**PENNSYLVANIA**

**PUBLIC UTILITY COMMISSION**

**Harrisburg, PA. 17105-3265**

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|  | Public Meeting held March 11, 2015 |
| Commissioners Present: |  |

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| Robert F. Powelson, Chairman |
| John F. Coleman, Jr., Vice Chairman |
| James H. Cawley, StatementPamela A. WitmerGladys M. Brown |
|  |
| 2016 Total Resource Cost (TRC) Test  | M-2015-2468992 |

**TENTATIVE ORDER**

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**BY THE COMMISSION:**

 Act 129 of 2008, 66 Pa. C.S. § 2806.1, directs the Commission to analyze the benefits and costs of the energy efficiency and conservation (EE&C) plans that certain electric distribution companies (EDCs) are required to file. Before us are proposed adjustments to the Pennsylvania Total Resource Cost (TRC) Test for use for the proposed Phase III of Act 129, that, if approved, would begin June 1, 2016. As ultimately approved, this further revised version of the TRC Test for use in the proposed Phase III will be designated the 2016 TRC Test.

1. **Background And History**[[1]](#footnote-1)

Act 129 requires an EDC with 100,000 or more customers to adopt an EE&C plan, subject to approval by the Commission, to reduce electric consumption. The initial EE&C and Demand Response (DR) plans were designated Phase I of Act 129 (Phase I). Act 129 required for Phase I that an analysis of the benefits and costs of each EDC’s EE&C plan, in accordance with a TRC Test, be approved by the Commission. In particular, Act 129 required an EDC to demonstrate that its plan was cost-effective using the TRC test and that the EDC provide a diverse cross section of alternatives for customers of all rate classes. 66 Pa. C.S. § 2806.1(b)(1)(i)(I).

Similarly, for subsequent phases, the Commission is charged with determining whether to establish requirements and, if so established, to determination if EDCs have met the requirements.[[2]](#footnote-2) Act 129 also addresses energy efficiency (EE) and demand reduction targets from June 1, 2013, forward. 66 Pa. C.S. §§ 2806.1(c)(3) and 2806.1(d)(2).[[3]](#footnote-3)

For Phase II of Act 129 (Phase II), which covers the period from June 1, 2013 to May 31, 2016, the Commission adopted three-year consumption reduction requirements, recommended by the Phase II Statewide Evaluator (SWE),[[4]](#footnote-4) that varied by EDC based on the specific mix of program potential, acquisition costs and funding available under the 2% limitation stipulated by Act 129.[[5]](#footnote-5) The SWE has produced an *Energy Efficiency Market Potential Study*.[[6]](#footnote-6)

For Phase II, there were no demand response requirements. The Commission, however, directed the SWE to study the cost-effectiveness of current and potential future demand response programs. On November 1, 2013, the SWE’s *Act 129 Demand Response Study* was released.[[7]](#footnote-7) On February 27, 2015, the SWE’s *Demand Response Potential Study*[[8]](#footnote-8) was released. The SWE collected data and documentation from EDCs to aid in performing an analysis of the cost-effectiveness of compliance with the current legislative demand response requirements and of potential improvements to the demand response program design. These studies have been considered in relation to this Tentative Order.

Pennsylvania conducts the requisite benefit/cost analyses using a TRC test. The TRC Test for Phase I of Act 129 was adopted by Commission order at Docket No. M‑2009-2108601 on June 23, 2009 (*2009 TRC Test Order*). The TRC Test was refined at the same docket on August 2, 2011 *(2011 TRC Test Order)* and on August 30, 2012 at Docket No. M-2012-2300653 *(2013 TRC Test Order)*.

Relative to the proposed Phase III, Act 129 also requires that the Commission determine if energy efficiency and demand response goals should be established beyond the Phase II goals. 66 Pa. C.S. §§ 2806.1(c)(3) and 2806.1(d)(2). Phase III goals have been proposed at Docket No. M‑2014-2424864. Should the Commission determine to proceed with Phase III, it will be necessary to address the benefit/cost measurement for Phase III. In order to allow for adequate planning for the proposed Phase III, the Commission has chosen to put forth this Tentative Order regarding the TRC Test which builds on the 2013 TRC Test and the *California Standard Practice Manual – Economic Analysis of Demand-Side Programs and Project*[[9]](#footnote-9)(*California Manual*)for the benefit/cost analysis of EE&C plans for the proposed Phase III.

On October 23, 2014, we issued a Secretarial Letter[[10]](#footnote-10) at M-2014-2424864. Among other things, the Secretarial Letter indicated that the 2016 TRC Test would be addressed at this docket. It also posed several questions, including questions relative to the TRC Test. The comments relative to the TRC Test are summarized below and were considered in developing our proposals in this Tentative Order.[[11]](#footnote-11) Our discussion below first addresses those elements from the 2013 TRC Test for which we are not proposing any changes. Thereafter, we shall address the aspects for which we are proposing changes. Comments should follow the outline numbering established herein. If parties have comments on a provision not in the outline, address them after making comments relative to items in the outline.

**II. TRC Test Explained**

Act 129 defines a TRC test as “a standard test that is met if, over the effective life of each plan not to exceed 15 years, the net present value of the avoided monetary cost of supplying electricity is greater than the net present value of the monetary cost of energy efficiency conservation measures.” 66 Pa. C.S. § 2806.1(m). Thus, the TRC test is a critical measuring tool in determining the cost effectiveness of an EDC’s EE&C plan. The TRC test has historically been a regulatory test. It is not a static, one-size-fits-all tool. It can incorporate different factors and evaluate variables in different ways as determined by the jurisdictional entity using it. Pennsylvania has tailored a basic TRC test to evaluate EDC progress in meeting the requirements of Act 129.

The purpose of using a TRC test to evaluate EE&C programs is to track the relationship between the benefits to customers and the costs incurred to obtain those benefits. Sections 2806.1(c)(3) and 2806.1(d)(2), as well as the definition of the TRC test in Section 2806.1(m) of Act 129, provide that a TRC test be used to determine whether ratepayers, as a whole, received more benefits (in reduced capacity, energy, transmission, and distribution costs) than the implementation costs of the EE&C plans.

In Pennsylvania, the TRC Test takes into account the combined effects of an EDC’s EE&C plan on both participating and non-participating customers based on the costs incurred by both the EDC and any participating customers. In addition, the benefits calculated for use in the TRC Test include the avoided supply costs, such as the reduction in transmission, distribution, generation, and capacity costs valued at marginal cost for the periods when there is a consumption reduction. Avoided supply costs, depending on the mandate in a given jurisdiction, can be calculated using either gross or net program savings. In Pennsylvania, we have historically looked at avoided supply costs from the perspective of gross program savings.

Further, the costs used in the TRC Test include the costs of the various programs paid by an EDC (or a default service provider) and the participating customers,[[12]](#footnote-12) and reflect any net change in supply costs for the periods in which consumption is increased in the event of load shifting. Thus, for example, equipment, installation, operation and maintenance costs, cost of removal (less salvage value), and administrative costs, regardless of who pays for them, are included.

 The results of the TRC Test are expressed as both a net present value (NPV) and a benefit/cost ratio (B/C ratio). The NPV is the discounted value of the net benefits of this test over a specified period of time, *i.e.*, the expected useful life of the energy efficiency measure. The NPV is a measure of the change in the total resource costs due to the program. An NPV above zero indicates that the program is a less expensive resource than the supply option upon which the marginal costs are based. A discount rate must be established to calculate the net present value. The discount rate for the Pennsylvania TRC Test is the EDC’s weighted average cost of capital. We do not propose to change this provision for Phase III.

The B/C ratio is the ratio of the discounted total benefits of the program to the discounted total costs over the expected useful life of the energy efficiency measure. The B/C ratio gives an indication of the rate of return of this program to the utility and its ratepayers. A B/C ratio greater than one indicates that the program is beneficial to the utility and its ratepayers on a total resource cost basis.[[13]](#footnote-13) The explicit formulae for use in Pennsylvania are set forth in Appendix A of this order. We do not propose to change this provision for Phase III.

In determining how to structure the TRC test for Phase I and Phase II, the Commission chose to use the *California Manual* as the basis for the TRC Test in Pennsylvania. The Commission also referenced cost-effectiveness information published by the National Action Plan for Energy Efficiency (NAPEE).[[14]](#footnote-14)

Relative to the proposed Phase III, Act 129 also requires that the Commission determine if energy efficiency and demand response goals should be established beyond the Phase II goals. 66 Pa. C.S. §§ 2806.1(c)(3) and 2806.1(d)(2). Phase III goals have been proposed at Docket No. M‑2014-2424864. Should the Commission determine to proceed with Phase III, it will be necessary to address the benefit/cost measurement for Phase III. In order to allow for adequate planning for the proposed Phase III, the Commission has chosen to put forth this Tentative Order regarding the TRC test which builds on the 2013 TRC Test, the *California Manual*, and the NAPEE cost-effectiveness guide for the benefit/cost analysis of EE&C plans for the proposed Phase III. We do not propose to change to the formulae for Phase III.

As determined during Phase I and Phase II, the *California Manual* does not address all issues specific to Pennsylvania. For this reason, the Commission will continue to explore how best to structure and apply the TRC Test for Pennsylvania.[[15]](#footnote-15) The TRC Test for the proposed Phase III would be applicable throughout the course of Phase III, potentially concluding May 31, 2021. However, many issues involved in the EE&C plans, program implementation, and operation of the TRC Test are ongoing in nature, and future updates may be proposed by stakeholders or the Commission as needed.

**III. Stakeholder Comments Regarding The 2016 TRC Test In Response To The *Phase III Secretarial Letter***

In our *Phase III Secretarial Letter*, we solicited comments on the following TRC test issues[[16]](#footnote-16):

* Should the Commission establish a periodic review and updating process for the TRC Test methodology in Phase III?
* How often should the TRC Test methodology be reviewed?
* Should a periodic review and updating of the TRC Test methodology process schedule be dependent on the length of Phase III? For example, if the Commission implements a three-year phase versus a five-year phase, would that affect how often we should review the TRC Test methodology and consider updates?
* In our Phase I and Phase II Implementation Orders, we declined, among other things, the requests from certain stakeholders to require inclusion of societal benefits in the TRC Test equation and analysis. We have seen no reasons emerge during the span of the two phases to change such a determination and do not intend to revisit those issues again in this process of addressing Phase III issues based on any theories or arguments that have heretofore already been made. If, however, there are new data, theories, or arguments are available, they may be presented in comments along with other relevant comments.

 Energy Association of Pennsylvania (EAP) does not believe the TRC test methodology needs to be reviewed more than once per phase. EAP believes the TRC test methodology utilized for the SWE’s *EE Market Potential Study* should form the basis for the cost-effectiveness calculations and program design for the Phase III EE&C Plans. EAP supports the decision to continue to decline to require the inclusion of societal benefits in the TRC Test equation and analysis. EAP SL Comments at 7-8.

 Duquesne Light Company (Duquesne), an EDC, does not recommend annual updating for the TRC test. Duquesne suggests updating the avoided costs at the beginning of each phase and subsequently every two or three years. Duquesne SL Comments at 8.

 Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company (all EDCs and collectively, FirstEnergy) recommend that the TRC test be updated once for each phase. FirstEnergy agrees with the Commission that no reasons have emerged during Phase I or Phase II to warrant mid-phase updates or to revisit the Commission’s position on the inclusion of societal benefits in the TRC test equation and analysis. FirstEnergy avers that societal benefits have a high degree of variability and that reliable quantification is extremely difficult. FirstEnergy notes that its recommendations are independent of the duration of the phase. FirstEnergy SL Comments at 23.

 PECO Energy Company (PECO), an EDC, believes that the TRC test should be updated once for each phase, prior to the filing of new phase EE&C Plans. PECO does not recommend periodic review or updating of the TRC test within a phase. PECO supports the continued exclusion of societal benefits asserting that such exclusion is consistent with the clear intent of Act 129. PECO agrees with the Commission that there is no reason to review this issue again. PECO SL Comments at 18.

 PPL Electric Utilities Corporation (PPL), an EDC, submits that it is critical to maintain the TRC test methodology and assumptions consistently throughout a phase, as this information was used for the SWE’s *EE Market Potential Study* and is the basis for targets and EE&C Plans. Further, PPL avers that changing aspects of the TRC test mid-phase may require EDCs to perform EE&C Plan changes. PPL SL Comments at 21.

 The Office of Consumer Advocate (OCA) avers that once the TRC test is defined and equations set, there should be no need to review the methodology mid-phase. OCA does not support a change in the TRC test equation and analysis to account for factors such as societal issues. OCA SL Comments at 16.

 Industrial Energy Consumers of Pennsylvania, Duquesne Industrial Intervenors, Met-Ed Industrial Users Group, Penelec Industrial Customer Alliance, Penn Power Users Group, Philadelphia Area Industrial Energy Users Group, PP&L Industrial Customer Alliance and West Penn Power Industrial Intervenors (collectively, Industrials) urge the Commission to base any changes to the TRC test on concrete and verifiable data that is subject to critical review by the SWE. The Industrials note that such changes could include measurable variables, such as actual value to customers and intra-class subsidization. In arguing against inclusion of societal benefits, the Industrials aver that such inclusion would require significantly speculative analysis, with potentially unfounded results. Industrials SL Comments at 17.

 Demand Response Supporters (DR Supporters) believe that the TRC test should remain consistent throughout the phase and suggests one review prior to the start of Phase III. The DR Supporters also recommend that, in the final year of Phase III, in anticipation of a potential Phase IV, the Commission consider any technology, market, or regulatory changes that would impact the TRC test methodology. If the Commission deems this unacceptable, the DR Supporters propose that the TRC test methodology be review biannually. DR Supporters SL Comments at 25.

 Coalition for Affordable Utility Service and Energy Efficiency in Pennsylvania (CAUSE-PA) recommends that the Commission consider the inclusion of quantifiable non-energy benefits in the TRC test. CAUSE-PA asserts that many of the non-energy savings in the low-income population amount to avoided monetary costs associated with supplying electricity to this population. CAUSE-PA SL Comments at 21-22.

 Energy Efficiency for All (EEFA) avers that, because the implementation of whole-home measures are more costly to install, the quantification of some of the non-energy societal benefits becomes more relevant in Phase III than in prior phases. EEFA also opines that, in the context of the low-income sector, there are several quantifiable monetary benefits to the installation of EE measures, such as the reduction in Universal Service program costs and uncollectible expenses, which are directly related to the monetary costs of supplying energy. EEFA references national studies and models regarding the quantification of such benefits and encourages the Commission to explore this information and incorporate a reasonable accounting of non-energy, societal benefits in the TRC test. EEFA SL Comments at 9-10.

 Citizens for Pennsylvania’s Future, the Clean Air Council, the Sierra Club and the Environmental Defense Fund (collectively, Joint Commentators) believe the TRC test requires revision to include energy benefits, such as fossil fuel reductions, and non-energy benefits, such as health and environmental impacts. The Joint Commentators aver that, since Act 129 does not define “monetary cost,” a finding that non-energy impacts are “contrary to statutory language” is a matter of interpretation. Joint Commentators SL Comments at 9-12.

 Keystone Energy Efficiency Alliance (KEEA)[[17]](#footnote-17) avers that the development of the Resource Value Framework (RVF) by the National Efficiency Screening Project[[18]](#footnote-18); the movement by other jurisdictions[[19]](#footnote-19) to reconsider their TRC test practices and methodologies; and the Environmental Protection Agency’s (EPA) proposed rules under Section 111(d) of the Clean Air Act[[20]](#footnote-20) “suggest” that Pennsylvania should update its EE cost-effectiveness screening practices. KEEA also supports use of the Cost-Effectiveness Screening Principles and Guidelines developed by the Northeast Energy Efficiency Partnerships (NEEP).[[21]](#footnote-21) KEEA recommends that the Commission lead a transparent stakeholder process to use the RVF and NEEP findings to review the application of the Pennsylvania TRC test and update it, as needed, to align with national best practices and to minimize the risk of changes to inputs or methodologies in Pennsylvania. KEEA argues in favor of inclusion of energy benefits,[[22]](#footnote-22) non-energy impacts (NEIs), discount rate, and avoided environmental compliance costs. KEEA submits that the non-electric energy benefits from energy efficiency programs, such as reductions in natural gas, fuel oil or propane usage, should be quantified in the TRC test. Additionally, KEEA recommends that the Commission, in a stakeholder process, should also “identify, prioritize, and determine values” for non-energy impacts for use in the TRC test and address the discount rate. KEEA suggests that the Commission review its current practice of assuming the weighted average cost of capital for the TRC test. KEEA believes the Commission is undervaluing the reduced risk of EE program expenditures versus supply-side investments. KEEA recommends that the Commission determine an appropriate discount rate to reflect the lower financial risk of EE investments. Lastly, KEEA proposes that the Commission account for avoided costs of environmental compliance in the TRC test and refer this matter also to a stakeholder process. KEEA SL Comments at 13-15.

 Home Performance Coalition (HPC) recommends that the Commission review and update the TRC test on a regular basis, specifically every two to three years. If Phase III is a five-year phase, HPC recommends a review of the TRC test at least twice, once initially and once during the five years. HPC avers that there are a number of benefits that are not only appropriate, but necessary for inclusion in the TRC test, including energy policy benefits and costs; utility non-energy benefits (such as lowered arrearages) and costs; participant non-energy benefits (such as health, comfort, productivity) and costs; or any other relevant non-energy benefits/costs. Similar to KEEA, HPC suggests a review of the RVF as it provides a set of principles to assist states in conducting EE cost-effectiveness screenings. HPC recommends that all inputs in the TRC test be clear and transparent to stakeholders; that the TRC test take into account energy-related public policies; that the TRC test account for a full range of avoided costs; that the TRC test include all relevant benefits and costs; and that the TRC test use an appropriate discount rate. HPC SL Comments at 1-3.

 Pennsylvania State University (Penn State) recommends that the TRC test methodology be reviewed and updated annually. Penn State SL Comments at 9.

 The City of Philadelphia (City) recommends that the TRC test be updated on at least a three-year basis, regardless of the length of the phase. The City proposes the inclusion of environmental, societal, and other relevant non-energy impacts in the TRC test. City SL Comments at 4.

**IV. Phase III 2016 TRC Test Topics For Which No Changes From Phase II Are Proposed**

**A. Societal Test As Part Of The TRC Test** – The Commission decided in Phase I and II that the statute as it is currently written and the TRC Test as it is currently structured will not allow for the inclusion of societal, environmental, non-energy impacts (NEIs), or non-electric aspects. Pursuant to our prior TRC Test Orders, non-electric benefits from savings of fossil fuels such as propane, natural gas, and oil were not factored into the TRC Test. The statutory language clearly does not call for the inclusion of these items in the TRC Test. *See 2013 TRC Test Order* at 8-9.

We understand that several of the commenters feel strongly about the inclusion of such factors, but other commenters feel equally strongly about excluding these factors. In particular, CAUSE-PA, EEFA, Joint Intervenors, KEEA, HPC, and the City all favor some inclusion of societal and/or other factors in the TRC test equation. The EAP, First Energy, PECO, OCA, and the Industrials oppose such a reversal from our prior determinations. *See* various comments to the Secretarial Letter summarized above.

We have considered the arguments advanced in response to the Phase III Secretarial Letter that would have us change course relative to the societal, environmental, NEIs, non-electric, and similar factors. We recognize that other jurisdictions treat such aspects differently than we do. Those jurisdictions are responding to different mandates. The mandates in the Pennsylvania statute have not changed since we adopted the first TRC Test. The conclusions we have previously reached were not based on conjecture or premise. We are not persuaded that there is any reason to change our prior conclusions or position. Thus, consistent with our prior TRC Test Orders, we decline to propose factoring societal costs, environmental costs, NEIs, or other non-electric elements into the 2016 TRC Test.

**B. Use Of TRC Test Assumptions For Other Matters** – Consistent with our determination in the *2013 TRC Test Order*, for Phase III, we propose to maintain the provision that EDCs and other parties will not be bound by TRC Test assumptions in prudence, cost-of-service, or other inquiries. We have seen no need to change this approach for Phase III. As we provided relative to the earlier TRC tests, if there are significant differences between the TRC Test assumptions and the assumptions or facts at issue in such other proceedings, parties may inquire into the validity of such differences in those, or in the TRC Test, proceedings. *See 2013 TRC Test Order* at 10.

**C. Level At Which To Measure TRC Test** – Consistent with our determination in the *2013 TRC Test Order*, for Phase III, we propose to continue applying the TRC Test at the plan level and will continue to reserve the right to reject any program with a low TRC test ratio. We have seen no need to change this approach for Phase III. Thus, all EDCs’ plans would be required to provide TRC test ratios at the program level. *See 2013 TRC Test Order* at 11 and 12.

**D. Cost-Effectiveness Evaluations And Reporting Results And Timing Of TRC Test Reports** – We see no need to change this aspect for Phase III. Consistent with our determination in the *2013 TRC Test Order*, for Phase III, we propose to direct EDCs to continue reporting the results of their TRC tests annually as a part of their Act 129 final annual reports. Additionally, we would require the TRC test ratios for each EDC program and for the portfolio to be included in the EDCs’ Act 129 final annual report. The TRC test ratios would be based upon the latest available program savings and costs and the latest costs approved in the EDC’s EE&C plan. *See 2013 TRC Test Order* at 13.

**E. Maximum 15-Year Measure Life** – As established in statute and from the prior TRC test calculations, any given measure is limited to a maximum of 15 years[[23]](#footnote-23) of savings benefits. All TRC test calculations for EE&C measures have been allowed to use up to 15 years’ worth of benefits and costs, as applicable to specific measures, regardless of the year of program implementation. *See 2013 TRC Test Order* at 15-16. We have seen no reason to propose any changes to this provision.

**F. Definition Of “Incentives” In TRC Test For Energy Efficiency Measures**– As established in Phase I and Phase II, funds paid to customers as a marketing cost or intended to offset participant costs that are difficult to quantify could be included in TRC test calculations as either a direct cost or as a proxy for the participant cost. *See 2013 TRC Test Order* at 17. We have seen no reason to propose a change to this position; the cost of direct installation programs that did not involve a payment to the participant is not an incentive. Such costs would continue to be categorized as direct costs, not incentives, for Phase III.

**G. Incentive Payments From An EDC** – Incentive amounts paid to program participants are already factored into the incremental cost of acquiring the energy savings. Including incentive payments made to program participants in the TRC Test calculation would result in double-counting of the EDC’s portion of costs in the TRC test calculation. *See 2013 TRC Test Order* at 18. Thus, we have seen no reason to propose a change. Consistent with Phase I and Phase II, incentive payments from an EDC made to program participants would continue to be excluded in the TRC Test calculation for Phase III.

**H. Incentive Payments From Sources Outside Of Act 129** – We have previously determined that outside incentives, whether they are rebates or tax credits, reduce the participating customers’ costs, and that they should, therefore, be reflected in lower program costs and be factored into an EDC’s TRC Test calculation. EDCs have been able to fully include a measure’s benefits in the TRC Test if any portion of the measure is attributable to Act 129. We have previously concluded that tracking non-Act 129 incentives paid to EDC customers could prove to be difficult as some customers may not be inclined to provide the requested information or may not have access to it and accordingly determined that EDCs need only factor in as reductions to cost the non‑Act 129 incentives that are reasonably quantifiable by the EDC. *See 2013 TRC Test Order* at 21. We have seen no reason to propose a change. EDCs should continue to include as much information pertaining to outside incentive payments as possible as they would continue to be able to fully include a measure’s benefits in the TRC Test if any portion of the measure is attributable to Act 129. EDCs would not be able to treat outside incentives as a reduction in costs based on the cost of tracking the incentives.

**I. Incremental Costs** – In Phase II, we retained the incremental cost calculation method established for Phase I but allowed an EDC to use an alternate calculation method that would recognize the remaining value in a device to be replaced[[24]](#footnote-24) if the EDC so chose. *See 2013 TRC Test Order* at 23-24. This incentive has indeed prompted the adoption of some early replacement measures. We have seen no reason to propose a change. For Phase III, EDCs would continue to have this option and continue to be required to document, in their EE&C plans as well as in their annual reports, which method is used and the reason for the choice.

**J. End-Use Adjustments** – In Phase I and Phase II, we required use of end-use profiles, when available, for energy efficiency programs. When device specific profiles were not available, the use of the class average was acceptable. *See 2013 TRC Test Order* at 35. We have not seen a need to deviate from this provision going forward.

**K. Inclusion Or Exclusion Of Customer Avoided Operating And Maintenance Costs In The TRC Test Calculations** – EDCs included avoided operating and maintenance costs of replaced equipment, to the extent quantifiable, in their TRC Test calculations for Phase II. *See 2013 TRC Test Order* at 38. We have not seen a reason to change this provision. Act 129 is a single-fuel program, concerned exclusively with electricity. It does not include, for example, non-electric fuel or water cost savings. EDCs design their programs to get electric savings. For Phase III, EDCs would continue to include avoided operating and maintenance costs, to the extent quantifiable, in their TRC Test calculations and to have the flexibility to omit costs that are not quantifiable.

**L. Avoided Costs In Benefit/Cost Ratios In Approved EE&C Plans** – For Phase II, we required TRC Test information for each change in an EE&C plan because we have the responsibility and authority to consider whether to reject any program with a low TRC test ratio. This proceeding determines how to calculate the TRC Test. Having determined that a TRC Test is required for any change to an EE&C plan, we struck a balance between the potential benefit of increased accuracy that might be gained by using the most accurate and up-to-date avoided costs as they become available as compared to the burden and potential confusion of changing the value of the avoided costs each time a change is made. We found that using the vintage of avoided cost forecasts applicable for each program at the time the program was approved throughout the life of that program would be appropriate and would give us a means to compare the program’s results over time. *See 2013 TRC Test Order* at 39-41.

We determined that existing Phase I programs carried over to the original Phase II plan would use the vintage of avoided cost forecasts applicable for said programs when they were initially approved for Phase II. We also determined that using the latest available forecast of avoided costs for new programs included in updates to EDCs’ Phase II EE&C plans would respond to the dynamic nature of energy efficiency and conservation planning. EDCs were, therefore, required to use the latest available forecast of costs when developing their initial Phase II plans and, thereafter, only for new programs. *See 2013 TRC Test Order* at 39-41.

We did not preclude an EDC from using current avoided cost information for a carried-over program if that were practicable for the EDC. However, an EDC was not permitted to pick and choose when to use vintage avoided cost and when to use current avoided cost. If an EDC wished to implement a methodology, it was required to clearly delineate its choice and the reasons for that choice. *See 2013 TRC Test Order* at 39-41.

KEEA and HPC commented relative to avoided costs. We are not persuaded, however, that changing the provisions established in Phase I and II will be informative or productive. We are not proposing to change this provision going forward.

**M. Fuel Switching** – In Phase I and Phase II, we determined that only equipment earning EPA’s ENERGY STAR performance rating met the minimum standard allowable for inclusion in EE&C fuel switching plans. We provided that if a fuel switching measure were proposed for which there were no ENERGY STAR equipment, stakeholders would be able to request that staff convene a technical working group[[25]](#footnote-25) to address a minimum standard and provide recommendations for our consideration. Increased fossil fuel consumption resulting from the switch to the alternate equipment was factored into TRC Test as a cost in Phase I and Phase II. *See 2013 TRC Test Order* at 42-43. We have not seen a reason to propose new directives for fuel switching programs in this Tentative Order. The benefit/cost analysis of fuel switching measures would continue to take into account the increase in costs for the new fuel that will be used as well as the reduction in costs of the old fuel.

**N. Compliance With Alternative Energy Portfolio Standards Act Of 2004 (AEPS Act) And Carbon Issues** – In Phase I and Phase II, we required that the costs of compliance with the AEPS Act[[26]](#footnote-26) which are known and knowable be included in the TRC Test calculation. The cost was applicable to all the power “avoided.” However, any carbon-related reduction expense not currently included is to be excluded until such time as legislation is passed that dictates otherwise. There has been no change in the legislation. Further, for Phase II, it was noted that a reduction in electric consumption would reduce an EDC’s costs of complying with the AEPS requirements. *See 2013 TRC Test Order* at 44-45.

As an alternative, however, we allowed EDCs to determine avoided AEPS compliance costs by multiplying the projected reduction in required alternative energy credits (AECs) by the estimated unit costs of such credits for all types required. In order to estimate the unit costs of AECs for years in which AECs are unavailable, we allowed EDCs to apply a 5‑year rolling annual compound rate of growth in the Bureau of Labor Statistics (BLS) index as the annual AEC price escalation rate. *See 2013 TRC Test Order* at 44-45.

We do not propose to change the methodology or eliminate the alternative for calculating avoided AEPS compliance costs for Phase III.

**O. Low-Income Energy Savings –** During Phase I, EDCs used various methods to report low-income savings, making it difficult for us to determine the benefits and costs of low-income savings reported from non-low-income programs. For Phase II, we required standardization from the EDCs to determine low-income savings in non-low-income programs and how to report those savings in an effort to offer consistency and transparency. EDCs were required annually to estimate and compile low-income savings from non-low-income programs using their annual impact evaluation surveys to capture and determine low-income participation in each non-low-income residential program. The SWE had to sign off on the survey tool. *See 2013 TRC Test Order* at 49‑50. We have seen no need to propose changes to this approach for Phase III.

**P. Low-Income Benefits And Costs Reporting** – For Phase II, we eliminated the requirement that EDCs include TRC Test results for low-income savings from participation in non-low-income residential programs as part of their annual reports. However, we noted that calculating this estimated savings based on an approved survey method in Phase II would be necessary if an EDC wanted to attribute savings from non-low-income residential programs toward meeting the 4.5% low-income target in Phase II. In other words, if EDCs were counting the estimated savings from non-low-income residential programs toward their low-income targets, they would have also to attribute the costs associated with those savings. We required explanations in the EDCs’ annual reports pertaining to the calculation of low-income savings from participation in non-low-income residential programs. The SWE provided EDCs with a table in their annual report template for Phase II that was to be populated with the estimated savings and costs attributed to the savings, noting specifically that benefits and costs are estimates and are not be used for compliance purposes. We did not require a TRC Test for the low-income sector as no other sector has to calculate a TRC Test beyond the program level. We did require, however, that TRC Tests continue to be calculated for all low-income programs and all residential programs. We required that EDCs provide benefit and cost data for both low-income and estimated non-low-income residential program savings in their annual reports. We did not require a separate TRC Test calculation for the low-income sector. *See 2013 TRC Test Order* at 52-53. We have seen no reason to propose a change to this approach for Phase III.

1. **Benefits And Costs – Change Proposed**
2. **Avoided Transmission And Distribution Costs**
3. **Discussion**

During Phase I and Phase II, the Commission directed EDCs to use transmission prices, as set by FERC, and fully-loaded EDC distribution rates to monetize the reductions achieved by EE&C programs. Both of the values were set on an energy basis ($/MWh). *See 2013 TRC Test Order* at 33-34. As noted above, both KEEA and HPC suggest in their respective comments to the Secretarial Letter that changes be made to the way avoided costs are treated.

1. **Proposed Resolution**

The Commission is proposing a revision to the prior approach for several reasons. (1) Distribution rates include fixed costs such as taxes, land value for siting of infrastructure, and utility rate operations and rate of return. Many of these costs are not avoidable regardless of the magnitude of the energy reduction. Only the variable components of the distribution are avoidable through conservation. (2) Valuing transmission and distribution on an energy basis posits that there are no transmission and distribution benefits from demand response program which reduce system load during critical hours, but typically do not achieve any net energy savings over a program year.

For a potential Phase III, the Commission notes that the transmission and distribution (T&D) systems must be built to maintain reliability at the highest loads of the year. Growth in peak load is what drives avoidable T&D expenditures by Pennsylvania EDCs. Consequently, for a potential Phase III, the Commission proposes to use the T&D avoided costs ($/kW-year) calculated by the SWE. This will more closely reflect the factors that affect Pennsylvania EDCs. For Program Year 8 that starts on June 1, 2016, EDCs should use the starting values of T&D avoided costs per kW-year that are listed in Table 1-3 of the *Demand Response Potential Study*[[27]](#footnote-27) prepared for the Commission by the SWE.

1. **Incremental Measure Costs Data**
2. **Discussion**

An incremental measure costs analysis was conducted during Phase I to assist the Commission in the planning of Phase II. EDCs used the incremental cost figures and the assumptions articulated in their EE&C plans for the implementation of programs. For measure variants not included in the EDCs EE&E plans, EDCs used the California PUC’s Database for Energy Efficient Resources (DEER)[[28]](#footnote-28) as the primary source of cost data. The DEER database was also to be used to construct cost figures for measure variants and new measures. EDCs adjusted DEER cost values for regional and local conditions using appropriate cost multipliers. Such multipliers were to be clarified and included in the EDC’s annual report. Lastly, EDCs were permitted to use cost data from local retailers and suppliers if the California DEER database does not provide appropriate values. *See 2013 TRC Test Order* at 24-26.

In order to improve upon this process, the Commission directed the SWE to develop an incremental costs database to assist EDCs in their development of TRC test ratio calculations and to promote consistency in TRC test calculations. The incremental costs database was completed by the SWE on February 19, 2013. For Phase II, EDCs used the Pennsylvania specific measure costs database described above as an optional resource, given that the database for incremental measure costs was not complete. *See 2013 TRC Test Order* at 26.

We recognized that incremental measure costs data can be used for assessing future energy efficiency goals and the selection of future energy efficiency program. Additionally, the flexibility to use data from the DEER database could avail EDCs with the capability to use the most appropriate data possible. *See 2013 TRC Test Order* at 26.

1. **Proposed Resolution**

The Commission proposes that incremental measures costs data be defined the same in the proposed Phase III as they were for Phase II. EDCs would, however, have the flexibility to choose between values in the new SWE incremental costs database, adjusted values from the DEER database, or the values currently used for program planning and cost-effectiveness testing. Thus, for Phase III, an EDC could use DEER data even where there is already Pennsylvania-specific measure cost data available. EDCs would be expected to document, in their annual reports, the source of incremental measure costs data as well as document the reason for choosing that source. EDCs would not be able to switch between cost data sources for the same measure; once a source is chosen for valuing a particular measure, that source would be used throughout Phase III absent express recommendation by the SWE and express approval from the Commission for a change.

1. **Transmission, Distribution, And Capacity Costs**
2. **Discussion**

The TRC Test for Phase II provided that transmission prices, as set by the FERC, to the EDC zone, were included, as were EDC distribution rates. The 2013 TRC Test also permitted the inclusion of the PJM RTO’s RPM[[29]](#footnote-29) capacity price. For program years five through ten, the Commission permitted the use of the BLS Electric Power Generation Transmission Distribution (GTD) sector price index (BLS factor: NAICS[[30]](#footnote-30) 221110) as proxy rate for escalation of transmission, distribution, capacity, and ancillary service costs. For years in which the PJM capacity prices were not available up through year ten, the Commission approved the use of a 5-year rolling average of the BLS factor as the rate of escalation for transmission, distribution, capacity, and ancillary service costs, as a five year time period represents a significant sample of time. *See 2013 TRC Test Order* at 33.

Furthermore, the Commission directed all EDCs to use the rolling average BLS factor to escalate the PJM RPM capacity price, the transmission, distribution, and ancillary service costs in years eleven through fifteen. EDCs were instructed to use 60 months in their calculations. *See 2013 TRC Test Order* at 34.

Conducting the Phase III potential studies, the SWE, however, has noted that the resulting escalation factor is very sensitive to the start month and end month used in the calculation. The SWE has advised us that it would be beneficial to establish out exactly which month to start and end on for Phase III EE&C plan purposes.

1. **Proposed Resolution**

As noted above, for Phase III, the Commission has proposed to use the T&D avoided costs ($/kW-year) calculated by the SWE. The Commission also proposes that the 60-month calculation period for the BLS factor will begin in July 2010 and end in June 2015. The Commission proposes to continue to use the rolling average BLS factor to escalate the PJM RPM capacity prices in years four through twenty and to escalate the T&D costs in years two through twenty. This distinction in time spans is a clarification from prior TRC test orders.

Ancillary service costs have not been an avoided cost in previous phases. It is noted that prior TRC Test orders provided that EDCs also use the rolling average BLS factor to escalate their ancillary service costs. We have not seen any EDC address ancillary service costs in this fashion. In fact, we have not seen any EDC attempt to quantify or monetize avoided ancillary service costs in Phase I or Phase II. We, therefore, propose for clarity to eliminate this provision relative to ancillary service costs for Phase III.

1. **Locational, Temporal, And Zonal Differences**
2. **Discussion**

In Phase II, EDC zonal basis adjustments were to be made by using the proximate month EDC zone to PJM Western Hub ratios to adjust PJM Western Hub prices when specific zonal futures are not available, as described in Section C. However, if an EDC did not have the forwarded indicators, the EDC could use the historical basis adjustment methodology as used in Phase I. The basis adjustments to the natural gas prices were to be made in years five through fifteen. EDCs were directed to document in their EE&C Plans and in their annual reporting, which methodology was used and to provide sufficient explanation as to why a given method was chosen. *See 2013 TRC Test Order* at 35.

1. **Proposed Resolution**

For a potential Phase III, the Commission proposes to use the same zonal basis adjustment methodology but to extend the 15-year period to twenty years.

**VI. Net-To-Gross Adjustments – Change Proposed**

**A. Basis Of TRC Test Benefits**

**1. Discussion**

In Phase I and Phase II, EDCs were required to report verified gross savings and actual costs. Compliance calculations regarding TRC test benefits were based on “verified gross” kWh and kW electric savings and costs were based on “actual” costs. *See 2013 TRC Test Order* at 14. It has been suggested, however, that because EDCs use net savings for planning purposes, they should be required to also report net program saving.

**2. Proposed Resolution**

We have seen no need to change the requirement that EDCs report verified gross savings and actual costs. Compliance calculations regarding TRC test benefits would continue to be based on verified gross kWh and kW electric savings, and costs would continue to be based on actual costs for Phase III. We are proposing that EDCs report the net savings and how such savings are calculated. Thus, EDCs would report TRC test ratios in EE&C plans two ways: (1) Based on projected gross savings and (2) Based on projected net savings. We do not envision that this additional reporting of net program savings would impact the TRC Test for Phase III.

The parties are invited to comment at this docket on whether changes to the TRC Test would be required if this additional reporting provision is adopted for Phase III; comments relative to whether the additional reporting should be required are to be made at the *Phase III Implementation Order* docket. *See Phase III Implementation Order* at page 89 for a further discussion of this topic.

 In Phase III EDC Annual Reports, however, all TRC test ratios will continue to be based only on verified gross savings.

1. **Net-To-Gross (NTG) Adjustments To Savings**

This issue was considered within the context of the TRC test in Phase I and Phase II. For Phase II, the Commission mandated that EDCs calculate the NTG ratio as they did in Phase I and that they continue to use **net** verified savings in the TRC Test for program planning purposes. The Commission further mandated that compliance in Phase II would be determined using **gross** verified savings. *See Phase II Implementation Order* at 82.

The Commission recognizes that the use of NTG adjustments is an overarching policy issue that could be impactful of targets. Due to the implications for meeting targets, the Commission has decided in Phase III that the discussion of NTG should be included in the *Energy Efficiency and Conservation Program Tentative Implementation Order*, Docket No. M‑2014‑2424864. Therefore, any and all comments pertaining to NTG issues should be provided for that proceeding. If resolution of those issues would impact use of the 2016 TRC Test, we will subsequently call for comments in our further review of that impact.

1. **Inclusion Of Costs For Free Riders In TRC Test Calculations**
	1. **Discussion**

Free riders were ignored in the TRC Test for Phase I and Phase II because the basis was gross savings, not net savings (where “net” means “net of free riders.”) The Commission is aware that the inclusion of costs for incentives for free riders in the calculation of a TRC test was addressed by the California Public Utilities Commission in the *2007 Clarification Memo.*[[31]](#footnote-31) The *2007 Clarification Memo* clarified how incentives to free riders should be treated in a TRC test to address a free rider cost advantage to rebate programs relative to direct install programs. The clarification is that incentives for free riders should be treated as a cost. Comments raised by EDCs in Pennsylvania have noted that the calculation of the TRC test using net savings for direct installation programs, should exclude equipment costs attributable to free riders.

1. **Proposed Resolution**

The Commission does not plan to alter how the TRC Test using net savings is calculated for program planning purposes in Phase III. The SWE’s recently completed *EE Market Potential Study* for Phase III Act 129 does not take into account the 2007 Clarification Memo or other comments from EDCs on the application of equipment costs or incentives for free riders. The Commission, however, recognizes that this may put direct install programs at a disadvantage relative to rebate programs. We do propose, however, that EDCs be required to provide evidence of any such difference in their program filings, so that the Commission can consider whether direct install programs are disadvantaged.

**VII. Demand Response – Change Proposed**

**A. Inclusion Of Demand Response In Phase III**

The Commission excluded peak demand reduction targets for Phase II. As noted in the *Tentative Implementation Order* at Docket No. M-2012-2289411, the Commission’s interpretation of subsection (d)(2) of Act 129, 66 Pa. C.S. § 2806.1(d)(2), is that, in order to prescribe specific peak demand reduction targets for subsequent phases, demand response programs must be proven to be cost-effective.

The Commission has proposed in the Phase III Tentative Implementation Order to set peak demand reduction targets for the proposed five-year Phase III EE&C program period at Docket No. M-2014-2424864. Comments relative to whether DR requirements should be established for Phase III and what such requirements should be must be filed at that docket. This docket will address how the TRC Test will measure the cost-effectiveness of an EDC’s DR results should it be determined that DR requirements will be included in Phase III.

**B. TRC Test Benefits From Demand Response**

**1. Discussion**

Because there were no DR provisions in Phase II, the entirety of our discussion in this section is our proposed resolution regarding TRC test benefits from DR for Phase III.

**2. Proposed Resolution**

The peak demand reductions achieved by demand response programs in a potential Phase III of Act 129 must be monetized by EDCs for purposes of the TRC Test. The Commission proposes the following procedure based on the methodology used by the SWE in its *Demand Response Potential Study*.

The Phase III Implementation Order details a demand response program design which will result in a variable number of demand response dispatch hours each program year. For purposes of the 2016 TRC test, EDCs would average the gross verified demand reductions over each hour of performance and apply a line loss adjustment factor to estimate the magnitude of the peak demand reduced. This demand reduction value would be multiplied by either two or three avoided cost-of-capacity values depending on customer sector. According to the SWE, this is the appropriate way to estimate the economic effects of DR.

All peak demand reduction values will be multiplied by the avoided cost of generation capacity ($/kW-year for the Annual Product Type) for the delivery year as set by PJM’s Base Residual Auction. If an EDC elects to bid a program into PJM’s forward capacity market and have the program recognized as a wholesale resource, the actual revenue earned from the transaction should be used instead of a calculated value.

Peak demand reductions achieved by DR participation from all sectors should also be multiplied by an avoided cost of transmission capacity ($/kW-year) as calculated by the SWE and presented in the *Demand Response Potential Study*.

Peak demand reductions achieved by DR participation from the residential and commercial sectors should be multiplied by an avoided cost of distribution capacity ($/kW-year) as calculated by the SWE and presented in the *Demand Response Potential Study*. We propose to not include industrial customers who are excluded from this benefits calculation because many of these large accounts receive service at high voltage and largely bypass the distribution system. As such, peak demand reductions achieved by this sector are unlikely to avoid or defer load growth related investments in an EDC distribution system.

Energy impacts from demand response programs should also be considered in the TRC Test. The central question when valuing energy impacts from DR is whether or not the energy reduced during a demand response event is recovered in later hours or not. The *Demand Response Potential Study* assumed that each kWh reduced during a DR event was offset by an extra kWh used during an off-peak hour. Using this approach, the avoided cost of energy attributable to a DR program is equal to the kWh impact during event hours multiplied by the difference in the EDC’s on-peak and off-peak summer avoided cost of electricity for the program year.

**C. 75% Participant Cost Assumption**

**1. Discussion**

Because there were no DR provisions in Phase II, the entirety of our discussion in this section is our proposed resolution regarding participant cost assumptions for Phase III.

**2. Proposed Resolution**

Customer incentives in a demand response program are intended to compensate participants for the sacrifices they make to consume less electricity during peak periods. This can take the form of being less comfortable in the case of a residential Direct Load Control (DLC) program, or a disruption in production for a business that shuts down a manufacturing process. In recognition of this sacrifice, we have previously directed EDCs in Phase I to include the full incentive payment amount as a cost to the participant (as well as a benefit) as a monetary proxy for the participant costs. *See 2011 TRC Test Order* at 13-14.

Based upon informal input from stakeholders to the SWE as well as the SWE’s expertise, it appear that using 100% of incentive amount could be problematic and could yield skewed TRC Test results because it assumes that participation in a demand response program is a ‘break-even’ arrangement for the participant where the benefits are identical to the costs. In our experience, the customers are generally rational and would likely only participate in a program if they felt the benefits of participation outweighed the costs.

We are looking to the 75% participant cost assumption set forth in California’s 2010 DR Cost-Effectiveness Protocols[[32]](#footnote-32) as a potential solution. Under this protocol 75% of the customer incentive payment would be used as a proxy for the participant cost when calculating the TRC test ratio for demand response programs. We recognize that many EDCs will elect to use Conservation Service Providers (CSPs) to implement DR programs and that the exact incentive payment from the CSP to the participant will therefore be unknown. In this case, EDCs could use 75% of the payment amount to the CSPs as a cost in the TRC test.

The Commission proposes for a potential Phase III to adopt the 75% participant cost assumption set forth in California’s 2010 DR Cost-Effectiveness Protocols. Under this protocol 75% of the customer incentive payment will be used as a proxy for the participant cost when calculating the TRC test ratio for demand response programs. For EDCs that elect to use CSPs to implement DR programs when the exact incentive payment from the CSP to the participant is unknown, we would permit those EDCs to use 75% of the payment amount to the CSPs as a cost in the TRC test.

**D. Measure Life Of Demand Response Equipment**

**1. Discussion**

Because there were no DR provisions in Phase II, the entirety of our discussion in this section is our proposed resolution regarding measure life of DR equipment for Phase III.

**2. Proposed Resolution**

The 2011 TRC Test Order stated that all demand response measures were to be assigned a one-year effective useful life in the TRC Test. *See 2011 TRC Test Order* at 17-20. Based upon informal input from stakeholders to the SWE as well as the SWE’s expertise, it appears that this directive may underestimate the mechanical life of DLC equipment and lead to low TRC test ratios for DLC programs.

The *Demand Response Potential Study* utilized a 10-year effective useful life for DLC equipment; this long-term view provides the basis for decisions about the inclusion of demand response in Phase III of Act 129. We acknowledge that for DLC equipment, using a 10-year measure life is a more accurate value for use in the TRC Test, but, according to the SWE, this may create accounting challenges for EDCs within an Act 129 phase.

Distinguishing between demand response incentives and equipment could rectify such a situation even if incentive payments continue to utilize a one-year measure life in the TRC Test. We recognize that in order for load control equipment to be “useful,” an EDC or CSP typically must pay customers an incentive. This requires assumptions about the availability of funding beyond Phase III of Act 129.

According to the SWE, in order for load impacts from a DLC program to be valued in the TRC Test, two financial transactions are required. (1) The EDC must purchase or lease the equipment itself, and (2) The EDC or CSP must incent the customer for the right to modify equipment operation during DR event calls. The Commission, therefore, proposes that EDCs use only those load impacts for which both equipment and incentive costs have both been incurred when calculating TRC test benefits.

Although the mechanical life of DLC equipment may be 10 years, the SWE has opined that it is inappropriate to calculate load reduction benefits from future years during which no agreement exists between the EDC and a customer for control of the equipment. We propose, therefore, that peak demand reduction benefits from the applicable years should be included in the TRC Test only to the extent that multi-year or “lifetime” participation agreements are executed between EDCs and participating customers.

The Commission also proposes that EDCs that purchased DLC equipment in a previous phase should not include those costs in the TRC Test for Phase III as those expenses were accounted for as costs in a previous TRC Test and to consider them as TRC test costs again would be “double-counting”.

**E. Treatment Of DR Payments To CSPs And EDCs From PJM**

**1. Discussion**

Because there were no DR provisions in Phase II, the entirety of this section of this Tentative Order is our proposed resolution regarding treatment of DR payment to CSPs and EDCs from PJM in the TRC Test for Phase III.

**2. Proposed Resolution**

 The treatment of incentive payments and possible penalties from PJM to CSPs or from PJM to EDCs was addressed in the *2011 TRC Test Order*. EDCs were directed to ignore all charges, penalties, or payments resulting from participation in PJM’s wholesale markets. As discussed *supra*, the Commission is considering revision of this provision in the case where an EDC bids an Act 129 program into PJM’s forward capacity market. Rather than perform a calculation of the avoided cost of generation capacity, an EDC could use the actual revenue received from PJM for the cleared resource as benefits in the TRC test calculation. If an EDC allowed a CSP to bid the program into PJM as a wholesale resource on its behalf, all revenues received from the bid would still be returned to the customer sector contributing the load reduction and used as a benefit in the TRC test in place of an estimated avoided cost of generation capacity. *See 2011 TRC Test Order* at 8-13*.*

It is important to note that the SWE has subtracted projections of the DR commitments in PJM’s forward capacity market from its estimates of non-residential demand response potential. This netting-out of projected PJM DR commitments was in direct response to the Commission’s directive that the SWE “disallow dual participation when it performs its [Load Curtailment (LC)] analysis as part of its *Demand Response Potential Study*.”[[33]](#footnote-33) In light of the SWE’s potential estimates and the proposed instructions in Tentative Phase III Implementation Order at M‑2014-2424864, it would appear that this change would eliminate instances of a customer, or a CSP on a customer’s behalf, receiving incentives from both PJM and an EDC. DR targets for Phase III must be achieved by customers not concurrently committed as capacity resources in PJM’s forward capacity market to avoid double dipping.

For Phase III, we propose that charges, penalties, and payments from PJM to an EDC, or CSP on an EDC’s behalf, be included in the TRC Test as benefits or costs as appropriate. In order to prevent double-counting of benefits, this inclusion of actual financial transactions would be used in place of the avoided cost of generation capacity calculation method described previously in this Order for those Act 129 peak demand reductions not recognized by PJM as wholesale resources.

Similar to Phase II, we propose that all revenues from or costs incurred from an EDC bidding an Act 129 program into PJM’s wholesale markets be passed through to the customer class which contributed the load impact.

**VIII. Frequency Of Review Of TRC Test – New Topic**

**1. Discussion**

This will be a new provision so the entirety of discussion in this section is our proposed resolution regarding periodic or other review of the TRC Test.

**2. Proposed Resolution**

Several parties offered suggestions in their comments to the Secretarial Letter regarding reviewing the TRC Test.  EAP, First Energy, PECO, PPL, OCA, and the DR Supporters suggested once per phase at the beginning of the phase. Duquesne, HPC, Penn State, and the City urged more frequent reviews. The Industrials suggested that the SWE should determine when to review the TRC Test.

The Commission proposes that the 2016 TRC Test apply for the entirety of Phase III. This proceeding constitutes the initial review of the TRC Test for Phase III. Based on our experience with using a TRC test in Phase I and Phase II, we do not find that a fixed timeline for further review is necessary. Amending the TRC Test mid-phase could be detrimental to the determination of cost-effectiveness of the programs and could result in extensive EE&C Plan changes. Such changes could also interfere with comparisons between years within a phase. Reviews will be undertaken when warranted, and changes will be made only when justified during a phase.

**IX. New Matters – New Topics**

If a party wishes to raise TRC Test matters not designated herein for discussion, such matters should be raised at this point in responsive comments.

**X. TRC Test Formulae For Use In Pennsylvania – Minor Change**

 The definitions and formulae to be used in Pennsylvania-specific TRC testing are set forth in Appendix A to this order. The definitions and formulae were taken from the *California Manual* for use in Phase I and Phase II without further specific attribution or indications of modification. *See 2013 TRC Test Order* Appendix. Some new definitions have been proposed but the formulae would remain the same.

**XI. Conclusion**

With this Tentative Order, the Commission seeks comments and reply comments on the proposed TRC Test for Phase III. This Tentative Order represents the Commission’s efforts to establish a comprehensive TRC test with the purpose of evaluating the EE&C Programs pursuant to Act 129 during the proposed Phase III. Comments and reply comments to this Tentative Order should reflect the topical numbering references as used herein. If your comments or reply comments do not address a particular topic, please include the notation that that you are not commenting on that particular topic. If you are raising new topics, please do so after you have addressed the topics raised in this Tentative Order.

Parties only need to file comments at the respective dockets. That is, parties shall not file comments or reply comments to this Tentative Order at Docket No. M‑2014‑2424864, parties shall not file comments or reply comments relative to Docket No. M-2014-2424864 at this docket. Parties must file separate comments to the specific docket. This Tentative Order and filed comments will be made available to the public on the Commission’s Act 129 Information web page[[34]](#footnote-34); **THEREFORE,**

**IT IS ORDERED:**

1. That a copy of this Tentative Order be served on the Office of Consumer Advocate, the Office of Small Business Advocate, the Commission’s Bureau of Investigation and Enforcement, the jurisdictional electric distribution companies subject to the Energy Efficiency and Conservation Program requirements, and all parties of record at this docket; at *Act 129 Phase III Implementation*; Docket No. M‑2014‑2424864; and at *2013 TRC Test Order*, Docket No. M‑2012-2300653.

 2. That the Secretary shall deposit a notice of this Tentative Order with the Legislative Reference Bureau for publication in the *Pennsylvania Bulletin*.

 3. That interested parties shall have thirty (30) days from the date the notice is published in the *Pennsylvania Bulletin* to file written comments referencing Docket No. M-2015-2468992 with the Pennsylvania Public Utility Commission, Attention: Secretary, P.O. Box 3265, Harrisburg, PA 17105-3265. Comments may alternatively be filed electronically through the Commission’s e-File System.

 4. That interested parties shall have forty-five (45) days from the date the notice is published in the *Pennsylvania Bulletin* to file written reply comments referencing Docket No. M-2015-2468992 with the Pennsylvania Public Utility Commission, Attention: Secretary, P.O. Box 3265, Harrisburg, PA 17105-3265. Reply comments may alternatively be filed electronically through the Commission’s e-File System.

 5. That parties shall not file comments or reply comments to this Tentative Order at Docket No. M-2014-2424864 and that parties shall not file comments or reply comments relative to Docket No. M-2014-2424864 at this docket.

 6. That this Tentative Order be published on the Commission’s website at <http://www.puc.pa.gov/filing_resources/issues_laws_regulations/act_129_information/energy_efficiency_and_conservation_ee_c_program.aspx>.

 7. That comments and reply comments in Microsoft Word®-compatible format be electronically mailed to Scott Gebhardt at sgebhardt@pa.gov and to Louise Fink Smith at finksmith@pa.gov. Attachments may not exceed three (3) megabytes.

8. That the contact person for technical issues related to this Tentative Order and the proposed 2016 Total Resource Cost Test for Phase III of Act 129 is Scott Gebhardt, Bureau of Technical Utility Services, 717-425-2860 or sgebhardt@pa.gov. The contact person for legal and process issues related to this Tentative Order and the proposed 2016 Total Resource Cost Test for Phase III of Act 129 is Louise Fink Smith, Law Bureau, 717‑787‑5000 or finksmith@pa.gov.

**BY THE COMMISSION**

Rosemary Chiavetta

Secretary

(SEAL)

ORDER ADOPTED: March 11, 2015

ORDER ENTERED: **March 11, 2015**

**Appendix A**

The definitions and formulae to be used for the

Pennsylvania-specific 2016 TRC Test, consistent with Act 129 of 2008,

are set forth in this Appendix.

The definitions and formulae in this Appendix are adapted from

pages 10 – 12, 15-17, and 22 of the

2002 *California Standard Practice Manual* (CA SPM)[[35]](#footnote-35)

without further specific attribution.

**TRC Formulae**

The formulae for the net present value (NPVTRC), the benefit/cost ratio (BCRTRC), and the levelized costs (LCTRC) are:

|  |  |  |
| --- | --- | --- |
| NPVTRC | = | BTRC – CTRC |
| BCRTRC | = | BTRC/CTRC |
| LCTRC | = | LCRC/IMP |

The BTRC, CTRC, LCRC, and IMP terms are defined as follows. The first summation in the BTRC equation should be used for conservation and load management programs. For fuel substitution programs, both the first and second summations should be used.

$$B\_{TRC}= \sum\_{t=1}^{N}\frac{UAC\_{t}+ TC\_{t}}{\left(1+d\right)^{t-1}}+ \sum\_{t=1}^{N}\frac{UAC\_{at}+ PAC\_{at}}{\left(1+d\right)^{t-1}}$$

$$ C\_{TRC } = \sum\_{t=1}^{N}\frac{PRC\_{t}+ PCN\_{t}+ UIC\_{t}}{\left(1+d\right)^{t-1}} $$

$$LCRC= \sum\_{t=1}^{N}\frac{PRC\_{t}+PCN\_{t}- TC\_{t}}{\left(1+d\right)^{t-1}}$$

$$IMP= \frac{\sum\_{t=1}^{n}\left[\left(\sum\_{i=1}^{n}∆EN\_{it}\right) or (∆DN\_{it} where I=peak period) \right]}{\left(1+d\right)^{t-1}}$$

The utility avoided cost terms (UACt, UICt, ,and UACat) are determined by costing period to reflect time-variant costs of supply:

$$UAC\_{t}= \sum\_{i=1}^{I}\left(∆EN\_{it} × MC:E\_{it} ×K\_{it}\right)+ \sum\_{i=1}^{I}\left(∆DN\_{it} × MC:D\_{it} × K\_{it}\right)$$

|  |  |  |
| --- | --- | --- |
| *UACat* | = | Use *UACt* formula but with marginal costs and costing periods appropriate for the alternate fuel utility. |

$$UIC\_{t}= \sum\_{i=1}^{I}\left(∆EN\_{it} × MC:E\_{it} ×(K\_{it}- 1)\right)+ \sum\_{i=1}^{I}\left(∆DN\_{it} × MC:D\_{it} ×(K\_{it}- 1)\right)$$

**Glossary of Terms**

|  |  |  |
| --- | --- | --- |
| ∆DNit |  | Reduction in net demand in costing period *i* in year *t* |
| ∆ENit |  | Reduction in net energy use in costing period *i* in year *t* |
| BCRTRC | = | Benefit/cost ratio of total costs of the resource |
| BTRC | = | Benefits of the program |
| CTRC | = | Costs of the program |
| D | = | Interest rate (discount) |
| E | =  | Discounted stream of system energy sales (kWh or therms) or demand sales (kW) for first year customers.  |
| Et | = | System sales in kWh, kW, or therms for first year customers |
| I | = | Number of periods of a participant’s participation |
| IMP | = | Total discounted lead impacts of the program |
| Kit | = | 1 when ∆EGit or ∆DGit is positive (*i.e.*, a reduction) in costing period *i* in year *t*, and 0 (zero) otherwise |
| LCRC | = | Total resource costs used for levelizing |
| LCTRC | = | Levelized cost per unit of the total cost of the resource (cents/kWh for conservation programs; $/kWh for load management programs) |
| MC:Dit |  | Marginal cost of demand in costing period *i* in year *t* |
| MC:Eit |  | Marginal cost of energy in costing period *i* in year *t* |
| NPVTRC | = | Net present value of total costs of the resource |
| PACat | = | Participant avoided costs in year t for the alternate fuel devices (*i.e.*, costs of devices not chosen) |
| PCN | = | Net participant costs; in PA, the costs of the end-user customer (participating or non-participating) |
| PRCt | = | Program administrator costs in year *t*; in PA, the EDC is the program administrator |
| TCt | = | Tax credits year t |
| UACat | = | Utility avoided supply costs for the alternate fuel in year *t* |
| UACt | = | Utility avoided supply costs in year *t* |
| UICt | = | Utility increased supply costs in year *t* |

**Appendix B[[36]](#footnote-36)**

**List of Acronyms**

AEO: Annual Energy Outlook

B/C: Benefit/Cost

California Manual: 2002 California Standard Practice Manual

CFL: Compact Fluorescent Light bulb

CSP: Conservation Service Providers

DR: Demand Response

EDC: Electric Distribution Company

EE: Energy Efficiency

EE&C: Energy Efficiency and Conservation

EIA: Energy Information Administration

EM&V: Evaluation, Measurement, and Verification

FSWG: Fuel Switching Working Group

NPV: Net Present Value

NTG: Net-to-Gross

Phase I: Act 129 requirements from June 1, 2009, through May 31, 2013

Phase II: Act 129 requirements from June 1, 2013, through May 31, 2016

Phase III: Act 129 requirement from June 1, 2016, through May 31, 2021

PJM: The regional transmission organization (RTO) covering, *inter alia*, Pennsylvania

PUC: Public Utility Commission

RTO: Regional Transmission Organization

SWE: Statewide Evaluator

TRC: Total Resource Cost

1. *See* Docket No. M-2009-2108601 for an extended history of Phase I (*Phase I Implementation Order*); Docket No. M-2012-2300653 for an extended history of Phase II (*Phase II Implementation Order*), and Docket No. M-2014-2424864 for an extended history of Phase III (*Phase III Tentative Implementation Order).* [↑](#footnote-ref-1)
2. After 2013, the Commission has the option to determine what test to use. 66 Pa. C.S. § 2806.1(m). [↑](#footnote-ref-2)
3. Section 2806.1(c)(3) provides that, based on a review to be concluded by November 30, 2013, if “the commission determines that the benefits of the program exceed the costs, the commission shall adopt additional incremental reductions in consumption.” Section 2806.1(d)(2) provides that, based on a review to be concluded by November 30, 2013, if “the commission determines that the benefits of the plans exceed the costs, the commission shall set additional incremental requirements for reduction in peak demand for the 100 hours of greatest demand or an alternative reduction approved by the Commission.” [↑](#footnote-ref-3)
4. 4 The SWE is a team of technical consultants. For a further description of the SWE and the process used to select the SWE, see the *Act 129 Phase III Implementation* docket. [↑](#footnote-ref-4)
5. Act 129 sets a limit on the cost of an EDC’s EE&C plan at 2% of the EDC’s annual revenue as of December 31, 2006. *See* 66 Pa. C.S. § 2806.1(g). [↑](#footnote-ref-5)
6. *See* <http://www.puc.pa.gov/pcdocs/1345079.pdf>. The *EE Potential Study* is dated February 2015 and was released February 27, 2015. [↑](#footnote-ref-6)
7. *See* <http://www.puc.pa.gov///pcdocs/1321846.docx>. [↑](#footnote-ref-7)
8. *See* <http://www.puc.state.pa.us/filing_resources/issues_laws_regulations/act_129_information/act_129_statewide_evaluator_swe_.aspx>. The *DR Potential Study* is dated February 25, 2015, and was released February 27, 2015. [↑](#footnote-ref-8)
9. *The California Standard Practice Manual – Economic Analysis of Demand‑Side Programs and Projects*, July 2002, p. 18. *See* <http://www.calmac.org/events/SPM_9_20_02.pdf>. [↑](#footnote-ref-9)
10. [http://www.puc.pa.gov//pcdocs/1321846.docx](http://www.puc.pa.gov/pcdocs/1321846.docx). [↑](#footnote-ref-10)
11. We note that any issue that we do not specifically address herein has been duly considered and may be denied without further discussion in a final order at this docket. It is well settled that we are not required to consider expressly or at length each contention or argument raised by a party. [Conrail v. Pa. PUC, 625 A.2d 741 (Cmwlth. Ct., 1993);](file://C:\research\buttonTFLink?_m=69761b6202cb4178e2a6e6fe02f5751b&_xfercite=%3ccite%20cc=%22USA%22%3e%3c!%5bCDATA%5b2000%20Pa.%20PUC%20LEXIS%2067%20%5d%5d%3e%3c\cite%3e&_butType=3&_butStat=242&_butNum=5&_butInline=1&_butinfo=%3ccite%20cc=%22USA%22%3e%3c!%5bCDATA%5b625%20A.2d%20741%5d%5d%3e%3c\cite%3e&_fmtstr=FULL&docnum=5&_startdoc=1&_startchk=1&wchp=dGLSzS-lSlbz&_md5=ad2b02d95c2a9216e83b92a3570d4785) see also, generally, [U. of Pa. v. Pa. PUC, 485 A.2d 1217 (Cmwlth. Ct., 1984).](file://C:\research\buttonTFLink?_m=69761b6202cb4178e2a6e6fe02f5751b&_xfercite=%3ccite%20cc=%22USA%22%3e%3c!%5bCDATA%5b2000%20Pa.%20PUC%20LEXIS%2067%20%5d%5d%3e%3c\cite%3e&_butType=3&_butStat=242&_butNum=6&_butInline=1&_butinfo=%3ccite%20cc=%22USA%22%3e%3c!%5bCDATA%5b485%20A.2d%201217%5d%5d%3e%3c\cite%3e&_fmtstr=FULL&docnum=5&_startdoc=1&_startchk=1&wchp=dGLSzS-lSlbz&_md5=9b1cc8319afd12440738bb82d74455ef) [↑](#footnote-ref-11)
12. In this regard, we note that the 2016 TRC Test, as proposed, would continue to use the incremental measure costs of services and equipment. This matter is discussed in more detail below in the segment addressing incentive payments from an EDC. [↑](#footnote-ref-12)
13. *See* the Appendix of this order. *See*, *also*, *California Manual* (at 18‑19) for the underlying methodology to calculate the NPV and B/C ratio of the TRC test. [↑](#footnote-ref-13)
14. *See* National Action Plan for Energy Efficiency (2008). *Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers*. Energy and Environmental Economics, Inc. and Regulatory Assistance Project. [www.epa.gov/eeactionplan](http://www.epa.gov/eeactionplan). *See* *Phase II Implementation Order* at 81. [↑](#footnote-ref-14)
15. After November 30, 2013, and every five years thereafter, the Commission is to evaluate the costs and benefits of the EE&C program established under Section 2806.1(a) and of the approved EE&C plans using a TRC test or a benefit/cost analysis of the Commission’s determination. 66 Pa. C.S. § 2806.1(c)(3). [↑](#footnote-ref-15)
16. *See Phase III Secretarial Letter* at page 8. [↑](#footnote-ref-16)
17. KEEA is a 501(c)(6) corporation “dedicated to promoting the energy efficiency and renewable energy industries in Pennsylvania.” KEEA SL Comments at 1. [↑](#footnote-ref-17)
18. KEEA did not provide a citation to these newly developed “best-practice guidelines.” [↑](#footnote-ref-18)
19. KEEA mentions Maryland, Arkansas, and New York as having recently modified the way they use the TRC test. KEEA also asserts that Massachusetts and Rhode Island incorporate avoided energy costs and the non-energy impacts into their energy efficiency cost-effectiveness screenings using the TRC test. [↑](#footnote-ref-19)
20. KEEA did not provide further citation. [↑](#footnote-ref-20)
21. KEEA provided this link to the NEEP document: <http://www.neep.org/sites/default/files/resources/Forum_C-E_Screening_Guidelines_Final_No_2014.pdf>. [↑](#footnote-ref-21)
22. KEEA asserts that some utilities are currently adjusting the costs for such programs in their TRC Test calculations but does not identify the utilities. KEEA asserts that the failure to count all participant costs and all monetized participant benefits distorts symmetry between benefits and costs. [↑](#footnote-ref-22)
23. Act 129 limits the “effective life of each plan” to 15 years of less. 66 Pa. C.S. § 2806.1(m), defining “TRC test.” [↑](#footnote-ref-23)
24. Citizen Power Inc. (Citizen Power), during the 2013 TRC Test proceeding, requested that we change the definition of “incremental costs” for replacement of functioning devices. Previously, the cost for replacing functioning devices was the full cost of the device including installation costs. Citizen Power advocated for a distinction between early replacement of functioning devices and retrofit of functioning devices. Citizen Power opined that the incremental cost of early replacement measures should be the present value of the efficient device (plus installation costs) minus the present value of the standard device (plus installation costs), asserting that this approach would recognize the remaining value in the replaced device and thus incentivize the adoption of early replacement measures. We allowed EDCs to select this as an alternate method. *See 2013 TRC Test Order* at 23. [↑](#footnote-ref-24)
25. The technical working group would be comprised of representatives from EDCs, Commission staff, and other interested entities for the purpose of encouraging discussion of technical issues related to the evaluation, measurement, and verification of savings programs to be implemented pursuant to Act 129. [↑](#footnote-ref-25)
26. *See* 73 P.S. §§ 1648.1 – 1648.8 and 66 Pa. C.S. § 2814. [↑](#footnote-ref-26)
27. *See* <http://www.puc.pa.gov/filing_resources/issues_laws_regulations/act_129_information/act_129_statewide_evaluator_swe_.aspx>, dated February 25, 2015, and released February 27, 2015. [↑](#footnote-ref-27)
28. *See* <http://www.energy.ca.gov/deer/>. [↑](#footnote-ref-28)
29. PJM (the regional transmission organization covering Pennsylvania) Regional Transmission Organization’s (RTO) Reliability Pricing Model. [↑](#footnote-ref-29)
30. North American Industry Classification System. [↑](#footnote-ref-30)
31. SPM 2007 Clarification Memo From D.07-09-043; *see* <http://www.cpuc.ca.gov/NR/rdonlyres/A7C97EB0-48FA-4F05-9F3D-4934512FEDEA/0/2007SPMClarificationMemo.doc>. [↑](#footnote-ref-31)
32. *See* [http://www.cpuc.ca.gov/PUC/energy/Demand+Response/Cost-Effectiveness.htm](http://www.cpuc.ca.gov/PUC/energy/Demand%2BResponse/Cost-Effectiveness.htm). [↑](#footnote-ref-32)
33. *See Final Order on Act 129 SWE to Perform a Demand Response Potential Study* at 57. [↑](#footnote-ref-33)
34. <http://www.puc.state.pa.us/electric/Act_129_info.aspx>. [↑](#footnote-ref-34)
35. *The California Standard Practice Manual – Economic Analysis of Demand‑Side Programs and Projects*, July 2002, p. 18. *See* <http://www.calmac.org/events/SPM_9_20_02.pdf>. [↑](#footnote-ref-35)
36. The “highlighted” notations on this page indicate the proposed changes from the *2013 TRC Test Order* that would be reflected in a final order at this docket. [↑](#footnote-ref-36)