV readiness plans.*

Please continue to consider CSE a resource on these and other matters, and feel free to reach out to Paul D. Hernandez, CSE's Transportation Electrification Policy Manager, with any questions or for clarifications regarding these comments.

Respectfully Submitted,

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(PLEASE SEE APPENDIX A AND B: RECOMMENDATIONS FOR ADDITIONAL INDICATORS AND ELIGIBLE PROJECT TYPE)

APPENDIX A: Recommendations for Additional Indicators

Strategies	CSE'S Recommended Additional Indicators ***(additions are in parentheses, bold, and italicized)***
1. Equitable Land Development	• ***(Measure of projects proximity to transit oriented development)*** • ***(Measure of percentage of households paying over 30% of income on housing)*** • ***(Median single-family home price)***
2. Transit Access and Mobility	• ***(Count of Transit Commuter Incentives, registered and used, by mode of use)*** • ***(Count of outreach campaign activities and participants, i.e., people in ZEV seats)*** • ***(Electric-Vehicle miles traveled or kilowatt hours of charging)*** • ***measurements of miles traveled using these active transportation modes)*** • Hybrid and zero-emission vehicles ***(measured using ZEV rebates deployed in the TCC project territory[72])*** • ***(Count of Used Hybrid and zero-emission vehicles, and their e-miles***) • ***(Count of Electric Bicycles and Electric Scooters, and their e-miles)*** • ***(Electric Vehicle Supply Equipment added using TCC funds, and their charging level (i.e., L1,L2, DCFC)*** • ***(Count of transportation choices available within the TCC territory)*** • ***(measure of vehicle hours of delay/other inefficiencies)***
3. Urban Greening / Green Infrastructure	• Urban ***(and solar)*** tree canopies, ***(as well as solar roofs, and community solar projects)***
4. Decarbonized Energy and Energy Efficiency	• Renewable energy as part of total energy supply (***with identifier of average mixture of electricity carbon intensity as a baseline, or the use of measurements akin to a Power Content Label[73])*** • ***(quantification of rebates deployed in the TCC project territory)*** • ***(Count of VGI-capable EVSE and infrastructure)*** • ***(Residential electricity consumption, and meter based savings, both energy and water)*** • ***(Growth in solar installations and capacity, in kWh)*** • ***(Measurement of Parks and green space parcels)***
5. Water Efficiency	• ***(Measurements of both residential water use and commercial water use)***
8. Materials Management	• ***(Count of kWh from renewable biogas-to-renewable transportation fuels or electricity projects)*** • (***Count of vehicles (including age, mileage, type, and MPG) retired in car scrap and replace program***) • ***Landfill tonnage, such as daily waste disposal per capita.***
11. Workforce Development and Education	• ***(Count of clean technology-related jobs)***
12. High Quality Job Creation and Local Economic Development	• New high-quality, career track jobs, ***(and green jobs).*** • ***(total incubator participants)*** • ***(total venture capital raised)***

[72] Center for Sustainable Energy (2017). California Air Resources Board Clean Vehicle Rebate Project, Rebate Statistics. Data last updated February 01, 2017. Retrieved 2/17/2017 from https://cleanvehiclerebate.org/rebate-statistics

[73] California Energy Commission; About the Power Content Label ; Website Access: http://www.energy.ca.gov/sb1305/power_content_label.html

APPENDIX B: Recommendations for Additional Eligible Project Types

California Climate Investment Programs	CSE's Recommended Eligible Project Type Additions
Affordable Housing and Active Transportation Infrastructure	• *E-Bikes and E-Scooters charging hubs in affordable housing units and high-density, multimodal areas*
Transit and Intercity Rail Capital	• *Used Hybrid and zero-emission vehicles program rebates* • *DC Fast Charging very near intermodal facilities.* • *Infrastructure to support E-Bikes and E-Scooters* • *Smart City Challenge Implementation Projects* • *PEV Readiness Plan Implementation* • *"Green Cities" Implementation projects* • *Projects that leverage VW Settlement funds* • *VGI Pilots*
Low Carbon Transit Operations	• *Used Hybrid and zero-emission vehicles program rebates* • *Smart City Challenge Implementation Projects* • *PEV Readiness Plan Implementation* • *"Green Cities" Implementation projects* • *Projects that leverage VW Settlement funds* • *VGI Pilots*
Low Income Weatherization	• *Project-Focused Education and Outreach Activities* • *Residential Energy storage* • *Residential Thermal Energy Storage Projects* • *Residential Fuel Cells* • *Combined Heat and Power Microturbines*[74] • *Rebates for solar PV, energy storage, fuel cells, and CHP Microturbines.*
Water-Energy Efficiency projects	• *Project-Focused Education and Outreach Activities* • *Green Tech/Innovation Incubators*
Low Carbon Transportation	• *Project-Focused Education and Outreach Activities* • *PEV Readiness Plan Implementation projects* • *"Green Cities" Implementation projects* • *Projects that leverage VW Settlement funds* • *E-Bikes and E-Scooters* • *VGI Pilots* • *EVSE Rebates* • *SB 350 TE Projects and Programs (if approved)*
Organics	• *Renewable biogas-to-renewable transportation fuels or electricity projects*

[74] *Description of Combined Heat and Power Microturbines; Website Access: https://energy.gov/sites/prod/files/2016/09/f33/CHP-Microturbines_0.pdf*