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**Coalition for Energy Efficiency Comments on the Draft 2016 Existing Building
Energy Efficiency Action Plan**

Additional submitted attachment is included below.

**COALITION FOR ENERGY EFFICIENCY COMMENTS ON DRAFT 2016 EXISTING
BUILDING ENERGY EFFICIENCY ACTION PLAN UPDATE**

DOCKET 16-EBP-01

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Submitted by:

Ross Nakasone
California Policy Organizer
BlueGreen Alliance
155 Montgomery St., Ste. 1001
San Francisco, CA 94104
rossn@bluegreenalliance.org

On Behalf of the following members of the Coalition for Energy Efficiency: (1) BlueGreen Alliance, (2) Sierra Club California, (3) The Greenlining Institute, (4) California Community Colleges Chancellor's Office, (5) Joint Committee on Energy and Environmental Policy, (6) Operating and Stationary Engineers, Locals 39 and 501, (7) Avery Energy Enterprise, (8) International Brotherhood of Electrical Workers, California Inside Locals, (9) the California Labor Federation, (10) Western States Council of Sheet Metal, Air, Rail and Transportation Workers, (11) California State Pipe Trades Council, (12) National Electrical Contractors Association (California), and (13) Carol Zabin, Chair of the Don Vial Center for Employment in the Green Economy.

I. INTRODUCTION

The BlueGreen Alliance respectfully submits these comments on the Draft 2016 Existing Buildings Energy Efficiency Action Plan Update (“Action Plan Update”) on behalf of the following members of the Coalition for Energy Efficiency: (1) BlueGreen Alliance, (2) Sierra Club California, (3) The Greenlining Institute, (4) California Community Colleges Chancellor’s Office, (5) Joint Committee on Energy and Environmental Policy, (6) Operating and Stationary Engineers, Locals 39 and 501, (7) Avery Energy Enterprise, (8) International Brotherhood of Electrical Workers, California Inside Locals, (9) the California Labor Federation, (10) Western States Council of Sheet Metal, Air, Rail and Transportation Workers, (11) California State Pipe Trades Council, (12) National Electrical Contractors Association (California), and (13) Carol Zabin, Chair of the Don Vial Center for Employment in the Green Economy. The Coalition for Energy Efficiency is an ad hoc coalition of environmental, energy, labor and consumer organizations working together to review and reach consensus on California energy efficiency policy issues.

The Coalition supports the proposed updates and thanks staff for the opportunity to comment. The Coalition offers a number of suggestions below to make the Action Plan update more effective and internally consistent. In particular, we would like to see recommendations and goals that are currently included in sidebars incorporated into the strategy tables. We also believe that the Action Plan needs to be updated to more expressly identify lost energy savings from poorly installed retrofits as a barrier to meeting the Action Plan’s energy efficiency goals. SB 350, AB 802 and AB 793 directives should also be better incorporated into the strategy tables. For example, the strategy tables should be updated to incorporate and identify a timeline for meeting SB 350’s directive for the Energy Commission to adopt a responsible contractor policy to ensure that retrofits reduce energy savings lost due to poor quality workmanship.

II. THE ACTION PLAN SHOULD EXPRESSLY IDENTIFY LOST ENERGY SAVINGS OPPORTUNITIES THAT ARE STRANDED IN EXISTING BUILDINGS WHEN RETROFITS ARE POORLY INSTALLED

The draft Action Plan Update should be amended to expressly identify lost energy savings from poorly installed retrofits as a barrier to meeting the Action Plan’s energy efficiency goals. The updated plan identifies several recommendations to improve installation outcomes, but fails to clearly identify the issue that these recommendations and goals are intended to address.

Poor quality energy efficiency upgrades present a significant barrier to achieving the Action Plan’s existing buildings energy efficiency goals. A U.C. Berkeley report by the Donald Vial Center on Employment in the Green Economy identified numerous studies showing that actual energy efficiency savings from energy efficiency retrofit projects are as little as 51% of expected savings when evaluated post-installation.¹

¹ Zabin, et al, Donald Vial Center on Employment in the Green Economy, *Workforce Issues and Energy Efficiency Programs, A Guidance Plan for California Utilities* (2014) (“UCB-DVC Report”) at pp. 32-34 and Appendix 2B.

This gap was most prevalent in replacement HVAC systems due to the fact that efficiency of heating and air conditioning equipment is highly dependent on the quality of its installation. The report cited a study for the California Energy Commission that found up to 85% of replacement HVAC systems were installed or designed incorrectly, resulting in substantial unrealized energy savings.²

Similar gaps between expected savings and realized savings have also been found in installations of lighting control systems. One post-installation evaluation found that automatic day-lighting controls failed to perform as expected in 7 out of 7 tests, and occupancy sensors failed to perform as expected in 2 out of 3 tests. All of the failures were due to design, installation, or calibration issues.³

These unrealized energy savings reduce the cost-effectiveness of retrofits and are a significant barrier to achieving California's energy efficiency goals. The stranded, unrealized energy savings are often locked in for the lifespan of the new equipment or system which is often 10 to 20 years or more.

In order to address these lost savings, the Action Plan Update amends its energy efficiency workforce alignment strategies to: (1) better align workforce training and education opportunities with competencies needed to implement high quality energy efficiency projects; and (2) to ensure that a certified, high performing workforce will be engaged to deliver energy efficiency retrofits, thereby transforming efficiency incentive work from a low-cost bidder framework to a lowest-cost qualified bidder framework. The Coalition supports these strategies, but is concerned that implementation of these strategies will lack priority or focus without setting forth the underlying problem they are intended to resolve, i.e. the need to capture the energy efficiency saving opportunities lost by poor quality work.

As discussed below, the coalition also supports adding "verification" of energy efficiency project outcomes as an additional strategy for addressing this issue, as well as expanding the workforce quality strategy to encompass implementation of the SB 350 responsible contractor definition and to incorporate the workforce recommendations for IOU incentive programs that are included in the updated side bar on page 49 of the report.

III. RESPONSIBLE CONTRACTOR POLICY

In Chapter 1, the Action Plan Update notes that SB 350 calls for adoption of a responsible contractor policy to address compliance and work quality problems. Senate Bill 350 requires the Energy Commission to adopt a "responsible contractor policy for use across all ratepayer-funded energy efficiency programs that involve installation or maintenance, or both installation and maintenance, by building contractors *to ensure that retrofits meet high-quality performance standards and reduce energy savings lost or foregone due to poor-quality workmanship.*" The Action Plan Update, however, fails to identify adoption and implementation of a responsible contractor plan as a strategy or recommendation for achieving the Action Plan's energy efficiency goals.

² *Ibid.*

³ *Ibid.*

The Action Plan Update should be further amended to incorporate adoption and implementation of a responsible contractor plan into its strategy sections and to set forth a specific timeline for adoption of the responsible contractor definition.

IV. ENGAGEMENT OF SKILLED AND TRAINED WORKFORCE

The Coalition strongly supports staff's proposal to update the Action Plan to expressly add a strategy for the engagement of a skilled and trained workforce. This strategy is consistent with the milestone already set forth in the current Plan, which states that "By 2020, a certified, high performing workforce is enabled to support energy efficiency industry in California."⁴

The Coalition, however, would like to see the Action Plan provide more explicit guidance on how to ensure energy efficiency retrofits are installed by a skilled and qualified workforce (see below for our suggestions). 2020 is rapidly approaching, yet California still has not adopted any requirements to ensure that a certified, high performing workforce will be engaged to perform energy efficiency retrofits in existing buildings.

WE&T efforts to create a skilled and trained workforce are being undermined by policies that encourage hiring the cheapest workers rather than the cheapest qualified workers. The continued failure to adopt skilled and qualified workforce requirements creates an economic disincentive to people who invest in training, yet lose jobs to contractors who hire people at minimum wage and do not invest in training and apprenticeship for their employees. California is subsidizing contractors that do not invest in training by spending tax dollars on projects that do not optimize or achieve energy savings.

The Action Plan Update takes the first step toward addressing this by stating that the strategy to engage a skilled and trained workforce is intended to transform efficiency incentive work "from a low-cost bidder framework to a lowest-cost qualified bidder framework." The Action Plan also adopts a new sidebar that recommends that the IOUs incorporate "contractor and workforce standards into the energy efficiency program requirements." The Coalition strongly supports this recommendation, but would like to see it also added as an adopted strategy measure.

Adopting this as a strategy would be consistent with numerous CPUC directives that have yet to be implemented by the IOUs. In 2012, the IOUs were ordered in D.12-11-015, *Decision Approving 2013-2014 Energy Efficiency Programs and Budgets* to develop a comprehensive approach to increasing the demand for skilled workers through skills standards and certification requirements for utility incentive programs. This resulted in the development of the UCB-DVC Report. In D.14-10-046, *Decision Establishing Energy Efficiency Savings Goals and Approving 2015 Energy Efficiency Programs and Budgets*, the CPUC directed the IOUs to describe how they would respond to the UCB-DVC Report. To date, however, no meaningful contractor or workforce standards have been adopted for these programs. The Commission's Decision Providing Guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings clarified that these prior directives remain valid and that the Commission still expects the

⁴ Action Plan (2015) at p. 25; Action Plan Update at page 6.

business plans and program designs to address the issue of ensuring and continuously improving workforce and installation quality for energy efficiency measures.⁵

Education and training programs alone are not sufficient to effectively address the lost energy savings and safety risks associated with poorly installed energy efficiency measures. There needs to be a concurrent, corresponding requirements, incentives or inducements to actually hire installers who have received workforce education and training. While continued workforce education and training efforts are necessary, those efforts need to happen concurrently with the adoption of corresponding requirements, incentives or inducements to actually hire installers who have received workforce education and training. If we don't ensure work quality, we won't get real energy savings.

V. MONITORING & VERIFICATION REQUIREMENTS

The Coalition recommends adding “monitoring and verification based on actually achieved energy savings” as an additional strategy for addressing the gap between assumed and actually achieved savings from energy efficiency retrofit projects. Adding this as a specific strategy would be consistent with Assembly Bill 802's direction to measure incentive savings by looking at “meter-based performance.” If large-scale and medium-scale existing building energy efficiency programs are not required to verify that persistent energy savings have actually been achieved, there is little incentive to design these programs in a manner that ensures quality installation.

As discussed above, the need for actual performance-based energy savings is well documented. Currently, the vast majority of utility incentives are based upon assumed or “deemed” savings instead of actual savings. Numerous studies have shown that a significant portion of these “deemed savings” are not real or don't fully materialize due to poor quality work.⁶ Studies have found that the gap between energy efficiency programs' expected savings and the savings actually realized when evaluated has been as much as 51% and 63% of reported savings.⁷

VI. PERMIT AND CODE ENFORCEMENT

The vast majority of existing building energy efficiency system retrofits do not comply with permit, inspection and Title 24 compliance documentation requirements. For residential HVAC retrofits, industry experts have estimated that around 90% of installations do not comply with permit and inspection requirements.

The lack of compliance with permit, inspection and compliance documentation requirements is undermining energy efficiency efforts. Contractors that fail to pull permits are more likely to be unlicensed, use low wage, untrained workers, and to skip acceptance testing or

⁵ CPUC Guidance Decision (D.16-08-019) at pp. 63, 92.

⁶ See Zabin, et al, Donald Vial Center on Employment in the Green Economy, *Workforce Issues and Energy Efficiency Programs, A Guidance Plan for California Utilities* (2014) [“DVC Guidance Plan”] at pp. 32-34 and Appendix 2B (citing and summarizing studies on energy savings outcomes).

⁷ *Ibid.*

commissioning of systems. As a result, this work is likely to be installed poorly and to be less energy efficient.

The Action Plan needs to add more specific guidance on enforcement and compliance. The Action Plan recognizes this problem, but fails to identify specific solutions or strategies.⁸ The Action Plan Update maintains its milestone goal of increasing code compliance rates. In addition, it adds a new sidebar setting forth recommendations from the Western HVAC Performance Alliance for increasing code compliance for HVAC systems. The Coalition supports these proposals, but would like to see them incorporated into the strategy tables.

In addition, the Action Plan Update should be revised to recognize that permit and code compliance is not just an issue for HVAC installations. Lighting, plumbing, roofing and other existing building retrofit work are also often performed without complying with permitting or Title 24 compliance documentation requirements. Even when permits are pulled, many smaller jurisdictions throughout the state fail to enforce Title 24 energy efficiency requirements or compliance documentation requirements.

To help address this issue, energy efficiency programs should be aligned with and support permit and code enforcement measures. Incentives should not be provided to projects unless the project has obtained and closed out any necessary building permits. Currently, utility incentive programs only require proof that a permit has been pulled. This doesn't provide any assurance of code compliance. The important step is closure of the permit. Permit closure means that a project has passed final inspection and provided all required Title 24 compliance documentation. This ensures that that ducts have been tested for leaks, lighting controls have passed acceptance testing and all other functional performance or acceptance tests required under Title 24 have been performed. Requiring customers to pass final inspection also protects public health and safety. Improper installation of hot water, HVAC or lighting control systems can lead to gas leaks, carbon monoxide poisoning, electrical shock, electrical fires, poor indoor air quality, seismic safety risks, water leaks and mold risk.

Requiring customers to pass final inspection does not add any burden or costs to energy efficiency upgrades. Customers are already required by law to pass final inspection where permits are required. Requiring incentive projects to pass final inspection simply ensures that incentives are not being provided to unlawful, unsafe and poorly-installed projects.

VII. WORKFORCE EDUCATION AND TRAINING

The Coalition supports the Action Plan Updates' amendment of its workforce education and training strategies to shift the emphasis from "Workforce Education and Training" to "Energy Efficiency Workforce Alignment" This subtle shift in focus provides better clarity regarding the goals of this strategy. The Coalition supports the proposal to engage the

⁸ See Action Plan (2015) at p. 10 ("Addressing the application, compliance and enforcement of building standards in existing buildings is a high priority"); see also discussion on p. 13 and milestone goal on p. 25 ("By 2018, establish baseline code compliance rate for residential HVAC replacements. By 2021, improve compliance to 80 percent" and "By 2020, retrofit compliance with the Building Energy Efficiency Standards is at 90 percent and is achieved at lower cost") .

Community Colleges, State-registered Apprenticeship programs, and the IOUs' Energy Training Centers and subject matter experts to help identify workforce competencies that must be developed to meet the Action Plan's existing building energy efficiency goals and to create an industry-driven action plan to align the capacity of the state's main training institutions, i.e. registered apprenticeship, community colleges, and 4 year colleges and universities entities to modify and update their curricula in the key occupations that impact energy efficiency.

VIII. STRANDED SAVINGS DUE TO SHALLOW RETROFITS

Shallow retrofits to existing buildings lock in shallow savings, and are thus an obstacle, not a solution, to meeting California's energy efficiency and greenhouse gas reduction goals and efficiency goals. The Action Plan's goals should be updated to include a goal of encouraging and incentivizing deeper retrofits over shallow retrofits to avoid locking in lost savings opportunities for the lifetime of retrofit.

For example, deeper retrofits that include advanced lighting controls and demand response controls significantly increase a retrofit's energy savings over just putting in more efficient LED luminaires. A study of the commercial lighting sector found that lighting controls reduce commercial buildings' energy use for lighting by up to an additional 38%.⁹ In addition, advanced lighting controls coupled with automated demand response controls provide important grid management capability to allow increased reliance on less predictable wind and solar energy sources.

Shallow initial retrofits also make it harder to convince building owners to invest later in deeper retrofits that may take longer to achieve payback. Bundling deeper retrofits with shallow measures that may provide a quicker return on investment can "buy down" the cost/time for the deeper measures that may take longer to provide a return on investment. The Action Plan currently recognizes that deeper retrofits are often avoided because small and medium size businesses typically require 6 to 18 months for payback on efficiency improvements and large businesses require 2 to 3 years.

The Action Plan Update should be amended to identify specific strategies to overcome the barriers to deeper retrofits. This would be consistent with SB 350, which authorizes the CPUC to pursue market transformation programs to achieve deeper energy efficiency savings and pay for performance programs that link incentives directly to measured energy savings.

IX. CREATING OPPORTUNITIES FOR WORKERS FROM DISADVANTAGED COMMUNITIES

The Coalition is pleased that the Action Plan adds in a goal to address workforce opportunities for minority, low-income and disadvantaged communities. This is consistent with SB 350's call for coordination between the Energy Commission and the CPUC in developing

⁹ Jackson, et al, ACEEE Summer Study Proceedings, *California's Advanced Lighting Controls Training Program: Building a Skilled Workforce in the Energy Efficiency Market* (2012), <http://www.aceee.org/files/proceedings/2012/start.htm>.

energy efficiency programs including workforce development and job training for disadvantaged communities.

The primary goal of the energy efficiency programs is to conserve energy, but they also serve as a significant source of job generation in the state. Energy efficiency programs inevitably affect not just the number of jobs, but also the type of jobs that are created. Programs can impact both the skills and wages of workers hired by contractors and who gets the jobs. Training programs alone will not ensure that energy efficiency incentive measures are installed by skilled workers, nor will they ensure that disadvantaged workers receiving this training will be hired. Intervention on the demand side of the labor market is also needed.

In order to provide more meaningful guidance on how to create opportunities for disadvantaged workers, the Coalition proposes adding the following sub-bullets to Strategy 3.3.10:

- Align workforce training programs for low-income residents or residents from disadvantaged communities with access to career-track opportunities in energy efficiency and defined pathways for advancement into higher skilled, higher wage jobs.
- Align workforce inclusion goals with the jobs created by individual EE programs, through requirements, incentives or inducements such as:
 - Setting disadvantaged/local hire targets for contractors and subcontractors through community workforce agreements or similar arrangements;
 - Supporting pre-apprenticeship programs that successfully place workers in state-certified apprenticeship and other programs with a proven track record of placing disadvantaged workers into career-track training and jobs, such as the pre-apprenticeship programs funded by Prop. 39;
 - Supporting programs for disadvantaged workers at California's main training and education institutions, including community colleges and the state-certified apprenticeship system; and
 - Leverage government and other programs that serve the MUSH (municipal, university, school and hospital) sector, which can model innovations in linking job training and job opportunities for disadvantaged workers.

X. NEED FOR MORE SKILLED AND TRAINED BUILDING OPERATORS

The Coalition supports the recommendations made for efficient operations in state buildings made in the new sidebar on page 8. The advice in that sidebar is excellent, and includes important and effective operational recommendations to achieve high energy efficiency in state buildings, such as:

- *Optimum use of outside air to meet and/or reduce cooling demands*

- *Best practice HVAC system maintenance*
- *Optimum use of occupancy sensors and daylight controls*
- *Task-appropriate lighting levels*
- *Participation in utility demand response programs*

The meaning of this sidebar, however, is unclear since it is not connected to any strategies or milestones. These recommendations should be moved to the strategy table.

In addition, we recommend that the Commission staff build on these recommendations in three ways:

1. Recognize that high performance operation requires very well trained high performance operators. Existing buildings would operate much more efficiently if all building operators were trained to a high standard of skill and knowledge of the energy systems they are running. A requirement for a high level of training is also critical for new and newly renovated buildings because the newest energy systems are even more sophisticated and complex. Operational expertise is absolutely critical to optimize energy savings.
2. Apply high performance operation goals to all existing buildings, not just state buildings.
3. Support and expand education, training and certification opportunities for building operators and support certification requirements for high performance building operators. The California Community Colleges Chancellor's office is funding and leading the development of the new CALCTP building operator's training and certification program. It will be taught at California Community Colleges, industry training centers, and utility energy education facilities.

XI. ADR AND CONSISTENCY WITH SB 350 AND STATE ENERGY GOALS

The Action Plan should be amended to include a goal to prioritize energy efficiency retrofits that enable automated demand response ("ADR") capability in order to align with SB 350 grid reliability and renewable energy goals. Senate Bill 350 expressly directs the Commission to increase automated demand response capabilities in buildings in order to help maintain grid reliability as we transition to a Renewable Portfolio Standard ("RPS") target of 50%. Because renewable wind and solar energy sources can be unpredictable, a number of measures will need to be taken to ensure grid reliability when meeting the 50% RPS goal, including substantially increasing California's automated demand response capabilities. In order to comply with this mandate, existing building energy efficiency programs should be designed to encourage retrofits that not only reduce direct energy consumption, but also install the type of equipment and controls that provide automated demand response capability.

Demand response controls increase both the cost efficiency and energy efficiency of HVAC systems and lighting systems by reducing the system demand during peak demand periods. For lighting, automated demand response capabilities rely on the installation of not just automated demand response controls, but also advanced lighting controls such as multi-level

lighting controls and daylighting controls. Without the installation of these advanced lighting controls, there is no way for the automated demand response control to reduce the lighting load demand of a building.

Once a lighting system is upgraded, it will generally remain in place for its useful life. Accordingly, energy efficiency programs that incentivize cheap lamp upgrades without advanced lighting controls and demand response capabilities will essentially forestall a building's ability to participate in automated demand response programs and achieve deeper savings for years or even decades.¹⁰

The 2015 Action Plan identified demand response strategies as an item for "future discussion."¹¹ The Update appears to remove this item altogether, although it does recommend in a sidebar that state buildings should participate in utility demand response programs.¹² The Coalition supports converting this recommendation to a strategy applicable to all buildings, not just state buildings.

XII. PROPOSED AMENDMENTS TO EXISTING BUILDING ENERGY EFFICIENCY ACTION PLAN STRATEGY TABLES

To address the above comments, the Coalition proposes the following additional amendments to be incorporated into the Action Plan Update strategy tables.

State Buildings

1.1.1 State Buildings:

- **Efficient Operations:** State buildings should
 - Purchase ENERGY STAR® equipment
 - Optimize use of outside air to meet and/or reduce cooling demands
 - Operate windows to maximize passive cooling and minimize infiltration
 - Ensure best practice HVAC system maintenance
 - Optimize use of occupancy sensors and daylight controls
 - Set task-appropriate lighting levels
 - Replace incandescent light sources
 - Participate in utility demand response programs
 - Ensure building operators have appropriate training and certification to optimize maintenance and efficient operation of building systems.
- **Zero Net Energy Buildings:** Retrofit 1,700 state buildings to ZNE by 2025.

¹⁰ In addition to increasing grid reliability and allowing for greater reliance on renewable energy, advanced lighting controls and demand response capabilities, they also substantially increase a retrofit's energy savings over just putting in more efficient lamps. In their June 1, 2016 *Statewide Lighting Market Transformation Report*, the IOUs found that LED replacements without advanced controls leave significant energy savings on the table: "These projects demonstrated that controls can provide an additional 25–50% savings over even the more efficient lighting technology, depending on the building and control strategies used."¹⁰ (*Pacific Gas and Electric Company (U 39-M)*, *San Diego Gas & Electric Company (U 902-M)*, and *Southern California Edison Company's (U 338-E) Statewide Lighting Market Transformation Report* (June 1, 2016), R.13-11-005, at p. 12.)

¹¹ Action Plan (2015) at p. 3.

¹² Action Plan Update at p. 8.

- **Qualified Workforce:** Ensure energy efficiency retrofits in state buildings are installed, operated and maintained by a trained and skilled workforce to ensure quality installations that are safe and achieve energy saving goals.
 - Identify and adopt workforce standards for energy efficiency retrofit work and implement other recommendations from the Donald Vial Center on Employment in the Green Economy report: Workforce Issues and Energy Efficiency Programs, A Guidance Plan for California Utilities (2014).
- **ADR Capability:** Prioritize energy efficiency retrofits that enable automated demand response capability in order to align with SB 350 directives for maintaining grid reliability through grid management as we transition to a Renewable Portfolio Standard (“RPS”) target of 50%.
- **Adopt Responsible Contractor Policy for energy efficiency retrofits in state buildings:** Adopt Responsible Contractor Policy to ensure that contractors installing energy efficiency retrofits in state buildings invest in, and utilize, a trained and qualified workforce to ensure that retrofits are safely installed, meet BES performance standards and reduce energy savings lost or foregone due to poor-quality workmanship.

1.14 Water Conservation: Identify water conservation upgrade opportunities for existing state buildings, including fixture upgrades and retrofits to enable the use of alternative water sources such as graywater, rainwater or recycled water.

Building Efficiency Standards

A. Improve BES as Applied to Existing Buildings

1.5.5 Consistency with state energy goals. Review BES for consistency with SB 350 and other state energy goals.

1.5.6 ADR Capability: Evaluate and address issues impeding the adoption of automated demand response capabilities in existing buildings.

B. BES Compliance Improvement for Existing Buildings

1.5.8 1.5.10 Serial Number Tracking: If indicated as a critical resource for compliance improvement, ~~e~~Establish HVAC equipment serial number tracking database. Establish a system to track central heating and air cooling equipment sales and installations in the state to verify compliance with permitting, inspection and testing requirements.

1.5.11 Eliminate Incentives for Retrofits that Do Not Comply with the BES: Develop requirements to ensure that any payments, rebates or incentives offered by a public utility, locally-owned utility, community choice aggregator, state agency, or local agency for an energy efficiency improvement or installation of energy efficient components, equipment, or appliances in buildings shall be provided only if the recipient of the payment, rebate or incentive

provides proof of permit closure and certifies that the improvement or installation has complied with any applicable functional performance testing, HERS testing, acceptance testing or compliance documentation requirements set forth in the BES and has passed any required permit or building safety inspection requirements.

1.5.12 Quality Installation: Develop strategies to ensure energy efficiency retrofits in existing buildings are installed by a trained and skilled workforce to ensure quality installations that are safe and achieve energy saving goals.

- Identify and adopt contractor and workforce standards for energy efficiency retrofit work and implement other recommendations from the Donald Vial Center on Employment in the Green Economy report: Workforce Issues and Energy Efficiency Programs, A Guidance Plan for California Utilities (2014).

C. Ensure Utility Energy Efficiency Programs Realize full benefits of the BES for Existing Buildings

1.5.13 Quality Installation: Ensure energy efficiency programs address lost energy savings opportunities that are stranded in existing buildings when incentives result in retrofits that are poorly installed and fail to achieve expected energy saving.

- Identify and adopt workforce standards for energy efficiency retrofit work and implement other recommendations from the Donald Vial Center on Employment in the Green Economy report: Workforce Issues and Energy Efficiency Programs, A Guidance Plan for California Utilities (2014).
- **Adopt Responsible Contractor Policy:** Consistent with the requirements of SB 350, adopt a responsible contractor policy to ensure that retrofits are safely installed, meet BES performance standards and reduce energy savings lost or foregone due to poor-quality workmanship.
 - Time Frame. March 2017. CEC / CPUC, CSLB, Community Colleges

Energy Efficiency as a Clean Distributed Energy Resource

1.8 Energy Efficiency as a Clean Distributed Energy Resource:

A. Evolve Existing Utility Programs

1.8.2 Market Transformation Program Portfolios: Evolve the energy efficiency program portfolios to focus more explicitly on market transformation activities in the upgrade marketplace.

- Understand the phenomenon of code shortfall in existing buildings, and mobilize projects to close any gaps.
- Revisit administration of market transformation efforts.
- Move toward statewide administration of upstream and midstream programs and encourage third party development of innovative energy efficiency incentive programs

1.8.4 Consistency with state energy goals: Ensure utility energy efficiency programs are consistent with SB 350 and other state energy goals.

1.8.5 ADR Capability: Encourage energy efficiency retrofits that enable automated demand response capability in order to align with SB 350 directives for maintaining grid reliability through grid management as we transition to a Renewable Portfolio Standard (“RPS”) target of 50%.

1.8.6 Consistency with Goals to Ensure Energy Efficiency Work Provides Opportunities to Workers from Disadvantaged Communities: Ensure that minority, low-income and disadvantaged communities are participants in the energy efficiency industry created by utility energy efficiency programs.

B. Ensure Utility Energy Efficiency Programs Achieve Real Savings

1.8.7 Monitoring and Verification: Implement AB 802’s direction to measure incentive savings by looking at “meter-based performance.” Monitoring and verification based on actually achieved energy savings should be required for ratepayer-funded, downstream, non-residential upgrade projects except for small projects.

1.8.8 Quality Installation: Ensure energy efficiency programs address lost energy savings opportunities that are stranded in existing buildings for decades when incentives result in retrofits that are poorly installed and fail to achieve expected energy saving.

1.8.9 Adopt Responsible Contractor Policy: Consistent with the requirements of SB 350, adopt a responsible contractor policy to ensure that retrofits are safely installed, meet BES performance standards and reduce energy savings lost or foregone due to poor-quality workmanship.

- Time Frame. March 2017. CEC / CPUC, CSLB, Community Colleges

1.8.10 Avoid Shallow Retrofits that Delay Deeper Retrofits: Emphasize deeper retrofits over shallow retrofits that may lock out potential additional savings for the lifetime of the retrofit.

1.8.11 Eliminate Incentives for Retrofits that Do Not Comply with Compliance Documentation Requirements for Performance Testing: Develop requirements to ensure that any payments, rebates or incentives offered by a public utility, locally-owned utility, community choice aggregator, state agency, or local agency for an energy efficiency improvement or installation of energy efficient components, equipment, or appliances in buildings shall be provided only if the recipient of the payment, rebate or incentive provides proof of permit closure and certifies that the improvement or installation has complied with any applicable functional performance testing, HERS testing, acceptance testing or compliance documentation requirements set forth in the BES and has passed any required permit or building safety inspection requirements.

Workforce Education and Training

3.3.9 Engagement of skilled and trained workforce: Ensure that a certified, high performing workforce will be engaged to deliver energy efficiency retrofits in existing buildings, thereby transforming efficiency incentive work from a low-cost bidder framework to a lowest-cost qualified bidder framework.

- Incorporate contractor and workforce standards into the energy efficiency program requirements and implement other recommendations from the Donald Vial Center on Employment in the Green Economy report: Workforce Issues and Energy Efficiency Programs, A Guidance Plan for California Utilities (2014).
- Support and expand education, training and certification opportunities for building operators and support certification requirements for high performance building operators.

3.3.10 Ensure Energy Efficiency Work Provides Opportunities to Workers from Disadvantaged Communities: Ensure that minority, low-income and disadvantaged communities are provided pathways to careers in the energy efficiency existing building retrofit industry.

- Align workforce training programs for low-income residents or residents from disadvantaged communities with access to career-track opportunities in energy efficiency and defined pathways for advancement into higher skilled, higher wage jobs.
- Align workforce inclusion goals with the jobs created by individual EE programs, through requirements, incentives or inducements such as:
 - Setting disadvantaged/local hire targets for contractors and subcontractors within community workforce agreements or similar arrangements;
 - Supporting pre-apprenticeship programs that successfully place workers in state-certified apprenticeship and other programs with a proven track record of placing disadvantaged workers into career track training and jobs;
 - Supporting programs for disadvantaged workers at California's main training and education institutions, including community colleges and the state-certified apprenticeship system; and
 - Leverage government and other programs that serve the MUSH (municipal, university, school and hospital) sector, which can model innovations in linking job training and job opportunities for disadvantaged workers.

3.3.11 Adopt Responsible Contractor Policy: Consistent with the requirements of SB 350, adopt a responsible contractor policy to ensure that retrofits are safely installed, meet BES performance standards and reduce energy savings lost or foregone due to poor-quality workmanship.

- Time Frame. March 2017. CEC / CPUC, CSLB, Community Colleges

XIII. CONCLUSION

The Coalition supports the amendments proposed by staff and appreciates the hard work they have put into both the 2015 Action Plan and the Update. As discussed above, there are a number of additions that should be included in the update to ensure consistency with SB 350 and AB 802, and to address key barriers to achieving the Action Plan's energy efficiency goals. We appreciate your consideration of these comments.

Dated: November 1, 2016

Respectfully submitted,

/s/

Coalition for Energy Efficiency

Ross Nakasone

California Policy Organizer

BlueGreen Alliance

155 Montgomery St., Ste. 1001

San Francisco, CA 94104

rossn@bluegreenalliance.org

On behalf of the *Coalition for Energy Efficiency*:

(1) BlueGreen Alliance, (2) Sierra Club California, (3) The Greenlining Institute, (4) California Community Colleges Chancellor's Office, (5) Joint Committee on Energy and Environmental Policy, (6) Operating and Stationary Engineers, Locals 39 and 501, (7) Avery Energy Enterprise, (8) International Brotherhood of Electrical Workers, California Inside Locals, (9) the California Labor Federation, (10) Western States Council of Sheet Metal, Air, Rail and Transportation Workers, (11) California State Pipe Trades Council, (12) National Electrical Contractors Association (California), and (13) Carol Zabin, Chair of the Don Vial Center for Employment in the Green Economy.