



Act 129 Update

Association of Energy Engineers
Central Pennsylvania Chapter
PUC Chairman James H. Cawley
January 21, 2010

Act 129 of 2008 Highlights

- Signed into law Oct. 15, 2008 (effective Nov. 14, 2008).
- Addresses 5 subjects re electricity:
 - Energy Efficiency & Conservation
 - “Smart” meter deployment
 - Default supply procurement of electricity
 - Amends AEPS Act to increase Tier 1 %s
 - Creates carbon sequestration network



Energy Efficiency & Conservation

- Act creates an Energy Efficiency & Conservation Program overseen by the PUC.
- Requires Electric Distribution Companies (EDCs) with at least 100,000 customers to adopt & implement cost-effective energy efficiency & conservation plans to reduce energy demand & consumption.

EE&C Plans and Base Lines

- EDC plans were filed with the PUC by July 1, 2009; PUC approved plans by November 1, 2009, but with modifications. Refiled plans will be approved next month and program implementation will begin soon thereafter.
- EDC plans must **reduce electric consumption** relative to the baseline period from June 1, 2009 to May 31, 2010.
- EDC plans must **reduce peak demand** relative to the baseline period from June 1, 2007 to May 31, 2008.

Overall Usage Reduction Goals

Mandated reductions in retail electricity consumption:



10%

- 1% by June 2011
- 3% by June 2013
- 10% of usage reductions must come from “units of federal, state and local government, including municipalities, school districts, institutions of higher education and nonprofit entities.”

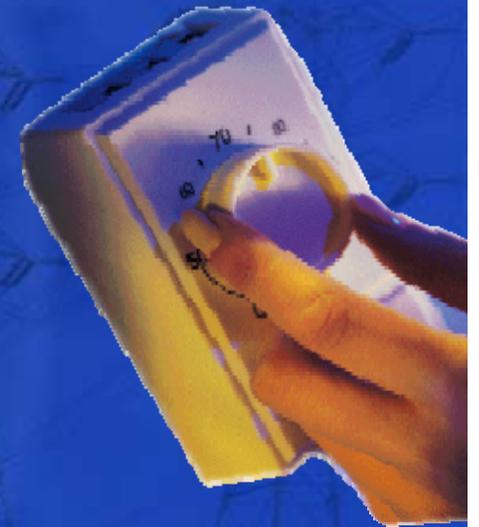


3%

Peak Demand Reduction Goal

Mandated reductions in “peak demand”
in 100 highest annual peak consumption
hours:

- 4.5% by June 2013



Implementation

- EDCs were required to:
 - Submit consumption forecast and average peak load data – for measuring reductions
 - Contract with at least one Conservation Service Provider (CSP) through a competitive bidding process

Implementation

- EE&C plans included:
 - How quality assurance and performance will be measured, verified, and evaluated
 - Estimated costs of implementing EE&C measures
 - Specific measures for households at or below 150% of federal poverty income guidelines

Implementation

- EE&C plans included, cont.:
 - Proposed cost-recovery mechanism in accordance with Section 1307 of the Public Utility Code
 - Demonstration of cost effectiveness of the plan through a PUC approved Total Resource Cost test
 - Description of how annual independent evaluation of cost effectiveness will be accomplished

EE&C Measures

- “Energy Efficiency and Conservation Measures” defined by Act 129:
 - Solar/solar photovoltaic panels
 - Energy efficient windows and doors
 - Energy efficient lighting
 - Geothermal heating
 - Insulation
 - Air sealing
 - Reflective roof coatings
 - Energy efficient heating and cooling equipment/systems
 - Energy efficient appliances
 - Other technologies, practices or measures approved by the Commission.

Cost

EDC Program Budgets

- The total cost of any plan shall not exceed 2% of the EDC's total annual revenue as of December 31, 2006.
- Total annual budgets for all seven major EDCs are estimated to be a maximum of \$240 million annually.

Possible Penalties

- Penalties of up to \$20 million on EDCs for failure to achieve mandated reductions.
- PUC may take over and hire experts to achieve the reductions.

Verification

- Utility compliance with Act 129 requirements verified by independent statewide evaluator using the Total Resource Cost test.
- Commission hired GDS Associates, Inc.
- GDS will monitor and verify data collection, quality assurance and the results of each EDC Program annually.
- Commission has approved a **Technical Resource Manual and TRC manual** to quantify and verify EDC compliance.



Act 129 of 2008 Highlights – The Future

- EDCs must monitor their programs and make annual adjustments as appropriate. EDC plans must not be static.
- Commission must submit a 5-year plan by November 30, 2013 which provides for the establishment of further energy efficiency and demand side requirements applicable after May 31, 2013, that pass the TRC Test.
- The statewide evaluator must assist in this analysis.
- Commission must continue this 5-year planning process every 5 years thereafter.



Act 129 of 2008 - Smart Meters

- Each EDC must file plans to replace all of its meters over the next 15 years (or sooner upon an individual customer's request and payment of cost, and on all new construction).
- New meters must be capable of “bidirectional communication,” i.e., capable of allowing EDCs to measure usage on at least an hourly basis and to communicate consumption and energy price to the customer.
- EDCs must offer optional time-of-use and real time rates to all customers on a voluntary basis.



Act 129 of 2008 - Smart Meters

- Smart Meter compliance plans were filed by August 14, 2009.
- Comments were due by September 25, 2009.
- Technical conferences were held in October 2009.
- Evidentiary hearings were held in November 2009.
- Initial Decisions anticipated by January 29, 2010.
- Network development and installation grace period of 30 months allowed following plan approval.
- Interval meters shall be available to customers during the grace period.



Act 129 of 2008 - Smart Meters

- Bi-directional communications
- At least hourly data recorded at least daily
- Direct consumer access to usage and price data
- Provide consumers with hourly usage information – 48 hour maximum delay for verified hourly usage data.
- Enable TOU and RTP
- Support automated control of electric consumption
- Meter upgrade capability
- Remote connect & disconnect
- Support 15 minute or shorter interval usage data.
- On board meter storage of data that complies with nationally recognized non-proprietary standards
- Open standards and protocols
- Monitor meter voltage
- Remote upgrade capability
- Communicate outages and service restoration
- Support Net Metering



Act 129 of 2008

PUC Implementation Orders

- PUC adopted Implementation Order: Energy Efficiency & Conservation Program on January 15, 2009;
<http://www.puc.state.pa.us/general/search.aspx>
- For further Act 129 developments, log onto the PUC website at www.puc.state.pa.us -- click on "Electricity" then "Act 129 Information"

Act 129 of 2008

- Currently reviewing:
 - EDC Energy Efficiency and Conservation Program compliance filings (final orders: February 2010)
 - Time-of-Use and Real-Time pricing plans
 - Smart meter implementation plans
- Working Groups to clarify/resolve:
 - Requirements for Low Income Customers
 - Fuel Switching Program issues
- Establishing uniform reporting requirements to verify EDC energy saving claims



Appendix

PUC Implementation Order Energy Efficiency and Conservation Program

Docket No. M-2008-2069887

Order Entered January 16, 2009



PUC Implementation Order

- Act 129 set forth a long list of requirements for what the PUC's Energy Efficiency and Conservation ("EE&C") program must include. See 66 Pa. C.S. § 2806.1(A)(1)-2806.1(A)(11).
- The PUC's Implementation Order describes the requirements of these eleven subsections.
- Note: "Program" as used in Act 129 and the PUC's Implementation Order refers to PUC's EE&C obligation; "Plan" refers to obligation of each EDC subject to Act 129.



PUC Implementation Order – § 2806.1(A)(1) Procedures for Approval of EE&C Plans

- Act 129 requires the Commission to establish procedures for approval of the Energy Efficiency and Conservation (EE&C) plans that each Electric Distribution Company (EDC) must submit to the PUC by July 1, 2009.
- Baseline for measuring consumption (from which to achieve a 1% reduction by May 31, 2011 and 3% by May 31, 2013)
 - EDC's expected consumption as forecasted by PUC for June 1, 2009–May 31, 2010. By February 9, 2009, EDCs must submit a consumption forecast to the PUC for June 1, 2009-May 31, 2010. Order at 8. PUC will use this information to issue a final forecast.



PUC Implementation Order – § 2806.1(A)(1) Procedures for Approval of EE&C Plans

- Baseline for measuring peak demand (from which to achieve a 4.5% reduction by May 31, 2013)
 - EDC's historical peak load for June 1, 2007-May 31, 2008. Implementation Order at 9.
 - Each EDC must therefore file its hourly peak load data
 - in megawatts (MW) for June 1, 2007-May 31, 2008;
 - average of hourly peak loads for the 100 hours of highest load for June 1, 2007-May 31, 2008; and
 - average hourly peak loads for 100 hours of highest load for June 1, 2007-September 30, 2007.



PUC Implementation Order – § 2806.1(A)(1) Procedures for Approval of EE&C Plans

- Act 129 requires each EDC to plan to contract with at least one Conservation Service Provider (CSP), that may manage/perform some or all of the EE&C plan. Order at 9-10.
 - Competitive bidding process. Implementation Order at 9.
 - EDCs to file proposed RFP procedures with PUC by March 1, 2009.



PUC Implementation Order – § 2806.1(A)(1)

Procedures for Approval of EE&C Plans

- Formal approval process, but can evolve. Order at 10.
 - Informal collaborative : EDCs required to discuss with statutory advocates and interested stakeholders prior to filing EE&C plan. Order at 10.
 - PUC will give notice of each plan’s filing via Pennsylvania Bulletin and website, allowing for an answer, comments, and recommendations within 20 days of publication of notice in the PA Bulletin. Order at 12.
 - ALJ will establish schedule for discovery and public input hearings and evidentiary hearings
 - Hearings to conclude by 65 days of filing date
 - Briefs within 10 days of hearings
 - EDC has 10 days to submit either or both a revised plan or reply comments.
 - Record certified by ALJ to PUC
 - PUC to approve/reject all or part of plan at Public Meeting within 120 days of EDC’s filing.

Order at 12.



PUC Implementation Order – § 2806.1(A)(1) Procedures for Approval of EE&C Plans

- In addition to Act 129 requirements, the PUC has a long list of what the EE&C plans must include, including:
 - How quality assurance and performance will be measured, verified, and evaluated
 - Estimated costs of implementing EE&C measures
 - Specific measures for households at or below 150% of federal poverty income guidelines
 - Proposed cost-recovery mechanism in accordance with Section 1307 of the Public Utility Code
 - Demonstration of cost effectiveness of the plan through a PUC approved total resource cost test
 - Description of how annual independent evaluation of cost effectiveness will be accomplished and review of results of the 5 year plan and resulting adjustments based upon plan evaluation Order at 11, n.5.



PUC Implementation Order – § 2806.1(A)(2) Procedures for Approval of EE&C Plans

- Evaluating EE&C Plan Effectiveness
 - PUC will use Technical Reference Manual (“TRM”), which was previously adopted by PUC in implementing the Alternative Energy Portfolio Standards Act at Docket M-00051865.
 - TRM to expand to provide for additional energy efficient technologies. Order at 13.



PUC Implementation Order – § 2806.1(A)(3)

Analysis of Cost and Benefit: Total Resource Cost (TRC) Test

- Act 129 requires that the cost and benefit analysis be conducted in accordance with the TRC approved by the PUC.
 - PUC generally adopts the TRC test of The California Standard Practice Manual – Economic Analysis of Demand-Side Programs and Projects (July 2002) at 18. Order at 14-15.
 - Considers effects of program on both participating and non-participating customers
 - Will include calculation of net program savings compared to absence of the program via avoided supply costs: transmission, distribution, generation, capacity (valued at marginal cost for periods when there is a consumption reduction).
 - Cost calculation to include program costs of utility and participants
 - Note: Broader “Societal Test” would include environmental costs. PA PUC would only allow environmental costs that are reflected in monetary costs of generation.

Order at 15-16.



PUC Implementation Order – § 2806.1(A)(3)

Analysis of Cost and Benefit: Total Resource Cost (TRC) Test

- TRC to be expressed as a net present value and a benefit cost ratio. Implementation Order at 16.
 - TRC test is 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. Section 2806.1(m).
 - Net present value
 - The discounted value of the net benefits over a specific period. Implementation Order at 16.
 - Also a measure of change in TRC due to the EE&C program. Implementation Order at 16.
 - The discount rate to calculate the net present value will be each EDC’s post-tax weighted average cost of capital. Implementation Order at 16.
 - Benefit-cost ratio
 - Ratio of discounted total benefits of program to the discounted total costs over a certain period. Implementation Order at 16.
 - Indicates the rate of return of the program to the utility and ratepayers. Implementation Order at 16.
 - Above 1 = beneficial to utility and ratepayers on TRC basis
 - Methodology: see California Manual, pp. 18-19.



PUC Implementation Order – § 2806.1(A)(4) Analysis of How Program as Whole and Individual Plans Can Meet or Exceed Consumption Reduction Requirements of § 2806.1(C) and § 2806.1(D)

- § § 2806.1(C)(1)- 2806.1(C)(2) requirements:
 - Reduce the total annual weather-normalized consumption of each EDC's retail customers.
 - Reduction \geq 1% by May 2011. § 2806.1(C)(1).
 - Reduction \geq 3% by May 31, 2013. § 2806.1(C)(2).
 - Reductions measured against forecast of each EDC's expected load for June 1, 2009-May 31, 2010.
 - Forecast shall provide adjustments for weather and extraordinary loads.



**PUC Implementation Order – § 2806.1(A)(4)
Analysis of How Program as Whole and Individual Plans Can Meet or
Exceed Consumption Reduction Requirements of
§ 2806.1(C) and § 2806.1(D)**

- § 2806.1(C)(3) Requires cost/benefit evaluations
 - PUC must evaluate cost and benefit of PUC’s EE&C program and the approved EE&C plans of the EDCs.
 - If benefits exceed costs, PUC must “adopt additional required incremental reductions in consumption” after 2013. 66 Pa. C.S. § 2806.1(C)(3).



PUC Implementation Order – § 2806.1(A)(4) Analysis of How Program as Whole and Individual Plans Can Meet or Exceed Consumption Reduction Requirements of § 2806.1(C) and § 2806.1(D)

- PUC adopted the Savings Approach (vs. absolute reduction approach) to measure annual **consumption reductions** required by Section 2806.1(C).
 - Requires each EDC to show its EE&C plan achieves a percentage of conservation measured against its forecasted consumption
 - Conservation of 1%, for year ending May 31, 2011
 - Conservation of 3%, for year ending May 31, 2013.
 - Uses TRM’s “deemed savings” approach
 - Already accounts for extraordinary weather or loads; no additional weather-normalization for target year needed.

Order at 18-19.



PUC Implementation Order – § 2806.1(A)(4) Analysis of How Program as Whole and Individual Plans Can Meet or Exceed Consumption Reduction Requirements of § 2806.1(C) and § 2806.1(D)

- § 2806.1(D) specifies the required demand reductions
 - Reduce the weather-normalized demand of each EDC's retail customers. § 2806.1(D)(1).
 - Reduction \geq 4.5% of annual system peak demand, in the 100 hours of highest demand, by May 2013. § 2806.1(D)(1).
 - To be measured against EDC's peak demand for June 1, 2007-May 31, 2008.
 - PUC shall compare total costs of EE&C plans to total savings in energy and capacity costs to PA retail customers, or other PUC-determined costs. § 2806.1(D)(2).
 - If benefits exceed costs, PUC shall set additional or alternative reduction requirements to be accomplished by May 31, 2017:
 - Set additional incremental requirements to reduction in peak demand for 100 hours of greatest demand; or
 - Set an alternative reduction requirement.
 - Reductions to be measured from EDC's peak demand for June 1-2011 – May 31, 2012.



PUC Implementation Order – § 2806.1(A)(4) Analysis of How Program as Whole and Individual Plans Can Meet or Exceed Consumption Reduction Requirements of § 2806.1(C) and § 2806.1(D)

- As in the case of measuring annual consumption reductions required by § 2806.1(C), the PUC adopted the Savings Approach to measuring whether **demand reduction** requirement of § 2806.1(D) is met by EDCs. Implementation Order at 19-20.
- For measuring the 100 hours of highest demand, PUC adopts the use of 4.5% of the EDC's average of 100 highest peak hours during summer months: June 2007 through September 2007. Implementation Order at 21.



PUC Implementation Order – § 2806.1(A)(5) Standards to Ensure Variety and Class Equity in EE&C Measures for Each EE&C Plan

- EE&C Plans should achieve the most energy savings per expenditure. Implementation Order at 22.
- “Equitable” does not mean “pro rata.” Implementation Order at 22.
 - Each class must be offered at least one energy efficiency program and one demand response program. Implementation Order at 23.
 - No requirement of proportionate distribution of measures among classes. Implementation Order at 23.
 - Plans should be tailored to usage and potential savings and reductions for each class. Implementation Order at 22.
 - No single set of measures for all EDCs and customer classes. Implementation Order at 22.
- A minimum of 10% of the required reductions in consumption must come from federal, state and local government, including municipalities, school districts, institutions of higher education and nonprofit entities.
- The plan must include specific energy efficiency measures for households below 150% of the federal poverty guidelines, proportionate to those households’ share of the energy usage in the service territory.



PUC Implementation Order – § 2806.1(A)(5) Standards to Ensure Variety and Class Equity in EE&C Measures for Each EE&C Plan

- “Energy Efficiency and Conservation Measures” defined by Act 129:
 - Solar/solar photovoltaic panels
 - Energy efficient windows and doors
 - Energy efficient lighting
 - Geothermal heating
 - Insulation
 - Air sealing
 - Reflective roof coatings
 - Energy efficient heating and cooling equipment/systems
 - Energy efficient appliances
 - Other technologies, practices or measures approved by the Commission.

66 Pa. C.S. § 2806.1(m).



PUC Implementation Order – § 2806.1(A)(6) Procedures to Recommend Additional Measures to Improve EE&C and Exceed Reduction Requirements

- Process in a nutshell:
 - PUC to establish deadline for EDCs annual reports on results of EE&C plans
 - Reports served on statutory advocates and posted to web
 - EDCs, interested stakeholders, and statutory advocates can propose changes to EE&C Plan “in conjunction with” the EDC’s annual report to the PUC **on EE&C Plan expenditures**. Implementation Order at 24; 66 Pa. C.S. § 2806.1(1)(I).
 - Within 30 days of the annual report filing, any party, including PUC, can make recommendations for, or objections to, plan improvement
 - EDCs have 20 days to reply
 - PUC will either rule on the recommended changes or refer to ALJ for hearings and recommended decision.
 - PUC may conduct investigations and initiate compliance proceedings. Implementation Order at 24.



PUC Implementation Order – §§ 2806.1(A)(7), 2806.1(A)(8): Competitive Bidding Process for All EDC Contracts with CSPs and PUC Review

- Each utility's EE&C Plan must include at least one contract with an unaffiliated Conservation Service Provider (CSP)
 - All other bids for and contracts with CSPs may be completed after July 1, 2009
 - CSP must be on PUC's CSP registry (Docket No. M-2008-2074154) before it may receive RFP from EDC.
 - CSP must be on registry prior to final acceptance of bid
- Services to EDC that qualify CSP for eligibility in this process
 - Provide plan consultation;
 - Design;
 - Administration; **and**
 - Management services
- Encouraged:
 - solicitation of bids from disadvantaged businesses
 - Pay-for performance contracts with CSPs
- Excluded from this process
 - All entities providing service to customers/public in general

Implementation Order at 25-27.



PUC Implementation Order – §§ 2806.1(A)(7), 2806.1(A)(8): Competitive Bidding Process for All EDC Contracts with CSPs and PUC Review

- PUC review will include:
 - Bid selection criteria
 - Nature and type of services to be provided by CSP
 - Assurance for reduction requirements being met
 - Protection of ratepayer funds for poor performance/noncompliance, etc.
 - Performance quality monitoring procedures for CSP and EDC performance and rate of progress

Implementation Order at 25-27.



PUC Implementation Order – § 2806.1(A)(9) Ensuring Compliance with Consumption Requirements of § 2806.1(C) and § 2806.1(D)

- PUC to establish baseline for forecasting consumption levels
 - “retail customer” defined for purposes of reduction requirements are “all customers who receive an EDC’s distribution service regardless of their electric supply source.” Implementation Order at 28.
- PUC will evaluate costs and benefits of EE&C Plan using TRC test or cost-benefit analysis, on or before November 30, 2013
 - Evaluation to continue every five years thereafter. Implementation Order at 29.
 - PUC may adopt new incremental requirements. Implementation Order at 29.
- In addition to the PUC’s procedures, the General Assembly has provided for civil penalties to EDCs of \$1 million-\$20 million, unrecoverable in rates, for failure to meet the reduction mandates. 66 Pa. C.S. § 2806.1(F); Implementation Order at 29, notes 19-20.



PUC Implementation Order – § 2806.1(A)(10) Participation of CSPs in Implementing All or Part of an EE&C Plan

- PUC established qualification requirements for CSP.
See Docket No. M-2008-2074154;
Implementation Order at 31.



PUC Implementation Order – § 2806.1(A)(11) Cost Recovery to Ensure Customer Class Receiving Benefit of Measures Will Fund Those Measures

- Full and current cost recovery to EDC of “all reasonable and prudent costs incurred in the provision or management of its plan”, via an annual reconciliation adjustment clause/tariff mechanism. Implementation Order at 31-32; 66 Pa. C.S. § 1307. Implementation Order at 31-38.
 - This mechanism is non-bypassable when EE&C plans benefit shopping and non-shopping customers; it must not affect the price-to-compare. Implementation Order at 38.
 - However, full and current costs are subject to after-the-fact review. Tentatively approved costs are still subject to ongoing review and modification or termination, if not cost effective. Implementation Order at 34.
 - Automatic recovery mechanism costs may not include lost revenues due to reduced consumption or change in demand. Any decreased sales and revenue may be reflected in sales and revenue data that is used to calculate rates in a utility’s base rate proceeding. Implementation Order at 36.
- Annual cost of EE&C Plan cannot exceed 2% of the EDC’s total annual revenue as of December 31, 2006
 - “annual revenues” are “amounts paid to the electric distribution companies for generation, transmission, distribution and surcharges by retail customers.” Implementation Order at 33.
 - Includes all amounts paid to EDC for generation service, included revenues collected by an EDC for a competitive Electric Generation Supplier (EGS). Implementation Order at 35.
 - Excludes Low Income Usage Reduction Programs (LIURP). Implementation Order at 32.
 - 2% of the total annual revenue is an annual amount (vs. full 5 year period). Implementation Order at 34.



PUC Implementation Order – § 2806.1(A)(11) Cost Recovery to Ensure Customer Class Receiving Benefit of Measures Will Fund Those Measures

- Class Allocation
 - If measure benefits one class, costs are assigned to the same class.
 - Low income customers are not exempted from payment of costs.
 - If measures apply to more than one class or show system-wide benefits, allocation must use reasonable and generally acceptable cost of service principles.

Implementation Order at 36-37.