UNIVERSITY OF CALIFORNIA, BERKELEY

Don Vial Center on Employment in the Green Economy
University of California, Berkeley Labor Center
2521 Channing Way
Berkeley, CA 94609

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California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Cap-and-Trade Auction Proceeds Second Investment Plan: Fiscal Years 2016-17 through 2018-19 Clean Energy Incentive Program

Thank you for the opportunity to make comments on behalf of the Donald Vial Center on Employment in the Green Economy on the California Air Resources Board (CARB) Second Investment Plan for the greenhouse gas reduction fund (GGRF).

The Donald Vial Center on Employment in the Green Economy (DVC) is a project of the University of California, Berkeley Labor Center that provides research on California and national climate and clean energy policy as it relates to labor markets, workforce development, and workforce policy.

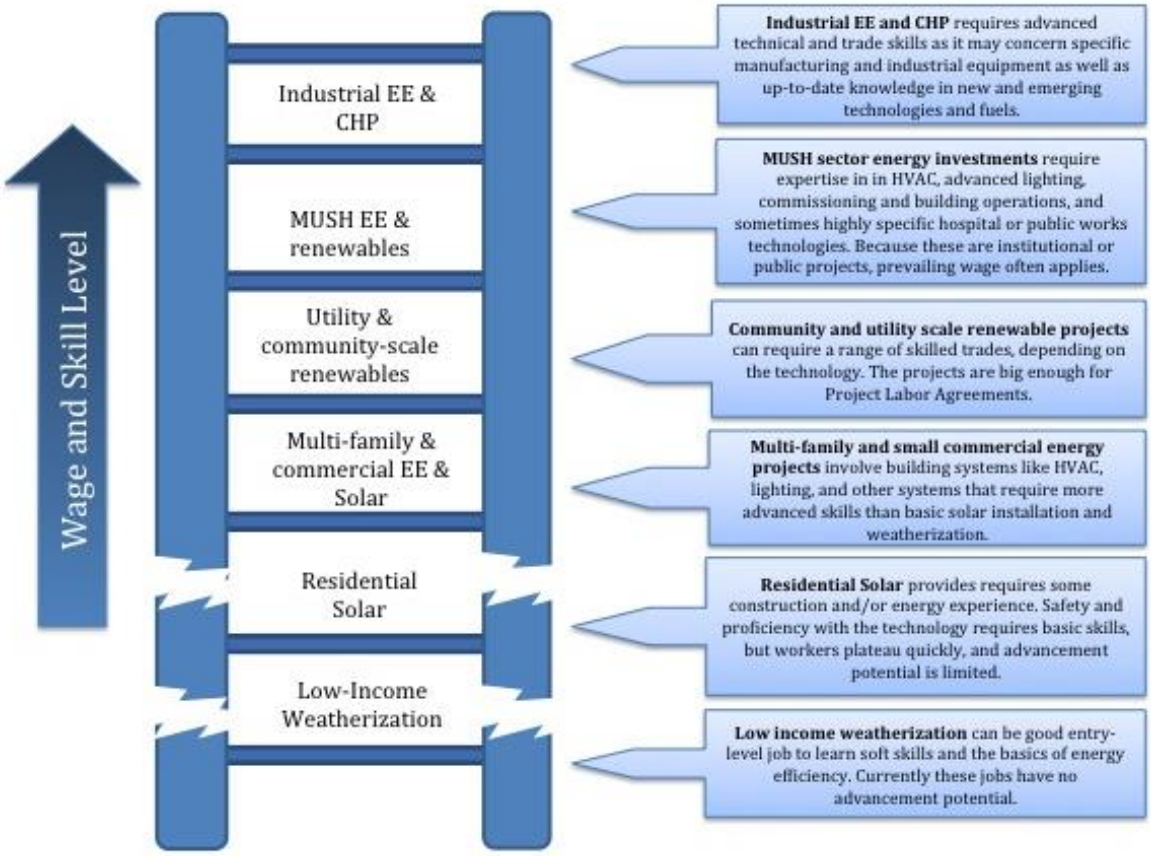
We commend the CARB for incorporating our previous comments on the "Concepts for Public Discussion" document in August 2015 in their continued commitment to energy efficiency improvements in public buildings and other non-residential facilities. As the comments below indicate, thinking beyond residential services to address the opportunities to reduce emissions from buildings, infrastructure, and transportation opportunities is central to achieving the co-benefits of high-road job creation and community empowerment as well as the broader intent of AB 32. To meet the guiding aim of AB 32 to improve the sustainability of the California economy, we urge the state to remember the triple bottom line in outlining project priorities. As California endeavors to reduce greenhouse gas emissions to assure ecological health, we must also consider equity between citizens. SB 535 and AB 1532 are important starting points to distribute investment throughout the economy, but to be most effective, strong labor standards to protect the health and well-being of workers should accompany investment, ensuring fair pay for difficult jobs in climate change mitigation and adaptation. To capture the greatest co-benefits, the DVC urges the CARB to include the following criteria in implementing the Investment Plan.

1. Highroad workforce standards
2. Structure for maximum impact
3. Prioritize highest benefit clean energy activities

Recommendations:

It has already been shown that the GGRF has potential to stimulate investment and job growth in the emerging green economy.[1] To leverage fully this investment requires an equal commitment to good job creation and access to those jobs for the people who most need them. Training programs for disadvantaged workers are insufficient. ***Most necessary are entry-level jobs that pay living wages and have defined pathways for advancement into higher skilled, higher wage jobs.*** This means that the GGRF must create energy efficiency and clean energy opportunities across a range of sectors (low-income residential, multi-family, MUSH, commercial, and industrial), in order to ensure job openings not only for entry-level workers, but for mid- and high-skilled workers as well, accessible to people as they climb the career ladder (See Figure 1). Currently, this career ladder does not work. From the entry-level positions, there are extremely limited pathways for career advancement.

Figure 1: Career Ladder



To make the career ladder work, we recommend leveraging, supporting, and enhancing proven existing models. Multi-year "earn as you learn" apprenticeship programs and the ability to connect workers from pre-apprenticeship programs to those apprenticeship openings is a tried and true model to move people up the career and wage ladder as they add skills. Numerous examples of apprenticeship programs that connect entry-level weatherization and solar installation workers to formal job training are at work in California. Notable among them is the Los Angeles Department of Water and Power (LADWP) low-income weatherization initiative, which includes the Utility Pre-Craft Trainee (UPCT) program, jointly

[1]CARB. (2014). Setting the Record Straight on AB 32. Retrieved from: http://www.arb.ca.gov/cc/cleanenergy/clean_fs.htm; Callahan, C. and DeShazo, J.R. (2014). Investment Justice through the Greenhouse Gas Reduction Fund. UCLA Luskin Center for Innovation. Retrieved from: http://innovation.luskin.ucla.edu/sites/default/files/SB%20535%20Report%20Updated.pdf

operated by LADWP and the International Brotherhood of Electrical Workers (IBEW) Local 18. The UPCT is an earn-while-you-learn, pre-apprenticeship program linked to utility apprenticeship, providing a pipeline into utility jobs that will face shortages as workers retire.[2] Apprenticeships are demand-driven training programs: where more jobs exist for skilled workers, apprenticeship programs have more openings. In recent years, some unions have even built new training centers in areas where they previously did not exist, such as the Imperial County, CA, which has seen significant solar investment.[3]

The expertise of the DVC centers on jobs and job creation in the fields of energy efficiency, clean energy, and infrastructure,[4] nevertheless, central to the Second Investment Plan are the Healthy Soils Initiative and the Forest Carbon Plan among other rural, non-trades programs. Despite the attention often given to urban interests, sustainability depends upon bringing up the standards of the whole economy. The application of strong workforce standards in agriculture, sanitation, forestry, and other natural resource areas should also be considered. The proposed criteria and mechanisms outlined below intend to maximize the investments of auction proceeds to create good jobs, distributed across the sectors that most need them.

1. High Road Workforce standards

We applaud the legislative action under SB 535 and AB 1532 to take steps to ensure that the benefits of a clean energy transition flow through to low income and impacted communities. These benefits notably include local pollution reduction, cost savings, local economic development, improved quality of life, and good jobs. Yet, the quality and thus environmental outcomes of efficiency and other clean energy projects can depend on ensuring appropriate training and job quality for those who carry out those projects locally.

Capturing the jobs and economic development potential of these projects is especially critical in low-income communities, which have not yet received their fair share of clean energy investments, and in impacted communities facing job loss from implementation of the rule.

While policies like targeted hiring, wage standards, and project labor agreements (PLAs) appended to clean energy programs can address equity concerns, these solutions require bundling projects on a community, neighborhood, municipal, or statewide basis to create economies of scale that facilitate strong worker protections and ensure community co-benefits generated through the added job opportunities.[5] Accordingly, we urge labor standards and "workforce inclusion" to be appended to all projects in receipt of auction proceeds:

- **Adopt labor standards such as prevailing wages, or for residential retrofit, other wage floors, and industry-recognized skill certifications**, such as graduation from a federally or

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[2] Avis, E. and Zabin, C. (2013). Training for the Future: workforce development for a 21st Century Utility Los Angeles's Utility Pre-Craft Trainee Program. UC Berkeley Labor Center. Retrieved from: http://laborcenter.berkeley.edu/training-for-the-future/

[3] Philips, P. (2014). Environmental and Economic Benefits of Building Solar in California Quality Careers — Cleaner Lives. Don Vial Center on Employment in the Green Economy. Retrieved from: http://www.irle.berkeley.edu/vial/publications/building-solar-ca14.pdf

[4] Don Vial Center on Employment in the Green Economy. (2015). Publications. Retrieved from: http://www.irle.berkeley.edu/vial/publications/

[5] Zabin, C. et al. (2011). California Workforce, Education, and Training Needs Assessment for Energy Efficiency, Distributed Generation and Demand Response. Don Vial Center on Employment in the Green Economy of the University of California, Berkeley, see page 111. Retrieved from: http://laborcenter.berkeley.edu/california-workforce-education-and-training-needs-assessment-for-energy-efficiency-distributed-generation-and-demand-response/

state-registered apprenticeship program for workers employed by all contractors and subcontractors participating in projects funded through the GGRF or associated financial instruments. Standardization of the acceptable training institutions and accreditation agencies means worker certifications will be easily verifiable and traceable. Fundamentally, **there must be a wage floor that represents a living wage for all workers.**

- **Build the career ladder** with pathways for entry-level workers to advance into pre-apprenticeship, apprenticeship, or other career and technical education opportunities. While entry-level jobs encourage soft skill development, specific training for specific jobs will allow a worker to build up progressively more experience in complex skills, reducing unemployment and contributing to a highly-trained, competitive workforce. **Job counselling, targeted educational training, or transition to apprenticeship programs for workers graduating from the Conservation Corps or exiting weatherization initiatives** could strengthen the positive outcomes of these programs, further develop training already achieved, and generate pathways to long-term employment.

- **Safeguard worker health, safety, and well-being through strict enforcement of state and federal workplace safety regulation.**

- **Establish contractor pre-selection based on responsible contractor criteria, with provisions to facilitate participation by minority contractors**. Pre-selection can screen out contractors who have a history of code or labor law violations, and reward contractors to adhere to a set of standards (i.e. regarding worker skill, wage and benefit standards, local hire, etc.). Several energy efficiency programs use such policies to pre-qualify contractors eligible to participate in energy efficiency programs (see NYSERDA, Delaware Sustainable Energy Utility, the Clean Energy Works Oregon). Contractors are then required to ensure the proper training and skill-set of their employees.

- **Allow no utilization of unpaid volunteer labor as it undermines paid workers and erodes a high-road work environment**. The use of volunteer labor inadvertently rewards workers who do not require compensation (because they have other sources of income) and business models that contradict the long-term vitality and resilience of low-income communities

- **Encourage adoption of a targeted hire policy, and establish paid pre-apprenticeship programs that connect workers from low-income communities to career paths in the clean energy industry, where possible, negotiated under a Project Labor Agreement**. A review of national targeted hire programs throughout the US,[6] identifies the following priorities in designing an inclusive workforce and supply chain policy:
    - Provision to hire a certain percentage of residents from the project area (local hire) and disadvantaged workers (e.g. workers recently or currently in receipt of public benefits, formerly incarcerated, formerly or currently homeless, single-parents, graduates of targeted career training programs).
    - Supplier diversity provision to encourage a percentage of supplies to be sourced from businesses owned by minority, women, LGBT, or veterans. The California Public Utilities Commission has adopted such a provision[7] that allows minority suppliers to register with a

[6] Herrera, L. et al. (2014). Exploring Targeted Hire: An Assessment of Best Practices in the Construction Industry. Retrieved from: http://www.labor.ucla.edu/publication/exploring-targeted-hire/
[7] CPUC. (2015). Utility Supplier Diversity Program. Retrieved from: http://www.cpuc.ca.gov/PUC/SupplierDiversity/

central operations clearinghouse. Contractors can reference this central database to meet prescribed diversity requirements.

- **Emphasize "targeted hire" of pre-apprentices in language of project implementation plans** to create a pathway into apprenticeship for construction or other mechanisms that create a link between disadvantaged workers employed in entry-level projects and career-track job opportunities in the clean energy sector.[8] While energy efficiency creates new job opportunities, upward mobility depends on establishing linkages between pre-apprenticeship programs, apprenticeship programs, and journey-level positions.

- **In EM&V efforts, collect data on contractor qualifications, job quality, workforce diversity, and hiring of disadvantaged workers** that can inform future program design and implementation.

- **Provide training in labor standard negotiation for community groups, municipalities, or other project implementers**. For many of the implementing bodies and community groups involved with project planning and design labor standards will be a new and unfamiliar territory.

- **Use the Green Collar Jobs Council**

  While most people understand the term "career ladder," the rungs in particular industries are not always evident. In order for the lower skilled or entry-level worker to move up, he or she must understand what skills must be learned (including both soft and hard skills), where they are learned (e.g. in school or on the job), and how to build the necessary up-skilling into his or her life in terms of schedule, budget, and geography. Because the higher skilled segments of the construction industry, such as the commercial and MUSH sectors, offer far more opportunities for disadvantaged workers, understanding the career ladder is important.

Helping residents of low-income communities and disadvantaged members of society into the clean energy workforce with opportunities to move up the career ladder demands a coordinated effort to ensure workforce preparation (supply-side of the labor market) and create pathways to employment (demand-side of the labor market).

Most workers secure higher wage, skilled trades jobs through state-certified apprenticeship programs, which offer a secure conduit for disadvantaged workers to move into skilled careers. Pre-apprenticeship training programs facilitate the successful entry of disadvantaged workers into apprenticeship programs. Model residential energy efficiency programs in some states use a combination of wage standards and targeted hire to improve entry-level residential weatherization and retrofit jobs and ensure that disadvantaged workers have access to these jobs.[9] These and other inclusion programs built on apprenticeship, prevailing wage standards, and targeted hire policies provide a relevant model for project implementation.

2. Structure for Maximum Impact

The GGRF provides a significant pool to capitalize projects across the state, however, the potential incentive for any single county, municipality, or community is modest. Innovative funding models to

[8] Zabin et al., 2011, 113

[9] Zabin, C. et al. (2014). Workforce Issues and Energy Efficiency Programs: A plan for California's Utilities. Don Vial Center on Employment in the Green Economy of the University of California, Berkeley, see pages 111-114. Retrieved from: http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/

expand the scope of greenhouse gas emissions reductions beyond what is funded through auction proceeds include revolving loan funds or green banks.

- **Encourage the establishment of revolving loan funds or green banks**, **making initial project investments the "gift that keeps on giving,"** continually replenished by the payback from energy savings.[10] A secure system of funding through a centrally-coordinated green bank or revolving loan fund could capture the energy saving potential currently left on the table across residential, commercial, industrial, and public sectors.[11] The advantage of a revolving loan fund is that an initial investment into the community is returned and reinvested into other community projects. Not only would this distribute energy efficiency savings more widely across institutions and households in low-income neighborhoods, but it would also realize continuous job creation over the payback period on the revolving loan.[12] Both green banks and revolving loan funds[13] are used across numerous states and municipalities.

- **Disadvantaged community criteria under SB 535 should not limit projects to low-income households, but must instead include commercial, industrial, and public facilities** that affect the local community and may contribute to environmental injustices. Many communities identified as "low-income" are concentrated in heavily industrial areas and face disproportionate exposure to toxic and criteria pollutants. While energy assistance and weatherization provides benefits to low-income individuals, it may be that the greatest benefits to low-income communities, as a whole, are achieved from projects in non-residential sectors.

3. Prioritize highest benefit clean energy activities

In determining project priorities, we urge a framework that incentivizes those projects which both achieve the greatest triple bottom line (environment, economy, equity) benefits (i.e. efficiency or clean energy outcomes and local air pollution reduction, investments in and benefits to communities, good job creation and development of a skilled workforce, and economic returns to the community). We describe some potentially valuable project types below, but in general, they share several criteria:

- Scale and/or scalability;
- The ability to generate a financial return (through performance contracting or similar method) that can be reinvested in additional projects;
- The potential to create and sustain good local jobs;
- The potential to reduce pollution, improve key public facilities or services, or otherwise improve local quality of life.

With sound planning and prioritization a community or state could choose to phase in projects in such a way that initial projects incentivized by early action allowances generate supplemental revenues that

[10] Cleveland, J. (2013). LED Street Lights Make Dollars and Sense: Asheville, NC. Urban Sustainability Director's Network. Retrieved from: http://usdn.org/uploads/cms/documents/asheville-led-streetlights-and-green-capital-improvement-program-best-practices-case-study.pdf; US Department of Energy. (no date). Revolving Loan Funds. Retrieved from: http://energy.gov/eere/slsc/revolving-loan-funds

[11] Fulton, M. et al. (2012). United States Building Energy Efficiency Retrofits Market Sizing and Financing Models. The Rockefeller Foundation and Deutsche Bank Group Climate Change Advisors. Retrieved from: https://assets.rockefellerfoundation.org/app/uploads/20120301221532/United-States-Building-Energy-Efficiency-Retrofits.pdf

[12] Goldman, C. et al. (2010). Energy Efficiency Services Sector: Workforce Size and Expectations for Growth. Lawrence Berkeley National Laboratory. Retrieved from: https://emp.lbl.gov/sites/all/files/REPORT%20bnl-3987e.pdf

[13] Gergen, M.J., Cannon, G.D., and Binnings, G.S. (2010). Incentives for Energy Efficiency and Renewable Energy Generation: State Revolving Loan Programs. Latham and Watkins, LLP. Retrieved from: http://www.cesa.org/assets/Uploads/Resources-post-8-16/staterevolvingloanprograms.pdf

allow for expanded scale and types of project investment, as well as to create a more sustained jobs pipeline.

CARB should consider the following:

- **Industrial energy efficiency (IEE) and combined heat and power (CHP)** projects are among the lowest total cost of saved energy (the cheapest mega-watts), pollution reduction co-benefits, and a densely unionized workforce. If financed through a revolving fund or green bank, the upfront retrofit costs would be paid back by the industrial facility beneficiaries and the money could then be invested into another project area. Critically, industrial energy efficiency leads to lower fuel use and decreased toxic and criteria air pollution. Given the disproportionate exposure of low-income and minority housing, schools, and workplaces to industrial pollution,[14] IEE has the important co-benefit of helping to ameliorate environmental justice concerns regarding air pollution.

- **Municipal, university, school, hospital (MUSH) sector or similar efficiency retrofit projects in low-income communities reduce operating expenses of these service facilities.** MUSH sector efficiency represents a mid-range cost for energy savings. Reduced operating expenses can lead to retained or improved community services and the projects have sufficient scale to ensure good jobs. If administered through a community revolving fund as discussed above, these projects have the potential to payback and generate funds for additional project investments via performance contracts, on-bill financing, or some other mechanism. In addition, it achieves widespread community co-benefits ranging from school, patient, and employee comfort, to improved student performance, and good job creation.[15]

- **Community-scale (>1 MW) renewable, distributed wind and solar generation projects such as wind and solar in low-income communities**. Renewable generation costs more than most efficiency investments, but if designed as part of a revolving loan program, with sound labor standards, medium-scale distributed generation in low income communities could offset utility energy bills and be a rung on the career ladder for wind and solar workers. Benefits associated with economies of scale reduce the net cost of renewable energy installation and can increase RE penetration into low-income communities. A survey of the US Department of Energy and National Renewable Energy Laboratory indicates that up to 50% of households and businesses could not host a solar project given lack of space, insufficient sunlight, or non-ownership of their building.[16] Community RE initiatives allow for optimal project siting, decreased energy bills, local job opportunities, increased awareness of local energy, and are a visible investment into environmental and economic resiliency.[17] Nevertheless, to date, gains in single-family solar have outpaced multi-family solar in California. A successful community renewable program designed

[14] Pais, et al., 2014; Pastor et al., 2001; Pastor et al., 2002; Zwickl et al., 2014
[15] Irwin, J. et al. (2011). Making M.U.S.H. Energy Efficient. Center on Wisconsin Strategy. Retrieved from: http://www.cows.org/making-mush-energy-efficient
Scott, M., Jones, B. and Zabin, C. (2014). Jobs and Investments to Achieve Zero Net Energy in MUSH Sector Buildings in the SoCalREN Territory. Don Vial Center on Employment in the Green Economy of the University of California, Berkeley. Retrieved from: http://www.irle.berkeley.edu/vial/publications/zne-mush-socalren14.pdf
[16] US Department of Energy. (no date). National Community Solar Partnership. Retrieved from: http://energy.gov/eere/solarpoweringamerica/national-community-solar-partnership
[17] US Department of Energy. (2010). A Guide to Community Solar: Utility, Private, and Non-profit Project Development. Retrieved from: http://www.nrel.gov/docs/fy11osti/49930.pdf

for high-road implementation must consider community workforce or project labor agreements with contracting agencies.[18]

- **Multi-family affordable housing energy efficiency retrofits to reduce energy expenditures in these facilities.** Multi-family housing energy efficiency represents mid-cost energy savings, if managed correctly, such projects can support a high road employment environment, and the benefits of efficiency are distributed. Energy efficiency initiatives in multi-family housing have advanced less rapidly given the complex or distributed ownership structures, diffuse responsibility for energy bill payments, and lack of upfront capital.[19] Establishing a structure to aid in the administration and funding of EE programs in multifamily housing could expand savings and related benefits to low-income renters in areas that are without multi-family assistance or inadequately covered.[20]

- **Single-family low-income energy-efficiency and weatherization that builds local job quality** is one of the most expensive opportunities for saving energy and reducing emissions and accordingly can be difficult to execute at scale.[21] However, the benefits to individuals are high in terms of both cost savings and comfort. Additionally, weatherization and other energy efficiency measures for single-family homes provide visible investment in low-income communities with direct benefits to residents.[22] The job quality has traditionally been poor in these programs with little opportunity for advancement, but a well-designed program can overcome these challenges.[23] The goal is to make these jobs better and provide opportunities for advancement up the career ladder through progressive training and job placement. For example, a program that allows workers in the entry-level positions created by weatherization programs to advance in their energy efficiency careers through built-in ladders to union apprenticeship programs.[24]
    - Bundling projects together is another avenue to achieve economies of scale and promote good job standards. BlocPower, a non-profit that originated in New York, "works with community leaders and institutions to assemble 4 or more non-profits, houses of worship, schools, small businesses or multi-family residences in financially underserved communities into a "Bloc" of potential retrofits." This provides a case study of how other successful bundling efforts could function and possibly grow to include larger industrial, municipal, and commercial institutions in a community energy efficiency initiative.[25]

In sum, we urge strong workforce protection and a considered approach to the diverse needs of communities statewide in designing and designating investment. A program that is structured and implemented to be fair, inclusive, and targeted to benefit those who need it most, can play a key role in

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[18] The Partnership for Working Families. (2013). The Construction Careers Handbook. Retrieved from: http://www.forworkingfamilies.org/resources/publications/construction-careers-handbook

[19] ACEEE. (2015). The Multifamily Energy Savings Project. Retrieved from: http://aceee.org/multifamily-project

[20] Johnson, K. and Mackres, E. (2013). Scaling up Multifamily Energy Efficiency Programs: A Metropolitan Area Assessment. ACEEE. Retrieved from: http://aceee.org/sites/default/files/publications/researchreports/e135.pdf

[21] Fowlie, M., Greenstone, M., and Wolfram, C. (2015). Are the Benefits to the Weatherization Assistance Program's Energy Efficiency Investments Four Times the Costs? E2e. Retrieved from: http://e2e.haas.berkeley.edu/weatherizationasstprogram.html

[22] US Department of Energy. (2013). Q&A: The Weatherization Assistance Program. Retrieved from: http://www.energy.gov/eere/articles/qa-weatherization-assistance-program

[23] Zabin et al., 2011; Fried, M. and Taylor, M. (2011). Evaluation of the Green Justice Coalition's Community Mobilization Initiative Chinatown and Chelsea Residential Energy Efficiency Pilots. Arbor Consulting Partners. Retrieved from: http://massclu.org/sites/clud6.prometheuslabor.com/files/cmi_evaluation_full_1.pdf

[24] Avis and Zabin, 2013; Cypress Mandela, Inc. Training Center. (no date). Cypress Mandela. Retrieved from: http://www.cypressmandela.org/

[25] BlocPower, LLC. (2015). BlocPower. Retrieved from: http://www.blocpower.org/

providing the best environmental and economic outcomes for stakeholders, and for communities and workers of the new and traditional energy sectors alike.

Thank you for considering these comments and for your ongoing work to implement climate and clean energy programs in California. Please contact Carol Zabin (510-642-9176, zabin@berkeley.edu) or Katherine Luke (510-642-1372, katherine.luke@berkeley.edu) if you have any questions or if we can be of assistance.

Sincerely,

Dr. Carol Zabin, Chair
Donald Vial Center on Employment in the Green Economy, University of California, Berkeley

Katherine Luke, Policy Analyst
Donald Vial Center on Employment in the Green Economy, University of California, Berkeley