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OF THE STATE OF CALIFORNIA**

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Efficiency Rolling Portfolios, Policies, Programs,
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**NATURAL RESOURCES DEFENSE COUNCIL (NRDC) RESPONSE TO
THE ADMINISTRATIVE LAW JUDGE'S RULING REGARDING
COMMENTS ON PHASE II WORKSHOP 3**

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NATURAL RESOURCES DEFENSE COUNCIL (NRDC) RESPONSE TO THE ADMINISTRATIVE LAW JUDGE’S RULING REGARDING COMMENTS ON PHASE II WORKSHOP I

I. Introduction

Pursuant to Rules 1.9 and 1.10 of the California Public Utilities Commission’s (Commission) Rules of Practice and Procedure, the Natural Resources Defense Council (NRDC) respectfully submits NRDC’s responses to the “Administrative Law Judge’s Ruling re Comments on Phase II Workshop 3 (Statewide and Third Party Energy Efficiency Programs),” April 1, 2015 (Ruling). NRDC is a non-profit membership organization with nearly 80,000 California members who have an interest in receiving affordable energy services while reducing the environmental impact of California’s energy consumption.

II. Statewide Energy Efficiency Programs

2.2.1 Current implementation approach of IOU Statewide programs

- 1. On the supply side, utility-owned generation projects have been required to compete “head-to-head” with independent power producer bids in RFOs. Could/should that same approach be taken in energy efficiency portfolios?*

NRDC supports testing out whether or not certain “Core” programs make sense to be bid out on a larger market or if existing third party targeted programs should be similarly bid. If the Commission chooses to take this path, we suggest focusing the 2016 trial on a portion of the portfolio and for only those sectors or subsectors that lend themselves to third party competition. Choosing which sectors to test should be based on a clear set of criteria, such as the availability of bidders (e.g., if the target is too specialized, it may not be worth the effort to bid if there are insufficient third parties who would be able to participate) and the historical performance of programs (in particular those programs that have not been meeting goals or where better cost-efficiencies could be met).

This process should rely on a working group to create and publicly vet the rules that would govern the solicitation as well as a non-financially interested group of stakeholders to assess the bids. This group would also likely need a supporting technical consultant, such as is currently the case for the Procurement Review Group as well as the Massachusetts and Connecticut collaboratives described at Workshop 3, Day 2.

2. *Are statewide programs designed to support efficiency measure pathways to code adoption in coordination with the IOUs' Codes and Standards advocacy?*

The role of programs is critical to bring new technologies to market or make existing equipment and strategies sufficiently adopted and cost-effective to the point where the California Energy Commission (CEC) could integrate them into a building code or appliance standard. NRDC's Center for Energy Efficiency Standards program works closely with the CEC and the utilities that fund a substantial amount of studies to identify such opportunities and we strongly support expanding programs to help advance these efforts.

The utilities currently have some programs that support code or standard ready products or strategies. For example, the utilities run a California Advanced Home Program that includes additional incentives for builders who use specific prescriptive measures identified as key future code measures (e.g., high performance attics). This helps build the market acceptance of these activities to the point where they could become code in the next round. However, on the appliance and plug-in equipment side, there are insufficient programs to advance these efforts in part due to policy and process rules that have historically inhibited the testing of new approaches.

For example, plug-in equipment is an incredibly fast moving market. For the utilities to design programs to be relevant at accelerating adoption even faster requires a quick review and approval process for new or modified programs that trigger a Commission review. In addition, the identified efficiency potential for plug loads is extremely small and therefore run counter to encouraging the advancement of plug loads either from emerging technology to market or from market to greater acceptance to be integrated into code.

a. *If not, should they be?*

NRDC supports reviewing the current programs and policies (perhaps through an expert panel) to ensure the rules and guidance are set up to encourage such programs. We also support

leveraging the proposed stakeholder engagement additional guidance to vet proposed programs to make sure they are in line with Commission direction. However, we caution that some statewide programs need not *directly* tie to advancing a product towards a code or standard as they could be, for example, aimed at motivating customers to take action.

b. Does the business plan concept proposed by the joint stakeholders incorporate a “pathway to code” concept?

The Joint Parties’ business plan (BP) concept does not explicitly identify a “pathway to code” concept, but it directly lends itself to the development of such programs as each business plan should illustrate the short, mid, and long term goals and the strategies or approaches to achieve that goal (including support for codes and standards). For example, if the PA identifies potential for a particular equipment to become code in a certain number of years in the future, it would identify which activities their plan would take in the short and mid-term to ensure that equipment was on the path toward code or standard adoption.

2.2.2 Should We Standardize Current Statewide Programs?

1. Should we standardize current statewide programs across Program Administrators (PAs)?

NRDC was part of the original group of stakeholders pushing for such an action. Our rationale was that numerous implementers who worked across territories found the differences in programs and application materials inefficient and confusing. Furthermore, some large customers (e.g., big box) or multi-building property owners span multiple territories. For those entities that had a central procurement office or a single point of contact, numerous different applications would be an added barrier to participation. However, as we heard at Workshop 3, some programs are best designed to respond directly to the needs of customers in a particular area (e.g., multi-family BayREN/StopWaste program).

NRDC suggests that at minimum, the request for proposals (when relevant), customer application, and any other required participant documentation be the same if possible across the state. Even if local needs are slightly different, a Cushman and Wakefield, for example, could provide one application that all PAs could process on the back end differently as needed. Similarly, even if each Home Depot has a different procurement officer, the manufacturers who supply them (e.g., Carrier) are the same. Therefore, rebates to bring more advanced HVAC equipment to market should be the same across the state even if PAs offer the Home Depot in

Fresno a greater mid-stream rebate to place efficient HVACs up-front than they do for a Home Depot in San Francisco.

The Commission should set publicly-vetted criteria for what activities need to be consistent throughout the state and rely on the stakeholder engagement process to help ensure the criteria are met, or troubleshoot if challenges arise.

2. *What kinds of programs lend themselves to statewide leadership on design and implementation?*

Upstream programs and other market transformation efforts that aim at moving large manufacturers and retailers towards more efficient purchasing and/or activities lend themselves to a joint statewide effort.

3. *Would it make sense to develop mid-stream and upstream programs at the statewide level to more fully leverage the state's buying power with manufacturers and/or retailers, rather than have each utility develop separate mid-stream and upstream programs?*

No comment.

4. *Can/should we simultaneously have regional variations for similar programs (e.g., commercial lighting) and have an overlapping single statewide program for the benefit of those with a statewide footprint?*

Having one statewide process where appropriate, with local (or regional) variations could work as long as it is clear which components are to be consistent and which need to be adjusted for local needs. For example, it is unclear what benefit there would be for each utility to provide a different incentive level to Philips (for example) if the intent is to buy down the cost of new efficient equipment at the manufacturer level. However, commercial lighting retailers in different parts of the state may need different strategies to get them to engage. The key is to make sure there is a clear rationale for deviations and that such details are discussed and reported.

As is done in Massachusetts, Connecticut, Illinois, and other areas, the advisory group reviews the PA plans to make sure they are in line with Commission direction. The CPUC could rely on such an advisory group to review the business plan designs (if the Commission chooses to go in that direction) to either support a proposed approach or to recommend modifications to ensure the plans are in compliance with Commission direction. Also see response to Q2.2.4 (2) regarding a statewide advisory group to oversee market transformation efforts.

5. *Would the proposed business plan approach envisioned by the joint stakeholders' proposal lend itself to a more standardized statewide approach? If so, how? If not, why not?*

As noted above, the BPs – in conjunction with the proposed stakeholder engagement group – would be conducive to statewide standardization when appropriate. Since all PAs would vet their proposals through the appropriate topic-specific group, the stakeholders and Commission Staff would be able to identify areas that seem ripe for a statewide or regional approach. The advisory group to the PAs could then outline key items to include in BP modification and the PAs could work together to ensure their filings are consistent.

2.2.3 Should We Replace Some Statewide Approaches with Regional Approaches?

1. *Are there particular “statewide” programs that we should re-label as regional or local?*

No comment.

2. *If so, which programs and why?*

No comment.

2.2.4 Should we modify the mechanics of Statewide Program Administration?

1. *Do the portfolios have too many programs? If so, how could we modify the statewide PA mechanics help to reduce them?*

As the PA portfolios aim to reach over 28 million Californians both at their home and their place of business, there will no doubt need to be a large and varied array of offerings to reach different customers. However, the current organization and design of discrete programs is difficult to understand in aggregate and sometimes create confusion for customers who have to apply to multiple programs to upgrade their building. There are some strategies to address this challenge that would not require fundamental shifts to a statewide approach. For example, many local government partnership programs (e.g., San Francisco’s Energy Watch program) directly connect with customers, walking them through the process making sure their application allows them to receive multiple upgrade opportunities (e.g., lighting, refrigeration, etc.).

In addition, the Joint Parties, recognizing this challenge, propose to reorganize the discrete programs into a cohesive strategy that provides a “menu” of services to a particular sector. Similarly to some current strategies in place today, there could be a dedicated person to interface with a sector or subsector to ensure all the desired menu items are checked off and

implemented with as much ease and clarity as possible. Therefore, the customer would have only one person and one application to complete, but receive a comprehensive set of offerings. Such an approach would not require a fundamental shift in administrative functions but would greatly enhance the effectiveness of delivering efficiency services to customers.

2. Should we move to a third-party administrator for some statewide program(s); if so which one(s)?

The question of whether or not to move to a third party administrator for statewide programs depends greatly on the particular program being envisioned. For example, market transformation (MT) programs have been identified by numerous parties as a prime example in need of a statewide implementer. We strongly agree such programs would benefit from a statewide effort (including the public utilities and the CEC). However, we do not believe at this time that yet another independent entity layered on top of our already complicated structure is the appropriate model for California.

While NRDC is very supportive of efforts in the northwest and northeast, those entities were designed to fill a clear gap particular to their region. For example, the Northwest Energy Efficiency Alliance (NEEA) was created because the numerous utilities that spanned four states were unable to collectively work together with large manufacturers and retails on regional market transformation programs. California is very different and we should create a solution that is responsive to our particular challenge.

Furthermore, we suggest the CEC be involved with any statewide approach for market transformation programs and to include publicly owned utilities who are also vital partners in statewide market transformation efforts. Therefore, we propose that a MT advisory group be part of the CEC's proposal in the draft "Existing Buildings Energy Efficiency Action Plan" to create a truly statewide collaborative that would "lead and coordinate progress toward energy efficiency across the energy agencies."¹

While the CEC's proposal still needs to be fleshed out, NRDC envisions the MT group could also be set up to play similar functions to other collaboratives across the country, including coordination of MT efforts across multiple actors, development of guidelines for designing MT programs, assessment of program proposals to ensure they comport with MT best practices for both program design and evaluation, and identification of gaps that are not being addressed.

¹ CEC. Existing Buildings Energy Efficiency Action Plan, March 2015. P.57

The group should follow best practices, including but not limited to, having a mission, discrete objectives, clear roles and responsibilities of the participants, etc. This group should develop criteria for what constitutes a MT program, create a clear outline for an MT initiative plan, and guidelines for setting indicators to check if the program is on track. Any PA (IOU, POU, CCA, REN) that would want to implement a MT project would need to vet the idea through this group.²

III. Third-Party Energy Efficiency Programs

2.3.1 How Do IOUs Configure and Solicit 3P Programs to meet policy objectives?

1. *What distinguishes a “Third Party Program” from other forms of non-IOU implementation? Is this distinction worth maintaining?*

No comment.

2. *How do IOUs decide what programs to pursue via “Third Party Program” solicitations versus via their statewide programs?*

No comment.

3. *What is the process for and likelihood of “Third Party Programs” that are not successful or that have run their course being terminated, or on the other hand, of scaling up and “graduating” to becoming statewide programs?*

No comment.

4. *To what extent are Third-Party Program bidders able to propose their own program designs?*

NRDC has been participating in the Peer Review Group (PRG) process since 2007. Over the course of the years, many approaches to competitive bidding have been tried. One year, some utilities bid out ‘challenge’ programs, such as yielding a particular lumens per sq. ft. target. Other utilities had specific programs in mind that needed a third party to implement, others put out an RFP for a sector and requested the best program design to get at a particular customer group, while others simply asked for “what else can we do?” Some third parties are eager and able to bid in their best program for getting at a particular need and requested more unstructured solicitations. Others would rather be a direct implementer of an already-designed program and others yet wanted the opportunity to propose a new idea outside of any confines of a specific

² Note: if the Commission were to support the Joint Parties’ stakeholder engagement process, the review of MT programs could be shifted to the CEC collaborative instead of relying on CPUC topic-specific subgroups as described at Workshop 1, Day one on March 9, 2015.

RFP.

However, since so many programs have been in place for a number of years and only a few bids are going out this year, there is currently minimal opportunity for third parties to propose their own programs, with the exception of the IDEEA 365 solicitation. Each strategy has its merits, for example, prescriptive bidding opportunities could help build experience with new entrants. NRDC therefore proposes for 2016 that the Commission set up a process whereby all of these various approaches are available to third parties. Creating a spectrum of opportunities could encourage innovation on the part of both PAs and third parties, enable greater numbers of third parties to participate in various solicitations, support growth in the industry, and provide needed efficiency services to customers.

5. *How much latitude is there for Third-Party Program bidders to propose:*

- a. *target market sector or segment?*
- b. *geographic scope of coverage? (within a utility service area, or to serve multiple service areas); and,*
- c. *set of end uses or measures to be included or permitted?*

No comment.

2.3.2. Changes to Third Party Approaches

1. *Does the current program implementation framework constrain or create barriers to innovative third party program design; if so, how?*

NRDC has observed a number of challenges in the current implementation of the third party bidding framework (see Attachment 3 in NRDC comments on Workshop 1)³, but does not believe the framework itself necessarily inhibits innovation. For example, the rules that constrain PAs from proposing innovative programs are similarly inhibiting to third parties. In addition, there is a general lack of opportunity to discuss gap analyses across any part of the portfolio, not only for third party programs. NRDC notes that a number of Phase 3 policy issues continue to constrain innovative program design and therefore caution that while framework adjustments may be helpful, they will not remove the underlying challenges. The following are examples of challenges that impact current third party (and PA led) programs:

³ April 6, 2015 “Natural Resources Defense Council (NRDC) Response to Administrative Law Judge’s Ruling Regarding Comments on Phase II Workshop I,” Attachment 3.

- **Cost-effectiveness** - The current total resource cost test is unduly limiting and therefore puts pressure on all programs bid in through the solicitation to be cost effective on their own to ensure the overall portfolio is also cost-effective. This restriction makes it difficult, if not impossible, to get truly innovative ideas given that such programs are unlikely to be cost-effective in the first few years.
- **Timeframe** – Another challenge is the limited time for which the contracts were historically available. Since innovative programs often require longer lead times and lengthier timeframes, the traditional 1-2 year contract was not conducive to such program design. This will be hopefully be addressed by the ongoing funding identified in D.14-10-046 Ordering Paragraph 21 and other necessary modifications to contract procedures.
- **Process for identifying gaps** –There is currently minimal dialogue regarding how a particular gap was identified, for third party programs or other. In addition, while third parties are able to bid into the identified gaps, there are limited solicitations – with the exception of IDEEA 365 – for third parties to bid in areas that are not identified by the utility, even if they may identify an additional gap.

Although modifying cost-effectiveness assumptions is not within the scope of Phase 2, the Commission could pilot the use of the Program Administrator Cost test as the threshold for the IDEEEA 365 solicitation to see if removing the constraint of the TRC would elicit more innovative programs. If there is a shift, this would be a good indication to the Commission that the TRC is one limiting factor. If there is not a shift, the Commission could then look to other aspects of the framework (either third party or policy rules more generally) to see how the rules or processes could be adjusted to encourage more creative proposals.

2. *Should co-pays be required for direct install programs; if so, why?*

No Comment

3. *What solicitation process improvements for Third Party Programs could better achieve or exceed Commission objectives for:*

a. *innovation and*

NRDC cautions that it will likely be difficult to spur additional innovation until some of the policy rules currently identified in Phase 3 are addressed. Until that time, the Commission can improve upon the processes – leveraging the Peer Review Group as appropriate, rely on the PAC test as the threshold for cost-effectiveness for innovative ideas to relieve some of the restriction on current proposals, and enable more opportunities to influence where the solicitations are targeted.

b. improved portfolio performance?

The Commission could explore additional pay for performance approaches (see response to Q4 below).

4. *What framework or process offers promise for obtaining higher levels of efficiency outcomes and/or with lower costs, so as to obtain improved portfolio metrics?*

NRDC and TURN, via separate comments, provide framework and process improvement suggestions in the above respective portions of their comments and urge the Commission to also explore new *approaches* that offer promise for “obtaining higher levels of efficiency,” potentially at lower cost. **Specifically, NRDC and TURN recommend that the Commission direct the Program Administrators (PAs) to propose new mechanisms for the 2016 third party programs that rely on meter-measured performance to yield greater savings in both the residential and commercial sectors.** Exploring ways to pay for savings based on performance and leveraging Advanced Metering Infrastructure (AMI) data is supported by many interested stakeholders -- as expressed at the Workshop 3 of this proceeding, in the comments of other parties such as SoCalREN⁴ and others such as PG&E and CEEIC,⁵ as well as by the California Energy Commission’s recently-released draft AB 758 Action Plan.

NRDC and TURN understand that trillions in investment capital are needed to transition to an efficient, renewable, reliable, and affordable energy economy. Energy efficiency, a key distributed resource, is a critical component of this transition. However, energy efficiency currently falls significantly short of its economic potential.^{6,7} The recent implementation of AMI in many locations is an important step toward driving investment in EE; however, while AMI data is available throughout most of California, PAs and implementers have not yet been able to leverage the data from this technology to scale energy savings through innovative efficiency

⁴ SoCalREN has consistently supported measured performance program design; see their Phase II Workshop 1 comments (April 6, 2015) as well as their comments on the 2015 potential and goals study draft result (April 10, 2015)

⁵ PG&E, CEEIC and others will be expressing their support for these concepts in their comments on Phase II Workshop 3; others may be supportive as well as these comments have not been widely circulated with enough time for review.

⁶ McKinsey & Company, *Unlocking Energy Efficiency in the U.S. Economy*, July 2009.

⁷ The international investment banking firm Lazard recently published an analysis of the comparative costs of a wide range of resources, “Lazard’s Levelized Cost of Energy Analysis - Version 8.0” Energy efficiency exceeded all others by a wide margin.

program design. This smart meter investment is therefore not being used to its full potential and creative ways of scaling efficiency savings to save customers money are not being explored.

New transaction structures that value “efficiency as energy” are needed to further displace the procurement of other energy resources and the associated costs of integration, and to enable investment by capital markets in energy efficiency resources. We recommend that PAs launch a set of residential and commercial third party pilots in 2016 that are based on AMI data and use innovative meter-measured performance strategies to capture greater savings by paying for savings as the difference between metered energy usage and adjusted baselines.

This approach is intended to spur private sector innovation and investment by building a market for efficiency, creating transparent and real time accounting for savings using smart meter data, increasing quality installations by making contractors accountable to measured performance, and ultimately reducing program administration and evaluation costs by making the industry (and not just the program) responsible for performance risk. In addition, we support expanding current demonstration efforts to better understand the value of operations and maintenance in buildings where owners and facility managers are not pursuing such activities on their own.

NRDC and TURN recommend that the Commission provide guidance in the forthcoming decision to pursue such activities and that the structure of these pilots and qualifications for third party implementers be developed by the PAs in close consultation with stakeholders through the engagement process (which includes CPUC staff) as described at Workshop 1 on March 9, 2015. The three pilots we envision include:

- A residential sector pilot based on the existing Home Upgrade program, but with savings paid to an aggregator of projects only when savings show up at the meter using the open-source CalTRACK / Open EE Meter system - described in section I below;⁸
- A commercial sector pilot based on the Metered Energy Efficiency Transaction Structure (“MEETS”), or other similar methodology, that pays for performance - described by TURN in their comments; and
- A commercial sector pilot based on PG&E’s existing Commercial Whole Building Demonstration project, which captures and measures operational and behavioral savings - brief description of this demonstration project described in section II below.

All of these pilots should be structured such that a performance standard is set by the

⁸ NRDC would like to acknowledge that Matt Golden of Efficiency.com contributed substantially to this proposal.

PAs, and multiple third parties can qualify to provide savings from residential and commercial projects.

I. Residential Pay-for-Performance Pilot

While programs such as the Energy Upgrade California (EUC) Home Upgrade and Advanced Home Upgrade have shown that they can deliver substantial measured energy savings on a per-building basis,⁹ to date these programs have failed to reach the scale and broad penetration that is needed to meet ambitious policy goals going forward. While there have been many efforts to improve current programs and reduce barriers, including the adoption of the CalTRACK¹⁰ process to allow additional software tools into the market, a more fundamental change is required to change the trajectory of residential efficiency in order to achieve California's climate and energy goals.

This proposed *Pay-for-Performance Residential Pilot* will test a model in which smart meter data is used to measure energy savings that can be aligned with incentives and paid for on delivery, making it possible to create accountability to results. Incentives will be paid to “aggregators,” who are entities able to take responsibility for the performance of a portfolio of projects -- these could be finance providers (such as Property Assessed Clean Energy (PACE) providers), a large contractor, a coalition of contractors, or other entity. It is important that the payments are made on a portfolio of projects to ensure the statistical significance of the savings and to manage the performance risk, because while individual project performance can vary greatly depending on the idiosyncrasies of different homes, efficiency performance is more reliable on a portfolio basis.

By allowing the market players (contractors and aggregators of projects) to carry performance risk rather than relying on utility customer funds that are paid as rebates (often “up front,” irrespective of performance), programs will likely be able to substantially reduce the percentage of program funds devoted to program specific administrative costs by increasing the overall yield of energy savings, and allowing industry to innovate the best way to package and

⁹ EUC Software Initiative analysis of PG&E Advanced Path EUC jobs, based on weather normalized pre vs. post usage data showed an average of 21% gas reductions on homes with heating loads and measures.

¹⁰ The CalTRACK (<http://www.caltrack.org/>) / Open EE Meter (<http://www.openeemeter.org/>) methodology was originally developed through the Advanced Energy Upgrade Software Initiative working group of the IOUs, CEC, and CPUC (<http://www.caltrack.org/team.html>) is now being developed as a BPI / ACCA joint ANSI Standard “Protocol for Quantifying Energy Efficiency Savings in Residential Buildings.”

deliver efficiency to the consumer. Aligning incentives with actual savings will reward business models that are profitable for industry, drive consumer demand, and achieve reliable energy savings.

In a Pay-for-Performance market model, the PA and regulators will be able a focus on protecting consumers, establishing the “[weights and measures](#)”¹¹ for integrated demand-side resources through the CalTRACK / Open EE Meter, and creating sound market structures that send the right price signals. **Rather than attempting to directly design the delivery of energy efficiency services through programs, PAs and regulators can influence outcomes but leave execution up to market players.** Higher energy savings yields become valuable and drive innovation and investment in projects that deliver such measurable savings. Energy efficiency can be transformed from a rebate incentive into a financial asset with long-term cash flow that can be funded through project finance -- the same mechanism we use to finance other energy infrastructure include power plants and the highly successful PPA agreements for solar.

Key elements of the residential pay-for-performance pilot

The purpose of this pilot is to test a pay-for-performance approach to energy efficiency procurement, leveraging the open-source CalTRACK / Open EE Meter system that was developed by order of the CPUC by all four IOUs and in cooperation with the CEC.

- PAs that elect to offer this pilot¹² would procure savings measured as the difference between metered usage and adjusted baselines from third parties who manage portfolios of residential projects, completed within two years of the pilot launch.
- Similar to the existing EUC Home Upgrade program rules, this third party pilot would pay for savings above the actual historical usage baseline. The difference is, rather than paying on prediction and discrete measures and sometimes on an individual building basis, this pilot would test a model that pays based on measured savings as they are delivered for a portfolio of projects that achieve a confidence interval better than 95%.
- The third party aggregators (e.g., finance providers, contractors, etc.) would then sell this proposition to homeowners (or use contractors or other implementers to sell the proposal on their behalf).
- Homeowners would agree to the upgrade, and the contractors would be responsible for quality installations that ensure the predicted savings are achieved.

¹¹ Link: <http://www.nist.gov/pml/wmd/>

¹² One or more PAs could choose to participate in this pilot, but ideally a single application template would be used for statewide consistency when feasible.

- The aggregator then bundles the portfolio of residential projects and the PA then pays for performance based weather-normalized savings over a period of three years post upgrade.
- The CalTRACK Open EE Meter would use currently available interval meter data to quantify the savings achieved by the installation of energy efficiency projects. Changes in energy usage will be documented for a pre-post period to be detailed in the pilot design.
- Savings would be calculated and purchased by the PA on a portfolio basis upon delivery, as opposed to an individual project basis. This allows aggregators and contractors to manage their performance risk and the unavoidable building-level variability of efficiency measures, while enabling the procurement of measured and verified energy efficiency resources.
- This savings value would be the basis for the incentive payments. PAs would pay for savings documented by the CalTRACK Open EE Meter on a bi-annual basis to the aggregator of savings. The first two performance payments would be paid based on estimated expected performance, using metrics from the existing Home Upgrade program to provide a comparable data set for similar measures, with a true-up to actual measured savings done by adjusting payments in the subsequent four years. Projects would not utilize any other consumer utility rebates.
- The price paid for savings, to be determined during the pilot planning process, should be based on the IOU's avoided marginal cost of energy procurement and the current program cost of savings (including program administration and incentives) being delivered through the Home Upgrade program.
- The price per kWh and term should be lower than current total program costs per savings unit, including administration costs and incentives, since the aggregators will be taking on the bulk of current program overhead costs and a value per unit of energy will be established less than the current total cost structure.

While design details should be determined by the PAs and experts through the stakeholder engagement process, we recommend that any pilot be sufficiently funded to yield reliable data from which a decision could be made to expand the program after pilot completion (e.g., \$20 to \$30 million for all PAs).¹³ The budget would cover necessary implementation costs of the pilot over two years and for the payments on performance for three years after the upgrade is completed.

The PAs should select multiple third parties with which to contract to test this model in the market, and should aim to strike a balance between fostering the engagement of multiple third parties in this program, while also providing enough certainty of deal flow to attract

¹³ Currently, the EUC Home Upgrade program pays roughly \$2,000 on average in incentives to the customer, not including program overhead and marketing costs. Payments would vary based on actual savings over the three-year period post retrofit, but if you assume a rough average total cost of \$2,000 per home, the pilot could serve approximately 10,000 to 15,000 customers statewide during the pilot for the amount suggested. This would not include the program administration and EM&V costs.

aggregators with the potential to scale. Eventually this market should be open to all parties that can aggregate portfolios of sufficient size to achieve an allowable confidence interval on savings, but this first pilot should be kept as simple as possible while systems are established. Evaluation of this pilot should be timely and geared toward informing the next iteration of the program, leveraging the “evaluation team” concept put forth by NRDC in comments on Workshop 1.¹⁴

If successful, subsequent versions of this program may include allowing aggregators to bid savings into a competitive markets, differentiation in procurement so that higher levels of incentive can be given to reward deeper total savings or innovation and learning that contribute to market transformation, integration of demand and location variables into how savings are valued, and the implementation of a transparent, forward-looking pre-post market assessments to establish a baseline that includes societal trends in energy use.¹⁵

Benefits of the residential pay-for-performance pilot

1. **Allowing PAs to pay for actual savings at lower total cost.** By purchasing savings measured as the difference between metered usage and adjusted baselines, the PAs can overcome potential performance risk by only paying for what actually occurs. This should also lower the cost of delivered energy savings.
2. **Aligning incentives with results to encourage savings.** By aligning revenue and profitability with actual performance at the meter, market players that deliver solutions that customers want, while also delivering enough real savings to make a profit, will be rewarded. Delivering real energy efficiency becomes a source of profit, driving the market toward improving efficiency outcomes.
3. **Accelerating already growing business models such as residential PACE while encouraging deeper savings.** While this third party procurement should be open to all qualified third parties, the prospect of collaboration between PAs and the rapidly scaling residential PACE providers could yield substantially more participants and savings. In 2014, residential PACE in California drove approximately \$250 million in energy efficiency projects, mostly independent of program incentives. However, the current PACE providers lack an incentive to focus on energy efficiency. Allowing PAs to procure the savings from PACE-financed projects would align the interests of PACE providers with the delivery of substantial energy savings. This in turn would support the

¹⁴April 6, 2015 “Natural Resources Defense Council (NRDC) Response to Administrative Law Judge’s Ruling Regarding Comments on Phase II Workshop I,” p.45

¹⁵ See Regional Technical Forum “Guidelines for RTF Savings Estimation Methods (8-15-2012) Discussion Mark-up,” August 21, 2012. Accessed on October 24, 2012 at: <http://www.nwcouncil.org/energy/rtf/subcommittees/Guidelines/> p.2 and “Reply Comments of the NRDC on Administrative Law Judge’s Ruling Seeking Post-workshop Comments on Demand-side Cost-effectiveness Issues.” October 25, 2012 (p.4-6)

acceleration of PACE and enable system planners to incorporate these projects into load forecasting and grid management activities.

4. **Reducing program administration costs.** By paying for performance and moving performance risk from utility bill payers to private market actors, this program may also be able to reduce program marketing and administration costs, as many functions currently provided by the program will become a responsibility of market players.
5. **Lowering M&V costs.** By providing a verified and transparent system to track savings, the cost of M&V for PAs and the Commission may be decreased by relying on an automated system leveraging smart meter data.
6. **Building a dataset on performance.** This pilot will develop a rich dataset including location and demand reductions that can be used in future procurements to align the value of savings with a more integrated demand-side management strategy. The CalTRACK Open EE Meter is 100% open-source and built on a standard data platform that includes Green Button integration, HP-XML, and the DOE Standard Energy Efficiency Data Platform. This data platform aligns with recommendations put forward in the California Energy Commission’s AB 758 Action Plan.

Comparison of EM&V methods with pay-for-performance

Activity	Traditional Program EM&V	EE Meter Enabled Measurement
Field Investigations	<ol style="list-style-type: none"> 1. Typically based on sample designed to provide random selection of participants. 2. Field investigations focus on collecting uniform datasets for subsequent analysis. 	<ol style="list-style-type: none"> 1. Based on meter data providing real time performance metrics. 2. Market assessments can identify the dynamic or “naturally occurring” savings and apply results to future procurements (this should be done in future pay-for-performance programs).
Analysis	<ol style="list-style-type: none"> 1. As data collection is nearing completion, analysis begins to compare actual performance to deemed ex-ante performance estimates. 	<ol style="list-style-type: none"> 1. Ongoing data stream continuously analyzed to identify anomalies in site and project portfolio level performance.
Reporting	<ol style="list-style-type: none"> 1. Reporting generally occurs at the end of program cycles. 2. Compare calculated ex-post performance to ex-ante estimates. 3. Present historic perspective on program performance. 4. Provide comparison of performance from code to measure. 	<ol style="list-style-type: none"> 1. Reporting is frequent and intended to define various performance characteristics throughout the program cycle. <ol style="list-style-type: none"> a. Compared to EE meter calculated performance to ex-ante estimate. b. Assess individual contractor performance in near real time. c. Provide data on field-based

	<p>5. System planners estimate full grid impact using deemed savings estimates using to code baseline conditions.</p>	<p>savings, including delta from existing baseline consumption to installed measure.</p> <p>d. System planners provided actual data showing with full grid impact based on customer meter data.</p> <p>e. Inform corrective actions during the program cycle.</p> <p>f. Long term calibration of incentives based on yield trends.</p>
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History of Energy Upgrade California Software Initiative / CalTRACK

CalTRACK was created by a CPUC decision 12-05-015¹⁶, Ordering Paragraph 61 of Decision 12-05-015 and was headed by PG&E as a representative of all four investor-owned utilities: "We direct Commission Staff and the IOUs to work collaboratively with the California Energy Commission and other Energy Upgrade California stakeholders to identify approaches to adequately broaden allowable software under Energy Upgrade California while containing costs required for needed Commission Staff Reviews."

The solution developed consisted of two stages, complete information at www.CalTRACK.org:

Stage 1: CalTEST – California Test for Energy Software Tools (COMPLETE)

- Software Test against set of typical EUC Home Upgrade Homes
- HPXML 2.0 (output and program intake)
- 5 Tools now in market

Stage 2: CalTRACK (Open EE Meter) – Data-Driven Tracking and Feedback System

- Jobs tracked by software version
- Savings predictions compared to weather normalized post retrofit billing data
- Adjustment factor to calibrate predictions on an ongoing basis
- Program / Regulator / Contractor transparency

The Software Initiative was led by PG&E with the participation and co-funding of all

¹⁶ http://www.calmac.org/events/Decision_12-05-15.pdf

four Investor Owned Utilities and active participation from the CEC and CPUC.

II. Commercial Whole Building Pay-for-Performance Pilot

NRDC also recommends expanding PG&E's Commercial Whole Building Performance Demonstration to further test the opportunities to ramp up efficiency from operations and maintenance activities that are not currently being achieved. This demonstration entails the determination of predictive energy use baseline models for participating buildings using new, innovative software tools. These models establish whole building level energy use baselines against which realized energy savings from retrofit and retro-commissioning (RCx) measure impacts are estimated. Final savings estimates are based on actual performance as determined through modeled billing analysis and calibrated simulation. The energy savings estimates would be normalized with respect to weather effects with estimates supplemented with data collected on the operating conditions of the participating buildings.

The demonstration was designed to provide a testing ground for best practice "Whole Building Approach" program delivery methods that could be scaled further within the next program cycle. While we understand some modifications are in play for this program, NRDC strongly supports testing this approach on a wider scale to determine whether or not programs such as these could scale up low-cost operations and maintenance savings at greater scale and on a quicker timeframe than currently is occurring.

6. *What process(es) could be adopted to ensure program designs and implementation procedures or practices take full advantage of identifying opportunities for improvements and higher performance outcomes?*

While the Joint Parties' rolling portfolio proposal does not necessarily address every issue that may be at play, the overall design and collaborative structure – if set up well and based on best practices – would be a strong foundation for ensuring that modifications made by the Commission were in fact being implemented to the best of the PAs' abilities.

7. *With respect to PG&E's plan to rebid most/all of its Third Party Programs, are PG&E's proposed changes to its solicitation processes reasonable?*

Given the direction at the time that PG&E envisioned bidding out their third parties, their changes were reasonable. However, if the Commission would like to see a modified framework or a more involved review of gap analyses and other data prior to launch the rebid, then the

PG&E approach would need to be adjusted accordingly.

8. *How might statewide or regional/local programs integrate their resources and activities to support some of the strategies identified in the current CEC Existing Buildings EE Action Plan (AB 758), as discussed by Martha Brook of the CEC at the March 23 workshop? (see: <http://www.energy.ca.gov/ab758/document/s/index.html>) E.g. coordination with building benchmarking activities, or using customer data to assist in targeting best prospects for EE adoption.*

Leveraging the CEC's proposed collaborative and the Joint Parties' stakeholder engagement process would help ensure the PA activities are coordinated with other statewide initiatives.

9. *Are there national utility or EE industry sources of program design best practices, and implementation benchmarks or best practices that should receive greater attention by PAs and implementers in California?*

See response to Q2.3.3 (2).

2.3.3. Possible Third Party Approach to Statewide Programs

1. *Should a single PA administer some statewide program(s) for the entire state; if so which one(s)?*

Single PAs currently manage contracts for statewide efforts (e.g., market transformation and workforce education and training consultants) as well as have leads to coordinate on various statewide programs (but not singly implement the program). NRDC supports exploring expanding such opportunities, but suggest using predetermined criteria for figuring out which programs make sense to be implemented on a statewide basis.

2. *Are there other states, multi-state regions, or countries that California should look to for models for better designs, operational features, or opportunities for economies of scale for utility costs, supplier channel participation, or customer engagement? If so:*
 - a. *What are they?*

The most comprehensive opportunity for leveraging best practices to improve programs (including strategies to scale up program delivery to improved market transformation approaches) is the Consortium of Energy Efficiency (CEE). CEE was created in 1991 for program administrators across the country to share best practices, problem shoot policy and programmatic issues, and provide for creative and collaborative thinking.

Members consist of California's IOUs and POUs as well as numerous utilities and other program administrators (e.g., Efficiency Vermont, Energy Trust of Oregon, etc.) across the country.¹⁷ CEE holds industry specific meetings as well as an annual meeting for its members to work together to address the most pressing issues at the time, driven by the needs of the members. CEE also has an incredible repository of information as they regularly collect information on programs and policies across dozens of jurisdictions through their membership. The IOUs are extremely active in this group. While the CPUC is not a member, CEE does support its members (the IOUs) and perhaps could provide a briefing to identify opportunities for improvements to California's framework and/or PA program design and delivery based on their national perspective.

In addition, the American Council for an Energy Efficient Economy (ACEEE)¹⁸ and the Regulatory Assistance Project (RAP)¹⁹ also periodically come up with compendiums of best practice programs as well as and whitepapers on model policies and programs that California could leverage. ACEEE and RAP staff could provide insight on modifications that would benefit California's process and enable additional savings – both from resource acquisition and market transformation programs.

b. *How might their models be applied for California; what changes to CPUC policies or rules that would be needed?*

The aforementioned entities would be able to help identify model programs that could potentially be implemented in California and/or which policies and rules need to be modified. As previously stated, there are a number of rules that will need to be modified to come in line with best practices across the country and to enable programs that work in other regions to similarly function in California (e.g., cost-effectiveness, net-to-gross assessment models, to code measurement approaches, etc.). Until the Commission addresses the fundamental policy issues, it is unclear how much more innovation the Commission can expect to see in 2016. We therefore suggest the Commission engage in conversation with these national experts as soon as possible to prepare to address these topics currently scoped for Phase 3.

¹⁷ CEE member list: <http://www.cee1.org/content/member-directory>

¹⁸ <http://aceee.org/>

¹⁹ <http://www.raonline.org/>

- c. *Would some kind of “challenge” program be helpful, such as the long-ago “Golden Carrot” competition, or in more recent years an X-prize competition?*

Competition can be effective at sparking creativity and bringing new ideas to the market. We are supportive of such efforts (and were actively involved with the Golden Carrot and X-prize competitions), but note these efforts were specifically focused at advancing *technologies* with a direct link to a commercialization opportunity (e.g., the Golden Carrot awardee was required to ship a certain number of refrigerators). For such a competition to be effective in bringing innovative delivery (or other) program approaches, the Commission would need to first identify what area it aims to target (e.g., programs that achieve demonstrated idle load savings of more than X%) and identify specific objectives that could be achieved through a competitive process.

However, to see how a competition could spark innovative programmatic design (as opposed to new technologies), NRDC recommends using an ideal policy framework for the rules of the competition rather than using the current framework (e.g., discount rate of 3%, program administrator cost test, existing conditions or best practice baseline, etc.). This would also enable a potential competition to include other regions as appropriate.

IV. Conclusion

NRDC appreciates the consideration of our recommendations.

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Respectfully submitted,



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