CEE Commments on SoCalGas Draft Business Plan

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The Coalition for Energy Efficiency is a coalition of environmental, energy, labor, disadvantaged community, and consumer organizations working together to review and reach consensus on energy efficiency incentive policy issues. These comments represent the consensus comments of the following members of the coalition: (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), (13) Carol Zabin, Chair of the Don Vial Center for Employment in the Green Economy; and (14) Center for Sustainable Energy.

Program Administrator to receive feedback: SoCalGas

Date: November 21, 2016

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Comment Number	**PA(s)**	**Sector**	**Page #**	**Comment**	**Supporting Guidance Documents**

CEE-1	SoCalGas	*Global Comments Applicable to All Chapters*		**Observations (re missing issues and details)** The Business Plan fails to address (or even identify) all the issues set forth in the applicable guidance decisions and raised by the CAEECC stakeholder process. (See e.g., D.15-10-028 at p. 47). In addition, numerous sections of the Business Plans are either cursory in nature, incomplete or entirely blank. As a result, the draft Business Plan is lacking in sufficient detail or content to allow for meaningful stakeholder input on a number of key issues. Examples of issues missing from the Business Plan include: 1. Business Plan fails to identify strategies to address the issue of poor workforce and installation quality resulting in underperforming energy efficiency measures and stranded savings opportunities. (See Guidance Decision D.16-08-019 at p. 63, fn. 24.) 2. Business Plan fails to address the recommendations for increasing the demand for skilled workers set forth in the 2014 University of California, Berkeley, Donald Vial Center for Employment in the Green Economy (UCB-DVC) report, "*Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities*." (See D.14-10-046 at p. 102.) 3. Business Plan fails to identify goals, strategies or approaches to incorporate workforce diversity and inclusion goals into the contractor selection process. (D.12-11-015, *Decision Approving 2013-2014 Energy Efficiency Programs and Budgets*, at p. 84 (ordering IOUs to develop approaches to incorporate workforce diversity and inclusion goals into their third-party contractor selection process; see Guidance Decision D.16-08-019 at p. 63, fn. 24 (affirming continued applicability of prior workforce orders).) 4. Business Plan ignores Decision's recommendation to track measure installation quality over time as a metric. (D.15-10-028 at p. 52.) 5. Business Plan fails to include transition plans to demonstrate the minimum level of third party delivery required by the Guidance decision. (Guidance Decision D.16-08-019 at p. 74.) 6. The Business Plan fails to identify which strategies will be coordinated statewide or regionally and who will be the lead administrators. (Guidance Decision D.16-08-019 at p. 102-103; D.15-10-028 at p. 47.) 7. Business Plan fails to identify at least four downstream programs to be piloted on a statewide basis, including proposed lead administrator and other program details. (Guidance Decision D.16-08-019 at p. 111.) 8. Business Plan fails to describe how collection strategies are embedded in the design of the program or intervention to ensure ease of reporting and near term feedback, and	

				how performance will be analyzed during deployment. (D.15-10-028 at p. 47-48.) 9. The Business Plan fails to identify or address inherent free ridership concerns with incentive programs. (See CEE-3). 10. Business Plan fails to respond to prior comments and input provided by the CEE, including the CEE's comments on the Draft Business Plan Chapters. 11. Business Plan fails to describe the stakeholder process that will be associated with implementation plan preparation and fails to provide a proposal for oversight. (D.15-10-0208, at p. 64; D.16-08-019 at p. 75.) **Recommended Action:** Provide CAEECC stakeholders opportunity to review and comment on these missing details prior to submitting Business Plans to Commission.	
CEE-2	SoCalGas	*Global Comments Applicable to All Chapters*		**Observations (re workforce quality)** The Business Plan needs to be amended to address the workforce quality issues set forth in the applicable guidance decisions and raised by the CAEECC stakeholder process. The Business Plan addresses worker education and training ("WE&T") programs, but fails to address workforce qualification standards for installers of incentive measures. This is inconsistent with the Commission's Long-Term Energy Efficiency Strategic Plan and conflicts with prior decisions directing the IOUs to develop and implement a comprehensive approach to ensure that energy efficiency measures are installed correctly by engaging a trained, skilled and diverse workforce. It also conflicts with the goals and strategies of the Existing Building Energy Efficiency Action Plan and and it fails to to describe how it would incorporate the U.C. Berkeley Donald Vial Center report, *Workforce Issues and Energy Efficiency Programs, A Guidance Plan for California Utilities*. (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").) The Business Plans should be amended to direct the implementation plans to include clear and detailed descriptions of how incentive programs will ensure energy efficiency measures are installed by a trained, skilled and diverse workforce, and amended to include actual metrics to assess the achievement of these goals. The Rolling Portfolio Guidance Decision articulated the importance of using "the limited ratepayer funds under our purview in the most targeted and effective way possible, to induce even more energy efficiency than we have in the past, especially in light of SB 350's goal of doubling the amount of energy efficiency in the economy." (Guidance Decision D.16-08-019 at p. 23.) The Coalition strongly agrees with this concept. Ratepayer funds, however, are not effectively targeted and used where they fund poor quality installation of energy efficiency measures. Education and training programs alone will not effectively address the lost energy savings and safety risks associated with poorly installed energy efficiency measures without a corresponding requirement, incentive or inducement to actually hire installers who have	**CONSISTENCY WITH GOALS AND GUIDANCE:** In order to address energy efficiency losses from poor quality installation, the 2016 Existing Building Energy Efficiency Action Plan Update adds a goal 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

				received the appropriate workforce education and training. The need for Business Plan policy on workforce engagement issues is well-documented by prior commission studies and decisions. (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") Appendix 2B.) At the same time, contractors who invest in a higher skilled workforce that is more effective in producing energy savings are not being cultivated or rewarded. The PA energy efficiency incentive programs do not include rigorous contractor or workforce standards. As a result, program analyses have consistently found that actual savings are substantially below projected savings, resulting in a persistent and significant gap between reported and evaluated savings across the PA energy efficiency incentive portfolios. (UCB-DVC Report at pp. 32-34 and Appendix 2B.) As noted in the Decision, "system planners need reasonable assurance that the energy efficiency assumed in the forecast is real and will materialize at the time needed to avoid the need for investment in other resources." (Guidance Decision D.16-08-019 at p. 23.) The gap between reported and evaluated savings undermines the reliability of demand forecasts used for electricity planning activities. Studies have found that actual energy efficiency savings from incentive programs are as little as 51% of expected savings when evaluated post-installation. (UCB-DVC Report at pp. 32-34 and Appendix 2B.) This gap is most prevalent in replacement HVAC systems. The efficiency of heating and air conditioning equipment is highly dependent on the quality of its installation. (*Ibid*.) A study for the California Energy Commission reported that up to 85% of replacement HVAC systems were installed or designed incorrectly, resulting in substantial unrealized energy savings. (*Ibid*.) 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. (*Ibid*.) In contrast, when lighting controls were installed by technicians who had obtained lighting control installation training and certification from CALCTP, IOU-funded studies found significant energy savings and increased cost effectiveness. (Ibid, at p. 47.) Evidence from six pilot studies demonstrates not only increased energy savings, but also actual customer cost savings in the range of 10-30 % for the installation of advanced lighting controls by a CALCTP-certified contractor versus a non-certified contractor. (Ibid, citing Office of the	framework." (2016 Action Plan Update at p. 52.) To achieve these goals, the Action Plan expressly recommends that PAs incorporate contractor and workforce standards into the energy efficiency program requirements. (2016 Action Plan Update at p. 49.) The Action Plan's goal is consistent with CPUC decisions and rulings supporting workforce standards. In 2008, the Commission issued its Long-Term Energy Efficiency Strategic Plan. The Strategic Plan requires that, by 2020, "California's workforce is trained and fully engaged to provide the human capital necessary

				Future Landmark Square Pilot Results (Design and Engineering Services, SCE, October 2010; Office of the Future 25% Solution Assessment (Emerging Technology Solutions, December 2010) ; Advanced Office Lighting Systems (Energy Research and Development, SMUD); High Efficiency Office, Low Ambient/Task Lighting Pilot Project (Large Office) Heschong Mahone Group; Low Ambient/Task Lighting Pilot Project (Small Office) Emerging Technologies Associates; Advanced Lighting Controls System Assessment (Emerging Technology Associates). 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. The use of a skilled and trained workforce to install energy efficiency incentive measures is also a health and safety issue. Poorly installed electrical components, lighting systems, or HVAC systems can result in fire hazards or hazards related to poor indoor air quality, gas leaks or carbon monoxide poisoning. Poorly installed plumbing, insulation, solar panels, roofs, or windows can result in leaks, mold and sanitation issues. Poorly installed energy efficiency measures thus not only strand energy savings, they also increase the likelihood that these ratepayer funded measures will put customers at risk. The failure of the Business Plan chapters to address how incentives will ensure energy efficiency measures will be installed by a skilled and diverse workforce contravenes and disregards eight years of Commission guidance. In 2008, the Commission issued its Long-Term Energy Efficiency Strategic Plan. The Strategic Plan requires that, by 2020, "California's workforce is trained ***and fully engaged*** to provide the human capital necessary to achieve California's economic energy efficiency and demand-side management potential." (Strategic Plan at p. 70 (emphasis provided).) Subsequent Commission directives have continued to call for the PAs to address the engagement side of this issue. 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 increase the engagement of appropriately trained and skilled workers in the installation of utility incentive measures. 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 incorporate the UCB-DVC Report recommendations for addressing these issues and to describe which recommendations the IOUs would initiate in 2015, and provide a program implementation plan.	to achieve California's economic energy efficiency and demand-side management potential." Subsequent Commission directives have continued to call for the IOUs to address these issues. 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. In D.14-10-046, Decision Establishing Energy Efficiency Savings Goals and Approving 2015

				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 business plans and program designs to address the issue of ensuring and continuously improving workforce and installation quality for energy efficiency measures. (Guidance Decision D.16-08-019 at pp. 63, 92). This objective is also set forth in the 2016 Existing Building Energy Efficiency Action Plan Update. The update adds a goal 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." (2016 Action Plan Update at p. 52.) To achieve this goal, the Action Plan expressly recommends that PAs incorporate contractor and workforce standards into the energy efficiency program requirements. (2016 Action Plan Update at p. 49.) The pathways and tactics for meeting these goals are already set forth in the 2014 University of California, Berkeley, Donald Vial Center for Employment in the Green Economy (UCB-DVC) report, "*Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities."* Consistent with the direction given in Decision 14-10-046, the PAs should use the recommendations in this IOU-funded report as the template for the PA business plan proposals on this subject. The current Business Plan chapters, however, do not even include any of the preliminary strategies contained in the IOU's February 23, 2015 Tier 2 advice letter. The February 23, 2015 Tier 2 advice letter, which was required to describe which UCB-DVC Report recommendations would be initiated in 2015, committed to designing incentive programs that would implement the following preliminary steps: • The advice letter stated that the IOUs would begin adopting "skill certification requirements for advanced lighting controls and HVAC Quality Installation and Quality Maintenance and other available skill standards and certification guidance." • The advice letter stated that the IOUs would "initiate" implementation of the recommendation to require CALCTP certification for all ratepayer-subsidized advanced lighting control system. • The advice letter stated that the IOU's 2015 ratepayer funded energy efficiency activities would include adopting a responsible contractor policy for contractors that work directly with the IOUs.	Energy Efficiency Programs and Budgets, the CPUC directed the IOUs to describe how they would incorporate the UCB-DVC Report recommendations for addressing these issues and to describe which recommendations the IOUs would initiate in 2015. (D. .14-10-046 at p. 102.) The Commission's recent Decision Providing Guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings confirmed that these prior directives remain valid and that the Commission expects upcoming business plans and program designs to address the issue of ensuring and continuously improving workforce and installation quality

				• The advice letter stated that the IOU's 2015 activities would include establishing prevailing wage and targeted hire goals for contractors that are preselected by the IOUs or have a direct contracting relationship with the IOUs. We note that as part of the CAEECC process, stakeholders asked the IOUs to report on how they complied with these 2015 implementation commitments. Stakeholders never received a response. The Business Plan chapters need to address how the IOUs will incorporate these recommendations in more detail than provided in the 2015 process, with clear timelines and metrics for determining success. The metrics should include clear goals for the percentage of incentives verified to have been installed by a skilled and trained workforce. Without clear metrics for workforce quality, the Commission is unlikely to see any meaningful progress on this long-standing and as yet unfulfilled goal. **Recommended Action** The Coalition recommends that the following Problem Statements, Barriers, Desired Outcomes, Intervention Strategies and Metrics be added to the Commercial, Residential, Public Sector, Industrial, and Cross-Cutting WE&T chapters of the Business Plan: **PROBLEM:** Ratepayer money is being spent on projects that do not achieve optimal energy saving by subsidizing contractors that do not employ adequately trained and skilled workers. The resulting poor workmanship and equipment installations produce energy savings substantially below incentive program saving estimates. The lost energy savings are locked in for the lifetime of the underperforming retrofit. **MARKET BARRIER:** The WE&T objective of creating the kind of skilled and trained workforce necessary to support the state's energy efficiency goals is being undermined by incentive programs that reward contractors that employ untrained and unqualified workers rather than workers that have the proper training and skills necessary to perform the work required to ensure proper installation or maintenance, and achieve maximum energy savings. Incentives are provided to low cost contractors without any regard to their investment in skilled and trained workers. This creates an economic disincentive for contractors to invest in worker training and employ qualified workers, since the cost of those investments puts them at a competitive disadvantage with other contractors that hire workers at poverty wages and do not invest in training or offer apprenticeship opportunities for their employees.	for energy efficiency measures. (D. 16-08-019 at pp. 63, 92.) The proposed metrics are consistent with D.15-10-028, which encourages tracking measure installation quality over time as a metric. (D.15-10-028 at p. 52.)

				DESIRED OUTCOMES: • Reduce lost energy savings opportunities that are stranded in buildings when energy efficiency construction work is not properly performed. • Create a demand for a skilled and trained workforce. • Reward contractors that invest in a skilled and trained workforce to ensure quality installations that are safe and achieve energy saving goals. **INTERVENTION STRATEGIES** Move energy efficiency work from a lowest cost bidder framework to lowest price responsible and qualified bidder framework, and require or incentivize the engagement of a trained and skilled workforce to ensure quality installations that achieve energy saving goals. (1) Include in the Business Plan direction that ensures the Implementation plans shall identify how energy efficiency outcomes may be improved by imposing skill and trained workforce requirements. (2) For each midstream and downstream program, identify and incorporate program requirements and standards designed to foster the use of a skilled and trained workforce in the installation of efficiency measures and the performance of energy efficiency construction work under the program. Such program requirements and standards shall be based on the recommendations set forth in the 2014 University of California, Berkeley, Donald Vial Center for Employment in the Green Economy (UCB-DVC) report, "*Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities."* These recommendations include: (1) workforce skill certification requirements, such as CALCTP certification for advanced lighting projects; (2) prevailing wage requirements for certain projects – so that contractors will be selected based on competency and not just price; and (3) skilled workforce prequalification requirements based on requiring jobsite workers to be comprised of a certain percentage of journey persons or apprentices from a registered apprenticeship program. Where available, the Commission should adopt specific skills certification requirements in conjunction with quality assessment activities for contractors and technicians working on ratepayer-subsidized energy efficiency projects. These certifications should include: • Advanced lighting controls equipment: require California Advanced Lighting Controls Training Program (CALCTP) firm certification for contractors on all projects. • Whole House Upgrade: require BPI firm accreditation for all Advanced Path Whole House projects. • HVAC Quality Installation and Quality Maintenance o Require graduation from a state-certified apprenticeship program, a 2-	

				year degree in HVAC, or proof of comparable training and experience for jobsite HVAC technicians. o Require certification from the Testing, Adjusting and Balancing Bureau (TABB) for relevant work. Where necessary to prevent disruption in workforce availability, certifications should be phased in by requiring an annually increasing percentage of the incentive programs participants to comply with the certification requirements. (3) Link all midstream and downstream incentives to completion of permit inspection and title 24 compliance documentation to ensure more consistent energy efficiency outcomes. (4) Link upstream HVAC equipment incentives to completion of permit inspection and title 24 compliance documentation to ensure more consistent energy efficiency outcomes. (5) Support SB 1414 efforts to 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. **METRICS/TIMELINE** *Metric*: Percentage of incentives verified to have been installed by a skilled and trained workforce. Verification should be based on compliance with one of the DVC recommendations for increasing engagement of skilled and trained workforce. *Short-Term Actions:* • Require ratepayer-subsidized advanced lighting control systems to be installed by CALCTP-certified technicians. (See February 23, 2015 Tier 2 advice letter) • Adopt skill certification or training and experience requirements for HVAC Quality Installation and Quality Maintenance. (See February 23, 2015 Tier 2 advice letter) • Require that 30% of midstream and downstream incentive funds be installed by a verified skilled and trained workforce. Verification shall be based on compliance with one or more of the DVC recommendations for increasing engagement of a skilled and trained workforce. • Establish prevailing wage and targeted hire goals for contractors that are preselected by the IOUs or have a direct contracting relationship with the IOUs. (See February 23, 2015 Tier 2 advice letter) • Identify all program areas where energy efficiency outcomes would likely be improved by imposing skill and trained workforce requirements	

				• Support development of HVAC equipment sales registry as recommended by SB 1414. *Mid-Term Actions:* • Require that 50% of midstream and downstream incentive funds be installed by a verified skilled and trained workforce. Verification shall be based on compliance with one or more of the DVC recommendations for increasing engagement of a skilled and trained workforce. • Support use of HVAC equipment sales registry. • Identify strategies to incorporate skilled and trained workforce requirements into upstream incentives. *Long-Term Actions:* • Require 100% of midstream and downstream incentive funds be installed by a verified skilled and trained workforce. Verification shall be based on compliance with one or more of the DVC recommendations for increasing engagement of a skilled and trained workforce. • Implement strategies to incorporate skilled and trained workforce requirements into upstream incentives.	
CEE-3	SoCalGas	*Global Comments Applicable to All Chapters*		**Observations (re Free Ridership)** In its November 4, 2015 white paper on the implementation of the new AB 802 to-code baseline for "High Opportunity Programs or Projects" CPUC staff warned repeatedly of the increased risk of free-ridership concerns with the new baseline. Free Ridership is a concern because if an energy efficiency measure would have been installed in a privately-owned building even without the incentive, then the public receives no benefit from the expenditure of ratepayer funds. The Business Plan, however, fails to identify free ridership as a potential barrier to achieving real energy saving gains and fails to propose any strategies for addressing this issue. This is an issue that affects all sectors, with the possible exception of public sector projects – and has been expressly raised as a concern by CPUC staff. It is difficult to accurately assess what role an incentive has in any private party decision to install an energy efficiency measure, but the free ridership concern is particularly heightened in to-code projects. For example, a commercial customer installing a new HVAC unit must comply with title 20 and any title 24 requirements and thus would have to meet to-code requirements even without the incentive. Incentives to exceed code are less prone to free ridership issues since exceeding code is entirely voluntary.	

				Recommended Action The Coalition recommends that the following Problem Statements, Barriers, Desired Outcomes, Intervention Strategies and Metrics be added to the Commercial, Residential, Public Sector, Industrial, and Cross-Cutting WE&T chapters of the Business Plan: **PROBLEM:** Free Ridership – If energy efficiency measures would have been installed in a privately-owned building even without the incentive, then the public receives no benefit from the expenditure of ratepayer funds. Free ridership concerns are heightened in to-code projects. For example, a commercial customer installing a new HVAC unit must comply with title 20 and any title 24 requirements and thus would have to meet to-code requirements even without the incentive. Incentives to exceed code are less prone to free ridership issues since exceeding code is entirely voluntary. **MARKET BARRIER:** It is difficult to accurately assess what role an incentive has in private party decision to install an energy efficiency measure. **DESIRED OUTCOMES:** Minimize free ridership concerns with to-code incentives **INTERVENTION STRATEGIES** 1. Direct majority of to-code incentive funds to public sector, low-income sector, or to targeted business sectors that have been identified as resistant to upgrade energy efficiency systems. 2. Offset free ridership concerns by linking to-code incentives to the use of a skilled and trained workforce to ensure better energy efficiency outcomes than non-incentive to-code work. 3. Offset free ridership concerns by linking to-code incentives to completion of permit inspection and title-24 compliance documentation to ensure better energy efficiency outcomes than non-incentive to-code work.	
CEE-4	SoCalGas	Residential, Commercial, Public, Industrial, and Agricultural Sectors. Specifically,		**Observations** SoCalGas' draft BP sections for all of its sectors (as identified in the third column) should be amended to include a discussion of how it will actually make advancements towards making EE jobs and WE&T actually accessible to low income and disadvantaged community (hereinafter, "target communities") workforce, rather than simply making them available. Advocates have repeatedly heard from program administrators such as SoCalGas that their jobs and training are available to everyone, yet they are not able to show proof that ratepayer-funded EE programs actually include workers from the target communities.	*Long Term Strategic Plan:* The 2008 Long Term Energy Efficiency Strategic Plan includes a goal to "ensure that

		the following sections: 1. Trends and Challenges 2. State Policy goals 3. Leveraging Cross-cutting Resources 4. Partners and Commitment to Coordination 5. Metrics and EM&V Considerations Cross-cutting Sector: WE&T		The 2008 Long-Term Energy Efficiency Strategic Plan includes a goal to "ensure that minority, low-income and disadvantaged communities fully participate in training and education programs at all levels of the demand-side management (DSM) and energy efficiency industry." (Strategic Plan at p. 70.) The Decision Approving 2013-2014 Energy Efficiency Programs and Budgets (D.12-11-015, at p. 84) ordered the PAs to develop approaches to incorporate workforce diversity and inclusion goals into their third-party contractor selection process. (See also Guidance Decision at p. 63, fn. 24 affirming continued applicability of prior workforce orders.) SoCalGas' BP sector chapters, especially its Cross-cutting Sector for WE&T fail to identify how it will link the state's workforce diversity and inclusion goals into their programs. **Recommended Actions** 1. The Coalition recommends revising its Sector Chapters' sections, identified in the third column, in a way that incorporates workforce inclusion in its overarching goals, strategies, and approaches and how such strategies and approaches will lead to greater workforce inclusion of workers from the target communities. 2. The Coalition recommends revising its Cross-Cutting WE&T chapters of the Business Plan to reflect the following ammendments/language recommendation: **PROBLEM:** Incentives Provide Limited Opportunities to Disadvantaged Workers **MARKET BARRIER:** Contractors lack sufficient economic incentive to participate in programs that provide good-paying career opportunities to workers from disadvantaged communities. **DESIRED OUTCOMES:** Ensure that minority, low-income and disadvantaged communities are participants in the energy efficiency industry created by utility energy efficiency programs. **INTERVENTION STRATEGIES** 1. Incorporate workforce diversity and inclusion goals into the contractor selection process. 2. Set disadvantaged/local hire targets for contractors and subcontractors;	minority, low-income and disadvantaged communities fully participate in training and education programs at all levels of the demand-side management (DSM) and energy efficiency industry." *CPUC Decisions:* D.12-11-015, Decision Approving 2013-2014 Energy Efficiency Programs and Budgets, at p. 84 (ordering IOUs to develop approaches to incorporate workforce diversity and inclusion goals into their third-party contractor selection process). Identify performance metrics for non-resource programs. (D.15-10-028 at p. 52.)

				3. Support 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; 4. Create better alignment with the state-certified apprenticeship programs, where relevant and support for California's main training and education institutions, including community colleges and the state-certified apprenticeship system; and 5. 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. **METRICS/TIMELINE** <u>*Metric*</u>*:* Percentage of incentives verified to have been installed by contractors that have demonstrated a commitment to provide middle class career pathways to workers from disadvantaged communities.	*SB 350:* SB 350 calls for coordination between the Energy Commission and the CPUC in developing energy efficiency programs including workforce development and job training for disadvantaged communities.
CEE-5	SoCalGas	*Global Comments Applicable to All Chapters*		**Observations (re Permit and Code Compliance)** The Business Plan needs to identify more specific and more effective strategies for improving enforcement of and compliance with permit and code requirements. Unlike the PG&E and SDG&E Business Plans, the SoCalGas Business Plan fails to even acknowledge that lack of compliance is a pervasive problem. As a result, it fails to identify meaningful solutions or strategies to address this issue. Final inspection and permit closure is critical to ensure compliance with Title 24 functional testing requirements that are intended to increase the likelihood that newly installed systems function properly and provide the energy efficiency assumed by code compliance. Inspection requirements are also critical to ensure occupant health and safety. 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 commissioning of systems. As a result, this work is likely to be installed poorly and to be less energy efficient. The Existing Building Energy Efficiency Action Plan thus states that "Addressing the application, compliance and enforcement of building standards in existing buildings is a high priority" and calls for improving retrofit compliance with permitting and code requirements to 90 percent by 2020.	**Existing Buildings Energy Efficiency Action Plan 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**

				The Business Plan needs to set forth specific and effective strategies to meet the Action Plan's goals. This starts with ensuring that all ratepayer-subsidized energy efficiency measures comply with final inspection and permit closure requirements. Incentives should not be used to subsidize projects that fail to comply with permit inspection and title 24 compliance documentation requirements. The recent adoption of SB 1414 now requires this for all incentives provided to customers or contractors for the purchase or installation of HVAC systems. The same performance and safety concerns apply to other energy efficiency measures as well. Lighting, plumbing, roofing and other existing building retrofit work are also often performed without complying with permitting, safety inspection or Title 24 compliance documentation requirements. For example, a review of CALCTP's 2016 annual acceptance test report to the CEC reveals that, in some California jurisdictions, contractors are not complying with Title 24 lighting control acceptance test requirements at all. Ratepayer-funds should not be used to subsidize poorly performing and potentially unsafe retrofits that fail to comply with state and local requirements for permit closure. Requiring a customer to email, mail or fax a copy of the permit closure documentation is not burdensome, will not delay project completions and does not require customers to do anything that they are not already required by law to do. This simple and straightforward requirement is an inexpensive and effective method to increase the actual energy savings achieved from incentives and to reduce the illusory paper savings that these incentive programs are currently claiming. Permit closure requirements, however, are limited in the scope of their effectiveness. This strategy will not address the vast majority of HVAC retrofits that are installed without incentives or permits. To address this pervasive market problem, SB 1414 recommends development of an HVAC equipment sale registry that can be used to track HVAC sales to ensure that permit requirements are being followed for all HVAC installations. The Business Plans should include a strategy to support development of this registry. ## Recommended Action The Business Plans should add the following Problems, Barriers, Goals and Strategies to their Codes and Standards Chapter. **PROBLEM:** The lack of compliance with permit, inspection and compliance documentation requirements is undermining energy efficiency efforts. The vast majority of existing building energy efficiency system retrofits do not comply with permit, inspection or Title 24 compliance documentation requirements. For residential HVAC retrofits, industry experts have estimated that around 90% of installations do not comply with permit or inspection	**HVAC replacements. By 2021, improve compliance to 80 percent." "By 2020, retrofit compliance with the Building Energy Efficiency Standards is at 90 percent and is achieved at lower cost." pp. 52-53).**

				requirements. Contractors that fail to secure permits are more likely to be unlicensed, use cheap untrained workers, and to skip acceptance testing or commissioning of systems. As a result, this work is likely to be installed poorly and to be less energy efficient. Current energy efficiency incentive programs, however, are poorly aligned with permit, inspection and Title 24 compliance documentation requirements. Owners and contractors can purchase energy efficiency equipment and receive energy efficiency incentives without demonstrating compliance with permit, inspection and Title 24 compliance documentation requirements. Providing incentives to unlawful installations encourages and exacerbates permit and code compliance problems. Inspection is critical to protect public health and safety and to improve energy saving outcomes. Improper installation of hot water, HVAC, or lighting control systems can lead to gas leaks, carbon monoxide poisoning, electrical shock and fire risk, poor indoor air quality, seismic safety risks, water leaks and mold risk. Moreover, final inspection includes confirmation 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. **MARKET BARRIER:** Owners and contractors can purchase energy efficiency equipment and receive energy efficiency incentives without demonstrating compliance with permit, inspection and Title 24 compliance documentation requirements. Providing incentives to unlawful installations encourages and exacerbates permit and code compliance problems. **DESIRED OUTCOMES/GOAL:** Incentive programs should be aligned with and support permit and code enforcement measures. Strategies should be adopted to meet the Title 24 compliance and enforcement goals of the Existing Buildings Energy Efficiency Action Plan. **INTERVENTION STRATEGIES** (1) Link midstream and downstream incentives to completion of permit inspection and title 24 compliance documentation to ensure more consistent energy efficiency outcomes. (2) Link upstream HVAC equipment incentives to completion of permit inspection and title 24 compliance documentation to ensure more consistent energy efficiency outcomes. (3) Support SB 1414 efforts to 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.	

				METRICS: Metrics should be adopted to be consistent with the Existing Buildings Energy Efficiency Action Plan milestone goals: (1) "By 2018, establish baseline code compliance rate for residential HVAC replacements. By 2021, improve compliance to 80 percent." and (2) "By 2020, retrofit compliance with the Building Energy Efficiency Standards is at 90 percent and is achieved at lower cost."	
CEE-6	SoCalGas	*Global Comments Applicable to All Chapters*		**Observations (Implementation and Procurement Process)** The draft Business Plan fails to set forth the process for oversight and stakeholder involvement in implementation plans and the procurement process. Because the historic public and commission review process for implementation plans has been eliminated, the business plans need to address what new process will be provided to (a) provide stakeholder input and Commission oversight on how PAs structure their specific incentive programs and procurement process to ensure consistency with Commission guidance and state policy; and (b) provide stakeholder input and Commission oversight in the assessment of the effectiveness of the PAs' portfolios. The 2015 Decision on Rolling Portfolio Mechanics states that "there will be a stakeholder process associated with implementation plan preparation" and that this "should be the first forum for addressing any aspect of the implementation plans." (D.15-10-028 at p. 64.) While the Decision states that a Motion for Implementation Plan Dispute Resolution may be filed if there is alleged non-compliance with Commission or Commission Staff direction, this procedure "may only be invoked after informal attempts to resolve disputes have been exhausted." The Coalition has serious concerns with the lack of Commission oversight of the implementation plans and with the elimination of the implementation protest process in favor of more burdensome, post-hoc formal dispute process. For one, the grounds for filing a dispute may be more limited than the grounds for filing a protest. In addition, changing policy decisions after they have been adopted is inherently more difficult and costly than resolving policy disputes during the adoption process. The Coalition agrees with the 2015 Decision on Rolling Portfolio Mechanics, when it cautions that "a stakeholder process, even with Commission Staff participation, is not necessarily an adequate substitute for Commission review of an application or advice letter." (D.15-10-028 at p. 44.) Within the framework of the Decision on Rolling Portfolio Mechanics, the Business Plans need to set forth in detail the stakeholder process associated with implementation plan preparation, including how to informally resolve stakeholder disputes.	

				The Guidance Decision expressly encourages the development of a process that included procurement review groups and/or independent evaluators. It further called for the IOUs to work with stakeholders to bring forward a workable proposal for such oversight as part of the business plans. (Guidance Decision D.16-08-019 at p. 75.) The Coalition supports the concept of an independent evaluator. The Energy Division is already authorized to hire an Independent Evaluator. D. 05-01-055 authorizes the Energy Division, as Chair of the PRG, to hire an independent consultant to be paid for out of energy efficiency program funds (D. 05-01-055, page 105). The use of an Independent Evaluator in reviewing the IOUs' entire competitive bidding process should be an essential element of the improved energy efficiency portfolio structure adopted by the Commission. This is especially true in light of the increased amount of portfolio bidding ordered in the Decision. The Business Plan should set forth whether or not an independent evaluator will be utilized and the justification for that decision. **Recommended Action** Consistent with the applicable Guidance decisions, the Business Plans should set forth in detail the stakeholder process associated with implementation plan preparation, including the continued role of the CAEECC and how to informally exhaust stakeholder disputes. Without a clear and effective informal process, the Commission's burdensome, post-hoc dispute procedure will be required for even minor disputes. The Business Plans should add a section on Implementation that describes the following: **Annual Budget Authority Advice Letters** • Advice letters to justify annual budget, consistent with business plans and the implementation plans. o How have program changes or administrative activities changed the budget? o How have new contracts changed the role of the administrator, and the associated budget? **Implementation of Business Plans** • Meaningful oversight of procurement process o Utilization of Independent Evaluator reporting to Energy Division with regular stakeholder meetings to review bidding plans, RFPs, bid evaluations, and final selection. Non-financially interested stakeholders would participate. o PAs to submit proposed contracts to CPUC for approval. Benefits include: ▪ Stakeholder process should reduce party protests, or at least expedite the protest period (no need for extensive data requests).	

				▪ CPUC approval reduces PA and implementer community uncertainty about contracts. • Regular status updates at CAEECC of PA activities using Business Plans as review point, as described in D.15-10-028. These updates would include activities such as: o Examination of PA achievements vs. metrics ▪ Implementation of Commission's direction to put programs out to bid ▪ Achievement of savings vs spending ▪ Identification of additional needed programs/RFPs, and modifications to existing programs/contracts. o Conduct annual reviews of PA activities to assess overall program consistency with state energy goals and policies and to identify any changes that may be necessary to Business Plans, implementation plans, budgets or programs to comply with changes or updates to state energy goals and policies. ▪ PA's to prepare annual report demonstrating performance. ▪ Stakeholders and staff review report and assess program consistency. ▪ Staff may request any additional information needed for assessment. ▪ PA's must propose any necessary amendments to Business Plans, implementation plans, budgets or programs to address issues identified by the annual review. **Implementation Plan Review Process** • Implementation plans should be aligned with terms of signed contracts (e.g., pay-for-performance) with implementers and provide metrics that roll up to the metrics in the business plans. • Implementation plans should be developed with early stakeholder input in a process similar to the use of the CAEECC in the Business Plan adoption process. o Stakeholders and staff should be consulted early on for input on general proposal design and its consistency with Business Plan requirements and applicable state guidance documents and decisions. o Stakeholders and staff should have an opportunity to review and comment on Implementation Plans before they are finalized. PAs must provide response to any written comments. The Business Plans should also set forth the scope of Independent Evaluator review and the process for such review. An Independent Evaluator should perform the following functions, in conjunction with the Peer Review Group (PRG) whose advisory role is described in D.05-01-055: 1. Review how IOUs structure their bids to ensure consistency with Commission	

				guidance and state policy, including proposed budgets, prequalification requirements, scopes of work, performance and M&V requirements, target TRC and PAC, evaluation criteria and each criterion's respective weight, and RFP distribution lists to be used. 2. Review the results of the IOUs' evaluation processes (e.g., how many parties responded to each bid, what was the range of scoring results, disqualified respondents, etc.). 3. Assist the PRG in its assessment of the effectiveness of the IOUs' portfolios. 4. Provide a written assessment to the Energy Division and the PRG of the RFP processes and results, with possible suggestions for future enhancements. The Independent Evaluator should be required to have significant experience in management and design of energy efficiency portfolios and programs, as well as experience managing third party procurement processes. To ensure independence, the Independent Evaluator should be under contract *to the Commission* for a term of at least three years and chosen through a competitive RFQ process.	
CEE-7	SoCalGas	WE&T	General	**Observations (re WE&T)** The Business Plan needs to establish a clear framework for WE&T implementation that enables tangible assessment of return on ratepayer funds and ensures timely progress in the PAs' contribution to the Long-Term Energy Efficiency Strategic Plan goal for a qualified and fully engaged workforce by 2020. The use of "short", "medium", and "long" time horizons do not support the urgency required for meeting the Strategic Plan 2020 workforce goals since only twelve or fewer quarters remain before the Strategic Plan goal of a qualified and fully engaged workforce must be reached (presumably by the beginning of 2020). At this point in the planning cycle, specific initiatives need to be defined in enough detail to allow meaningful measurement of progress to be determined at the end of each quarter. The argument against a quarter-by-quarter timeline, of course, is that this level of detail is found in the Program Implementation Plan. But this argument is not appropriate because of the urgency of the 2020 mandate and lag time between the business plan and the first Program Implementation Plan. In addition, there needs to be a common strategy for meeting the Strategic Plan workforce	

				goal, among not only the PAs, but also with the larger body of stakeholders and market actors. Outcomes are not specified over the life of the business plan. No meaningful framework and timeline exists for achieving these outcomes in the current draft business plan. An effective and integrated statewide approach to WE&T cannot be done without adequate input from training institutions, workforce development providers, market actors, or other stakeholders. Ratepayer funds should be leveraged to achieve stronger outcomes from other funding sources. Intervention strategies are far too general as a framework or timeline for meaningful Program Implementation Plans. Additionally, these Intervention Strategies do not map specifically to either the Strategic Plan's 2020 engaged workforce goal or to the 2016 Existing Building Energy Efficiency Action Plan draft, which creates concerns that these requirements are not a significant consideration in the business plan. **Recommended Actions:** The business plan must be specific enough for meaningful evaluation to be made for each Program Implementation Plan. At a minimum, quantifiable outcomes should be specified for each intervention on a quarterly basis leading up to 2020, with annual milestones for the rest of business plan cycle. The coalition strongly supports Business Plan language that leads to increased PA collaboration with the state's major training institutions and that leverages the PAs expertise to improve the energy efficiency content of the these institutions' curricula for the major occupations that impact the use of energy in buildings, industry, etc. This means allocating resources for training to help the Energy Centers develop targeted support for the California Community Colleges, Registered Apprenticeship programs, State Universities, through the mechanisms outlined in the Don Vial Guidance document. In addition it requires allocating resources for training of disadvantaged workers by requiring the PAs to work with training programs that have a track record of training and placing disadvantaged workers in career track jobs or advanced training paths in higher education institutions. The DVC guidance document suggested an immediate collaboration with the California Workforce Development Board which funds a successful pre-apprenticeship programs housed in community based organizations and community colleges through their Proposition 39 training program. Acquiring better data and analysis to prioritize training efforts is referenced as part of Intervention Strategy 1. Deep collaboration with training institutions and workforce development providers on data analysis is essential to properly focus on occupations with the	

				greatest potential impact and best use of funds across the entire workforce landscape. It is also necessary to move beyond counting the number of class attendees to outcomes for both the workforce (i.e. placement in career track jobs) and for improving the performance of energy efficiency installations in the field. WE&T metrics need to be more specific and quantifiable. Metrics base on the raw number of persons trained should be avoided because they fail to assess training outcomes. Similarly, metrics based solely on curriculum transformation also fail to assess the impact or success of the new curriculum. Metrics should be developed in collaboration with other training institutions and workforce providers to quantify the WE&T program's contribution to standard metrics that are tracked in the rest of the EE workforce landscape. The Business Plan should commit to partnering with the state's workforce development entities – the California Workforce Development Board, the California Community Colleges, Registered Apprenticeship programs, State Universities, Community Based Organizations, etc. – to identify and remove workforce barriers to achieving Senate Bill 350 mandates. This partnership should leverage multiple funding streams in addressing regional needs for increasing access to education and training, promoting equity, building new workforce competencies, and reducing workforce supply/demand gaps via an integrated statewide strategy that is specifically responsive to Senate Bill 350. This partnership will work in close collaboration with the current IOU-managed training centers that continue to provide valuable training classes to various market actors. The Coalition strongly supports continued funding for the WE&T training programs by IOU energy centers, but thinks these funds should support partnerships with and funding opportunities for apprenticeship programs and community colleges. Intervention Strategies should be consistent with the recommendations and time frames set forth in the 2016 Existing Building Energy Efficiency Action Plan draft. These planning and implementation horizons should be stipulated in terms of quarters since only twelve or fewer quarters remain before the Strategic Plan goal of achieving a qualified and fully engaged workforce by 2020 must be reached. At this point in the planning cycle, specific initiatives need to be defined in enough detail to allow meaningful measurement of progress to be determined at the end of each quarter.	
CEE-8	SoCalGas	WE&T	General	**Observations (re WE&T)** Goals should be crafted to ensure continued support for current WE&T funding but programs should be reconfigured in accordance with the recommendations of the Don Vial Center Guidance Plan.	

				Recommended Actions: Business Plans should include goals to ensure that WE&T programs are adequately funded to both support effective current WE&T programs (e.g., lighting control installer training and certification, building operator professionals training and certification, community college stackable sustainable energy training and credentials, and to support development of new WE&T programs (e.g., training and certification for installers of automated demand response systems, electrical vehicle charging infrastructure, microgirds, energy storage, and expansion of community college stackable sustainable energy training and credentials). Funding for these specific trainings should be carried out as collaborative programs with the state's main training institutions of the apprenticeship programs, community colleges, community based organizations, and state universities.	
CEE-9	SoCalGas	*Global Comments on Statewide Admin Applicable to All Chapters*	General	**Observations (re Statewide Administration)** The Coalition supports the Commission's move towards statewide administration of upstream and midstream programs. This shift is a move in the right direction to improve customer participation and access, reduce transaction costs for customers and market actors, and increase in energy efficiency savings. The Coalition supports this effort and agrees that this transition will reduce portfolio overhead by eliminating redundant capacity and can potentially provide a bridge to more collaboration with the California Energy Commission (Energy Commission), California Air Resources Board (ARB), and public and municipal utilities. We further support the Commission's decision to allow non-utility PAs to lead statewide programs. However, this transition to statewide programs alone will not result in market transformation, as required by Senate Bill (SB) 350, which the Commission identifies as a primary goal of statewide programs. Market transformation is an intervention approach that will require additional changes to the Commission's policy framework. We look forward to discussing these necessary changes, and the role of market transformation within the EE portfolio, in Phase III of this proceeding.	
CEE-10	SoCalGas	*Global Comments on EM&V Applicable to All Chapters*		**Observations (re EM&V)** The Coalition supports requiring statewide programs and third party programs to measure and verify the actual performance-based energy savings of ratepayer-funded projects except for small projects where measurement and verification may not be economical. Such a requirement would be consistent with Assembly Bill 802's direction to begin measuring incentive savings by looking at "meter-based performance." If 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.	

				The Business Plan, however, fails to set forth clear guidance or standards for when incentive programs would be required to include meter-based verification. The Business Plan should also set forth clear metrics for transitioning to greater meter-based verification of incentive programs. Monitoring and verification based on actually achieved energy savings" is a critical strategy for addressing the gap between assumed and actually achieved savings from energy efficiency retrofit projects. 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. 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. 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. (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). Measuring actual performance-based energy savings is also superior to calculations based on models because this is how customers measure project success and are assured that they are getting their money's worth from undertaking retrofit projects. One reason why today many customers undertake solar projects with their limited capital dollars, instead of much more efficient energy efficiency projects, is that solar energy reductions and cost savings take place with respect to actual, metered usage, not a hoped-for baseline. **Recommended Actions:** The Business Plan should set forth clear guidance or standards for when incentive programs would be required to include meter-based verification. The Business Plan should also set forth clear metrics for transitioning to greater meter-based verification of incentive programs. The goals should be for incentive programs to be verifiable by meter-based performance as follows: • 25% of incentive programs by January, 2018 • 50% of incentive programs by January, 2019 • 75% of incentive programs by January, 2020	

CEE-11	SoCalGas	Commercial	pp. 6, 13, 16, 17, 20, 42	**Observations (re Poor Installation Quality)** These sections incorrectly assume that lost energy savings from improper installation is only a problem for HVAC equipment. "4. Improper heating, ventilation, and air conditioning (HVAC) replacement and maintenance of equipment limits the potential for significant energy savings." HVAC systems are not the only systems that lose significant energy savings from improper installation and maintenance. 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. (UCB-DVC Report at pp. 32-34 and Appendix 2B.) In addition, a review of CALCTP's 2016 annual acceptance test report to the CEC reveals that, in some California jurisdictions, contractors are not complying with Title 24 lighting control acceptance test requirements at all. In contrast, when lighting controls were installed by technicians who had obtained lighting control installation training and certification from CALCTP, IOU-funded studies found significant energy savings and increased cost effectiveness. (UCB-DVC Report at p. 47.) Evidence from six pilot studies demonstrated not only increased energy savings, but also actual customer cost savings in the range of 10-30 % for the installation of advanced lighting controls by a CALCTP-certified contractor versus a non-certified contractor. (Ibid, citing Office of the Future Landmark Square Pilot Results (Design and Engineering Services, SCE, October 2010; Office of the Future 25% Solution Assessment (Emerging Technology Solutions, December 2010); Advanced Office Lighting Systems (Energy Research and Development, SMUD); High Efficiency Office, Low Ambient/Task Lighting Pilot Project (Large Office) Heschong Mahone Group; Low Ambient/Task Lighting Pilot Project (Small Office) Emerging Technologies Associates; Advanced Lighting Controls System Assessment (Emerging Technology Associates). The energy savings achieved from many other energy efficiency measures are also sensitive to poor installation. **Recommended Actions:** Amend sections to recognize that improper installation of lighting systems and other efficiency measures also reduce achieved energy savings.	
CEE-12	SoCalGas	Commerical	p. 11	**Observations** Coalition supports objective to "Support the proper installation, maintenance, and use of HVAC systems in the commercial sector." However, this section then goes on to say that it will achieve this by partnering with "electric utilities and key market actors to offer a simplified suite of programs that capture and recognize all realized HVAC-related EE	

				savings." This second sentence of the objective is vague and doesn't appear targeted to address the quality installation and maintenance objective stated in the first sentence. **Recommended Actions:** Delete second sentence. See CEE-2 for more specific recommendations for addressing workforce quality in the Business Plan.	
CEE-13	SoCalGas	Commerical	p. 12	**Observations** Coalition supports tactical objective to "Train facility staff to create in-house expertise to develop permanent EE practices, improved process efficiency, and on-going benchmarking monitoring." However, this objective should be amended to align with the development of certification programs for the operation and maintenance of building energy efficiency systems. **Recommended Actions:** Amend as follows: "Support development and provision of operational certification programs to train facility staff to create in-house expertise to develop permanent EE practices, improved process efficiency, and on-going benchmarking monitoring."	
CEE-14	SoCalGas	Commerical	pp. 16, 17, 20, 42	**Observations** The Market Sector Overview table, Market Barriers & Program Intervention Strategies table and Sector Metric table identify improper HVAC replacement and maintenance as a barrier to achieving energy savings and as a barrier to achieving performance certainty for customers, but none of the program strategies listed directly address this issue. The strategies consist solely of buzzwords and lack any substance or meaning. SoCalGas fails to support its assumption that these vague, indirect strategies will significantly increase the number of properly installed and maintained HVAC systems with any evidence or analysis. The only study for addressing this issue is the UCB-DVC study. The UCB-DVC study recommendations should be adopted as program strategies. **Recommended Actions:** See CEE-2.	
CEE-15	SoCalGas	Commerical	p. 17	**Observations** Figure 1: Market Barriers and Program Intervention Strategies identifies performance uncertainties as a barrier to energy efficiency efforts because "Customers are uncertain of claimed benefits associated with energy efficiency equipment." The Business Plan then lists the following strategies to address this issue: Intelligent Outreach, Strategic Energy Management and Small Business Outreach. None of the program strategies directly address the issue of performance not meeting claimed benefits. **Recommended Actions:**	

				Address through EM&V of actual savings and through workforce training and quality standards to better ensure that field installations match lab installation. See CEE-2 and CEE-10.	
CEE-23	SoCalGas	WE&T	12	**Observations** Coalition disagrees with the premise that the biggest barrier to wE&T is lack of training opportunities. The biggest barrier is the lack of investment in workforce training by contractors due to the economic disincentive of the low cost bidding framework. The discussion on WE&T Barriers should acknowledge that the current lowest price contracting framework for incentive measures creates a structural economic disincentive for contractors to invest in training and retain a skilled and qualified workforce. **Recommended Action:** Under Market Barriers add: "Lowest price bidding framework without minimum workforce quality standards can create economic disincentive to invest in worker training."	
CEE-16	SoCalGas	WE&T	p. 13	**Observations** Discussion of benefit to customers is missing key benefits of WE&T: increased energy efficiency outcomes, lower energy bills, greater cost-effectiveness and increased satisfaction with performance. **Recommended Actions:** Amend discussion to identify additional benefits of WE&T to include: increased energy efficiency outcomes, lower energy bills, greater cost-effectiveness and increased satisfaction with performance.	
CEE-17	SoCalGas	WE&T	pp. 19-20.	**Observations** Appendix A fails to identify key barriers, strategies and interventions to address, including: (1) lost/stranded energy savings from poor installation; (2) stranded savings from shallow retrofits that make deeper retrofits less likely; (3) free ridership, and (4) low levels of permit and code compliance and enforcement. See Global Comments CEE-1, CEE-2, CEE-3, CEE-4, and CEE-5. **Recommended Action:** Add additional problems and intervention strategies set forth in Global Comments CEE-1, CEE-2, CEE-3, CEE-4, and CEE-5.	
CEE-18	SoCalGas	WE&T	p. 31	**Observations** Appendix A, Stakeholder Feedback, fails to describe or acknowledge the comments of the Coalition members during the CAEECC process. **Recommended Actions:** Amend to address comments submitted on draft chapters and issued raised during CAEECC	

				meetings.	
CEE-24	SoCalGas	Codes and Standards Chapter	10	**Observations (re Code Compliance)** Barrier discussion should identify widespread avoidance of permit and code requirements as a key barrier. **Recommended Action** See Global Comment CEE-5.	
CEE-25	SoCalGas	Codes and Standards Chapter	Page 17	**Observations (re Consistency with State Energy Goals)** Coalition supports goal to "Proactively enhance regulations to include DR requirements, grid connectivity, etc. and enable the plug and play grid." In addition to evaluating codes and standards for consistency with SB 350, the Business Plans should assess overall incentive program consistency with state energy goals. **Recommended Action** The Coalition recommends adopting the following strategies to achieve this goal. • Implementation Plans shall assess consistency with SB 350, Existing Building Energy Efficiency Action Plan and other California energy goals and strategies. • Conduct annual reviews to assess overall incentive program consistency with state energy goals. • Evaluate and identify barriers impeding the adoption of automated demand response capabilities in existing buildings. Align incentive and Codes and Standards programs with efforts to address these barriers. • Where multiple code compliance pathways exist, ensure programs incentivize code compliance pathways that are compatible with automated demand response capabilities. • Change references to "Demand Response" to "Automated Demand Response" to distinguish from unconnected demand response controls that do not provide grid management capabilities.	
CEE-26	SoCalGas	Codes & Standards Commercial Residential Public Sector Industrial	General	**Observations (re SB 1414 Compliance)** The Business Plan fails to incorporate the new SB 1414 requirements and guidance. SB 1414 states that "if a customer or contractor is the recipient of a rebate or incentive offered by a public utility for the purchase or installation of central air-conditioning or a heat pump, and their related fans, the public utility shall provide the rebate or incentive only if the customer or contractor provides proof of permit closure." In order to address HVAC installations that do not receive incentives, SB 1414 also directs the CEC to investigate the feasibility of creating a registry to track HVAC equipment sales to ensure that that they are installed lawfully and in compliance with code and permit requirements. **Recommended Actions:**	

				• Require HVAC equipment whose sale, purchase or installation has been subsidized by an incentive program to provide proof of code and permit compliance. Stakeholders have been recommending this for years, but it has taken the adoption of SB 1414 to get the PAs to agree to this requirement. • Support development of a registry to track HVAC equipment sales to ensure that that they are installed lawfully and in compliance with code and permit requirements.	
CEE-27	SoCalGas	Public Sector	General	**Observations (re Public Sector Budget)** The draft document does not provide any indication of the sector level budget. The coalition supports a significant budget increase for public sector incentives. Public sector buildings consume approximately 35% of commercial electricity use and 40% of commercial gas use, yet have been chronically underfunded over the years. They thus present a high opportunity for energy savings even by just bringing them up to current code standards. Furthermore, public sector projects have fewer free ridership issues and provide ancillary benefits to ratepayers by reducing operational costs for public services. Public Sector projecs also allow coordination and leveraging of other funding streams, such as Proposition 39 for schools, or local school bonds to design and implement deep energy reduction strategies. Currently Proposition 39 funds are spread so thin, that many of the energy efficient retrofits identified in the Proposition 39 energy analysis end up having to be greatly scaled back due to funding constraints. But since the energy analysis and retrofit needs have already been established for many school districts pursuant to Proposition 39, these occupancies are already primed to take advantage of incentive programs stemming from the AB 802 proceedings. Public Sector projects are also more likely to hire skilled and trained workers due to prevailing wage requirements and local public contracting prequalification requirements. This results in greater certainty of energy efficiency outcomes than residential and commercial sectors. In addition, increasing the market for contractors who use a skilled and trained workforce will have spillover effect on non-public sector projects because a contractor who invests in a skilled and trained workforce for public projects will have same workforce available for private projects. An emphasis on public sector projects would also be consistent with prior Commission decisions. For example, the Commission's 2012 Guidance Decision expressly directed the IOUs to emphasize the MUSH (municipal, utility, schools and hostpitals) customer sub-sector. (D.12-11-015.) **Recommended Action:** The Coalition recommends that at least 40% of incentive funds that use the AB 802 existing	

				condition baseline be directed to renovate public sector buildings (i.e., state, county, municipal, university, schools, and hospitals) or low-income housing. The Public Sector chapter should also be amended to include a description of the advantages that public sector incentives have over other sectors – such as lower free ridership concerns, ancillary ratepayer benefits and increased investment in skilled and trained workforce. A description of these benefits is necessary to assess and support overall budget recommendations.	

Submit completed comments to **facilitator@caeecc.org**