Implementing Pennsylvania Act 129—A Rebirth of Energy Efficiency at PECO

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Overview

- ✓ Pennsylvania Act 129 Summary
- ✓ PECO's EE&C Plan Development Philosophy and Approach
- ✓ EE&C Study Methodology
- ✓ Plan Results
- ✓ Next Steps

Pennsylvania Act 129 Summary

- ✓ On 10/15/08, Governor Rendell signed HB 2200 into law as Act 129 of 2008, with an effective date of 11/14/08
  - Act 129 imposed new requirements on electric distribution companies (EDCs), with the overall goal of reducing energy consumption and demand
- ✓ Energy efficiency savings goals:
  - Savings target of 1% for each EDC by 5/31/11 (PECO:394M kWh)
  - Savings target of 3% for each EDC by 5/31/13 (PECO:~1.2B kWh)
- ✓ Demand reduction goals:
  - Reduction target of 4.5% average for an entire 100 hours of peak demand during the peak season (PECO:355MW)
- ✓ Annual spending cap 2% of gross revenues for Act 129 Energy Efficiency and Conservation (EE&C) programs (PECO:$85M/year)

Pennsylvania Act 129 Summary (cont.)

- ✓ Minimum of 10% of consumption reductions shall be obtained from federal, state and local governments
- ✓ Additional requirements for low income customers
- ✓ Mandates the use of outside third party entities for implementation
- ✓ Penalties:
  - Failure to file a Plan on 7/1/09: $100K per day
  - Failure to achieve usage and demand savings: $1M to $20M

PECO's EE&C Plan Philosophy and Approach

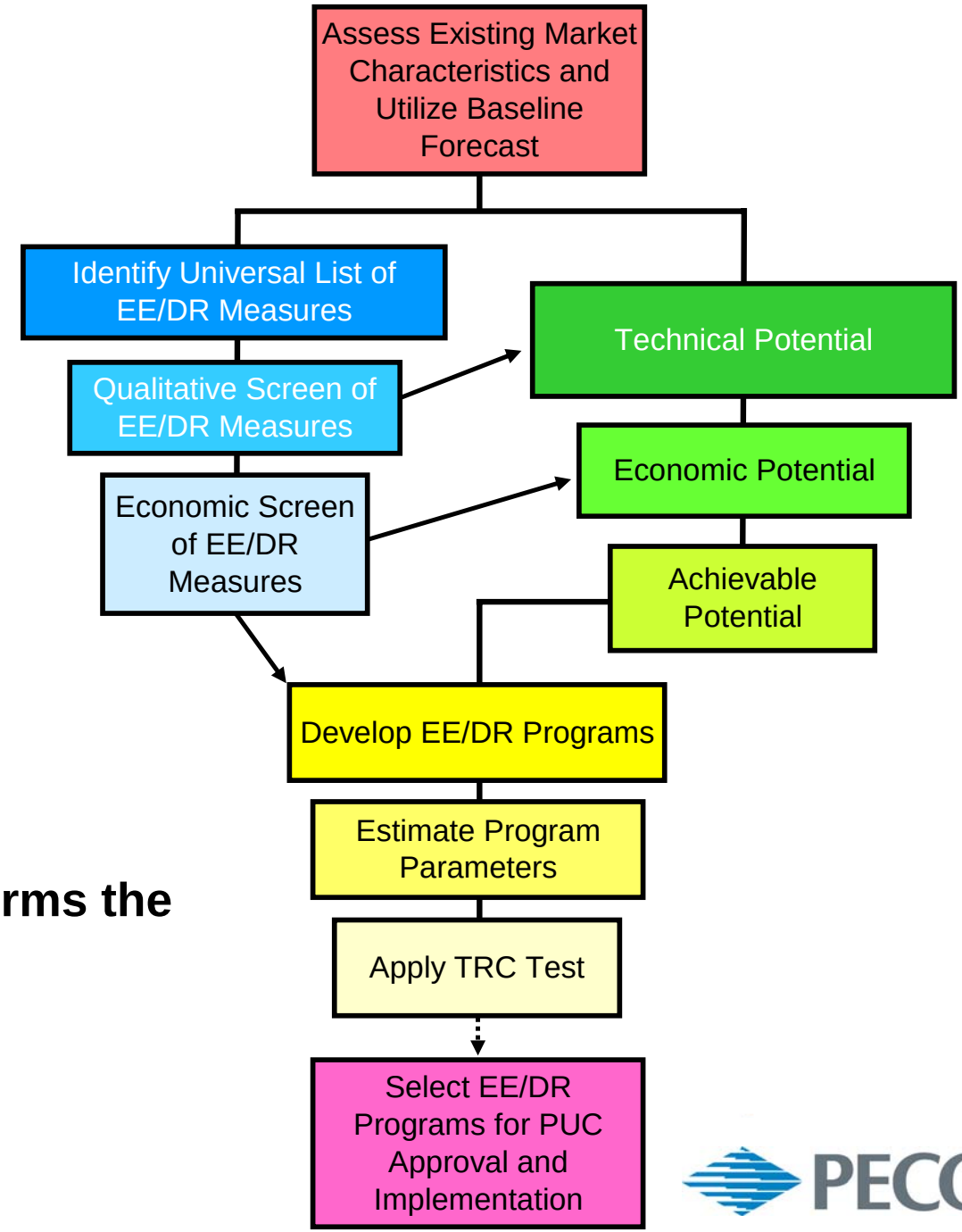
- ✓ PECO has a long history of EE&C programs dating back to the early 1990s
- ✓ EE&C program momentum was stalled over the past dozen or so years due to PA electric industry restructuring
  - Deregulation-based price caps are now being lifted which prompted establishment of Act 129 to mitigate rate shock for consumers
- ✓ Act 129 is viewed by PECO management as a great opportunity to better serve the community, deliver greater value to its customers and lead by example
- ✓ All eyes were on PECO to drive the EE&C Plan development process
  - PECO was the first electric distribution company (EDC) in PA to establish a stakeholder process
  - Other EDCs sought PECO's input in their plan development

PECO's Approach (cont.)

- ✓ The EE&C Plan needed to be "owned" by PECO to ensure its effectiveness
- ✓ PECO set in motion an internal EE&C Plan development process deploying 8 full-time staff for the effort:
  - Retained Global Energy Partners to assist in the Plan development
  - Identified and involved key stakeholders and created a meaningful process for incorporating their perspectives
  - Rapidly engaged with potential Conservation Service Providers (CSPs) through outreach
  - Negotiated and settled nearly all issues raised by intervening parties during hearing stages
- ✓ Tracked federal stimulus efforts to ensure maximum complementarity

PECO's Energy Efficiency & Conservation Potential Study

Methodological Flow



- **Stakeholder input informs the process**

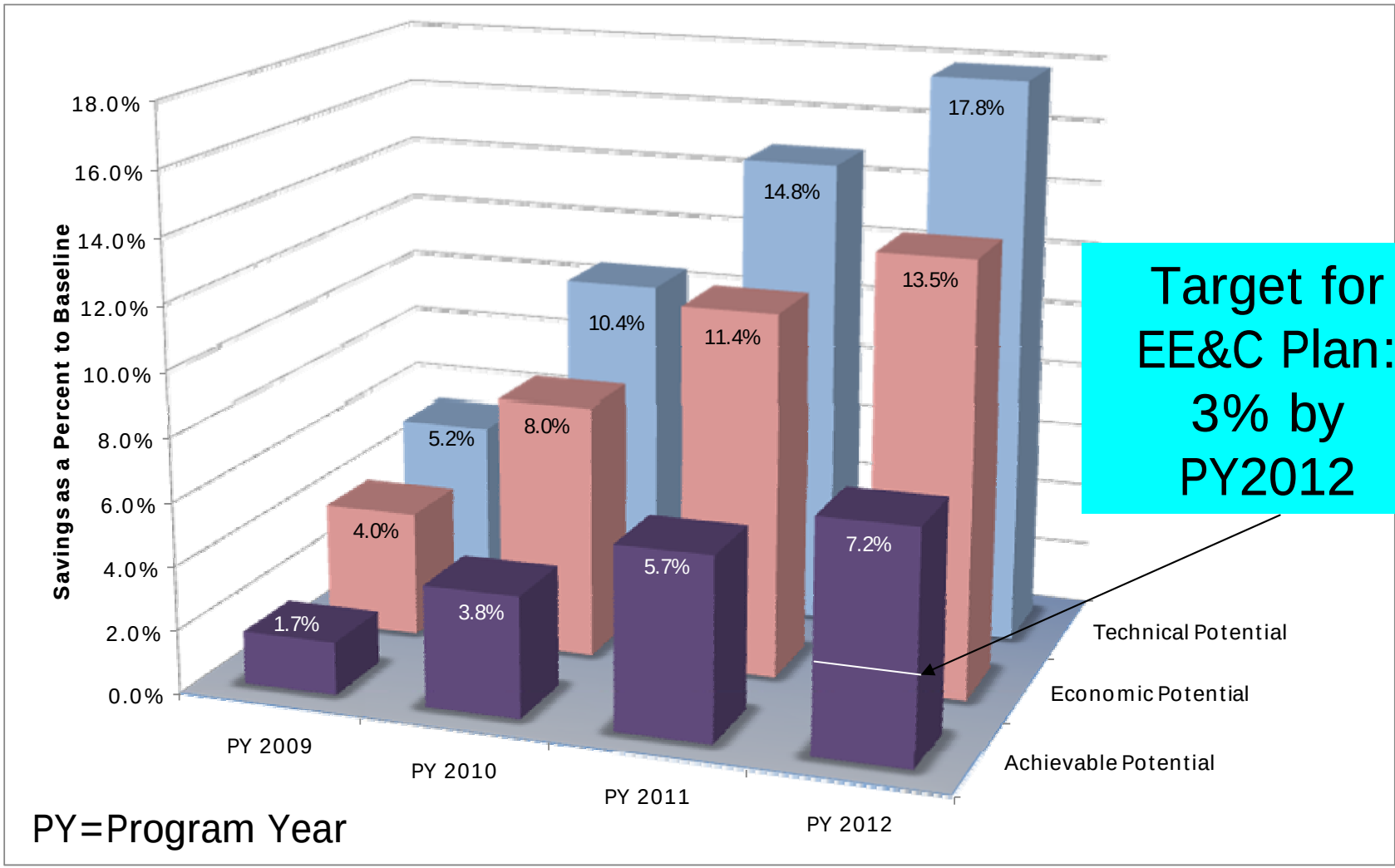
Assessment of Existing Market Conditions

- ✓ PECO placed a high priority on establishing primary data as the foundation for Plan development
  - Saturation survey for the residential sector to determine equipment shares and market characteristics
  - Focus groups targeted to residential, low income and business customers to understand attitudes about future PECO EE&C programs
- ✓ Secondary data
  - Industry studies pertinent to PA (ACEEE, EIA, EPRI, FERC)
  - Comparable regional efforts (NY, PJM, etc.)
- ✓ Other data
  - Existing PECO energy efficiency programs (LIURP)
  - PECO market research
  - PECO's load forecast
  - Avoided cost analysis

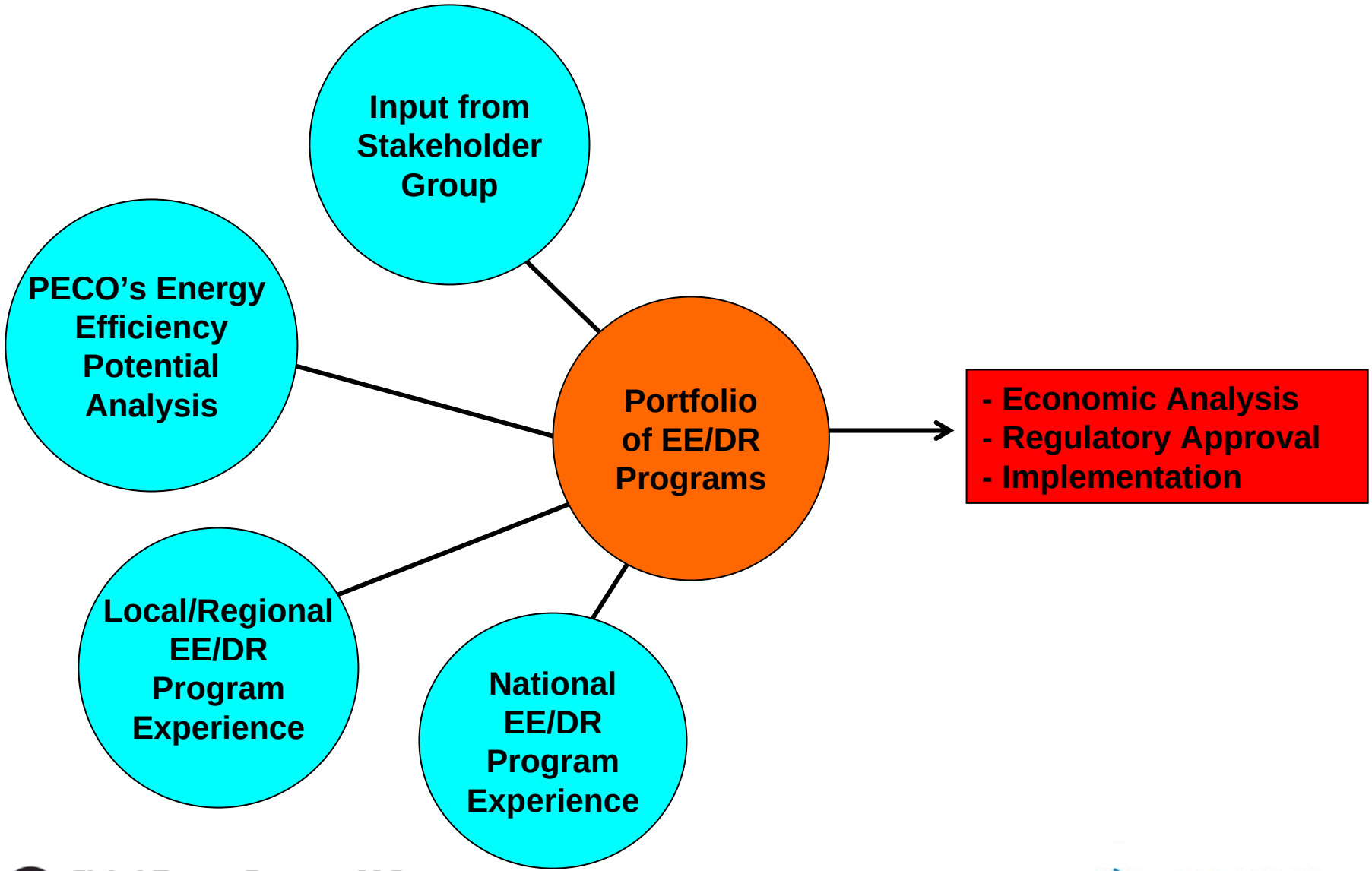
Measure-Level Assessment

- ✓ Energy efficiency and demand reduction measures were assessed for applicability, savings potential and economic viability
- ✓ Three levels of assessment were employed:
  - Level 1: Universal measure list (N=356)
  - Level 2: Qualitative screen (N=297 or 83% of total)
  - Level 3: Economic screen (N=205 or 58% of total)
- ✓ All measures passing the qualitative screen were then included in the analysis of technical potential
- ✓ Measures passing the economic screen were typically passed on for analysis of economic potential, achievable potential and inclusion in programs
  - Measures not passing through all 3 screens generally could not find their way into a PECO EE&C program

Potential Estimates in Context



Program Development Process



Proposed Energy Efficiency Programs

CFL Initiative

- ✓ Key program to meet 2011 goal
- ✓ In-Store Discounts and Give-Away on ENERGY STAR® bulbs – 7M Bulbs
- ✓ Largest/immediate Savings
- ✓ Flagship launch of PECO's EE Programs
- ✓ Recycling Program

Low-Income Energy Efficiency

Three components:

- ✓ "LIURP Like" - Double the number of LIURP participants by 9,000
- ✓ Increase number of installed CFL by 6 for the existing 9,000 LIURP participants
- ✓ Partner with Utilities and Existing Weatherization Programs to install up to 6 CFLs (assumes 150,000 homes over plan period)

Res. Whole Home Performance

- ✓ Customer pays $300 for audit
- ✓ CSP will install low-cost measures that will generate up to $300 annual savings
- ✓ Customer can take advantage of rebates and discounts for installation of measures

Res. Home Energy Incentives

- ✓ Provide cash rebates for qualifying EE measures in existing homes
- ✓ Rebates include lighting, water heating, cooling, heating, appliances, home insulation, white roofs
- ✓ Features ENERGY STAR products

Res. New Construction

- ✓ Financial incentives to builders who incorporate EE design, construction and operation of homes
- ✓ Work with Residential Builders

Res. Appliance Pickup

- ✓ Remove spare refrigerators, freezers and room air conditioners from operation
- ✓ Provide pickup service, customer incentives and safe and proper disposal

C&I New Construction

- ✓ Financial incentives to incorporate more EE building design and construction practices in new facilities and major renovations
- ✓ Work with Architects, Engineers, Design Firms and Commercial Developers

C&I Equipment Incentives

- ✓ Financial incentives on retrofits that incorporate EE measures for all major end uses in small business and general C&I facilities
- ✓ Incentives for Custom and Prescriptive Measures

Govt./Institutional/Non-Profits

- ✓ Financial incentives on retrofits that incorporate EE measures for all major end uses for local, state, federal buildings, schools, hospitals and other non-profit organizations
- ✓ Includes specific measures such as LED traffic lights

Renewable Resources

- ✓ Financial incentives through rebates for solar PV and hot water systems through contractors and turn key providers
- ✓ Educate homeowners and businesses about financial incentives (including Stimulus and tax credits)
- ✓ Facilitate access to technical expertise for installation of solar PV and hot water systems

Proposed Demand Reduction Programs

Res. Direct Load Control

- ✓ Central air conditioners and/or electric hot water heaters are cycled via a paging network (external switches installed on customer equipment)
- ✓ PECO calls events to ensure alignment with highest 100 peak hours for demand reduction
- ✓ Participants receive monthly incentives for allowing control

Res. Super Peak TOU

- ✓ Time-of-use tariff designed to lower demand during a narrow band of peak hours (aligned with system peak hours)
- ✓ Customer charged significantly higher prices during the “super peak” periods, lower rates in shoulder and off peak
- ✓ Customer controls response, but some will also participate in RDLC providing some enablement to reduce load
- ✓ Can be implemented with minor IT enhancement and through the existing Cellnet AMR system

C&I Direct Load Control

- ✓ Similar to RDLC, but instead of switches, Programmable Communicating Thermostats (PCTs) are installed to raise temperature set points during called curtailment events
- ✓ PECO calls events during highest 100 peak hrs. to achieve demand reduction
- ✓ Participants receive monthly incentives

C&I Super Peak TOU

- ✓ Time-of-use tariff designed to lower demand during a narrow band of peak hours (aligned with system peak hours)
- ✓ Customer charged significantly higher prices during the “super peak” periods, lower rates in shoulder and off peak
- ✓ Customer controls response, but some will also participate in DLC providing some enablement to reduce load
- ✓ Can be implemented with minor IT enhancement and through the existing Cellnet AMR system

DR Aggregator Contracts

- ✓ Performance contracts established with one or more Curtailment Service Providers who will in turn recruit customers to deliver demand reductions as called by PECO over the highest 100 hour peak demand periods

Distributed Energy Resources

- ✓ Financial incentives provided to existing backup generation owners in exchange for PECO taking over dispatch of the units as a DR resource
- ✓ Systems would be dispatched by PECO as necessary to ensure load drop over the highest 100 peak hours

Permanent Load Reduction

- ✓ Incent projects and technologies designed to permanently shift electricity usage from peak to off peak time period permanently
- ✓ Examples of technologies targeted would be thermal energy storage which make ice for cooling off peak, fuel switching (from electric to gas cooling), etc.

Conservation Voltage Reduction

- ✓ Designed to lower service voltage levels for all customers within applicable distribution feeders
- ✓ Minor distribution system upgrades to accommodate CVR

Plan Results

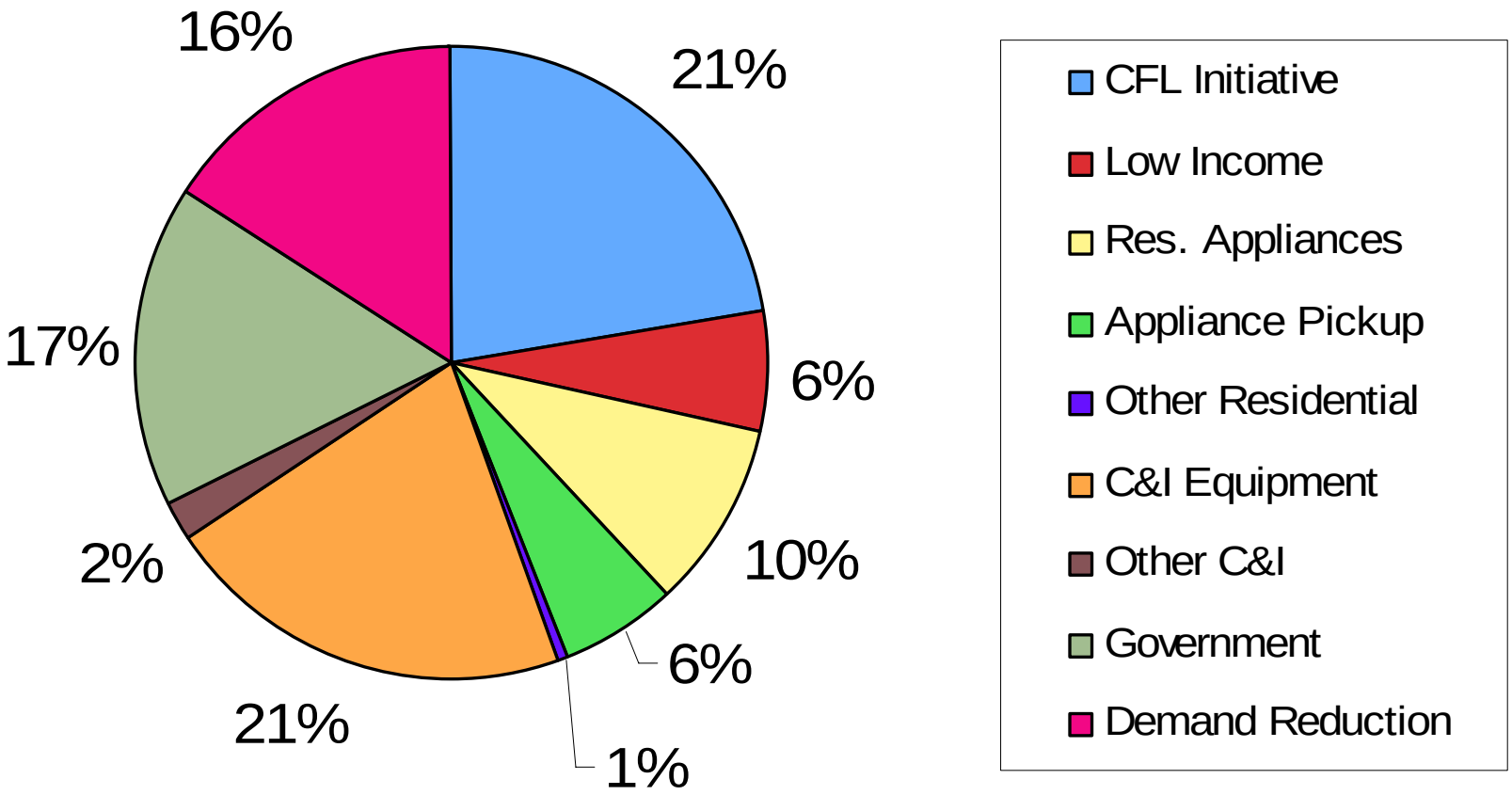
- ✓ PECO expects to exceed the Energy Efficiency targets:
  - Exceed PY2010 goal by 50% - 589K kWh vs. 394K kWh
  - Slightly exceed PY2012 goal by 10% - 1.3B kWh vs.1.2B kWh
  - Levelized cost to execute the programs will be $0.039 per kWh (Industry benchmark is $0.03-$0.05 per kWh) (Source: National Action Plan for Energy Efficiency, July 2006)
- ✓ Plan delivers significantly greater MWs in order to meet the 4.5% reduction off of the 100 peak hours
  - Exceed PY2012 goal by 42% - 505 MW vs. 355 MW
  - Levelized cost of Demand Reduction is $48/kW-year
- ✓ Budget slightly lower than statutory requirements
  - $341.6 million vs. $341.9

Plan Results (cont.)

- ✓ The Plan is very cost effective
  - EE programs yield $922 million in lifetime benefits and $419 million in lifetime costs for a TRC of 2.22
  - DR program yield $448 million in lifetime benefits and $273 million in lifetime costs for a TRC of 1.64
  - The Plan yields $1.4 billion in lifetime benefits and $692 million in lifetime costs for a TRC of 1.98

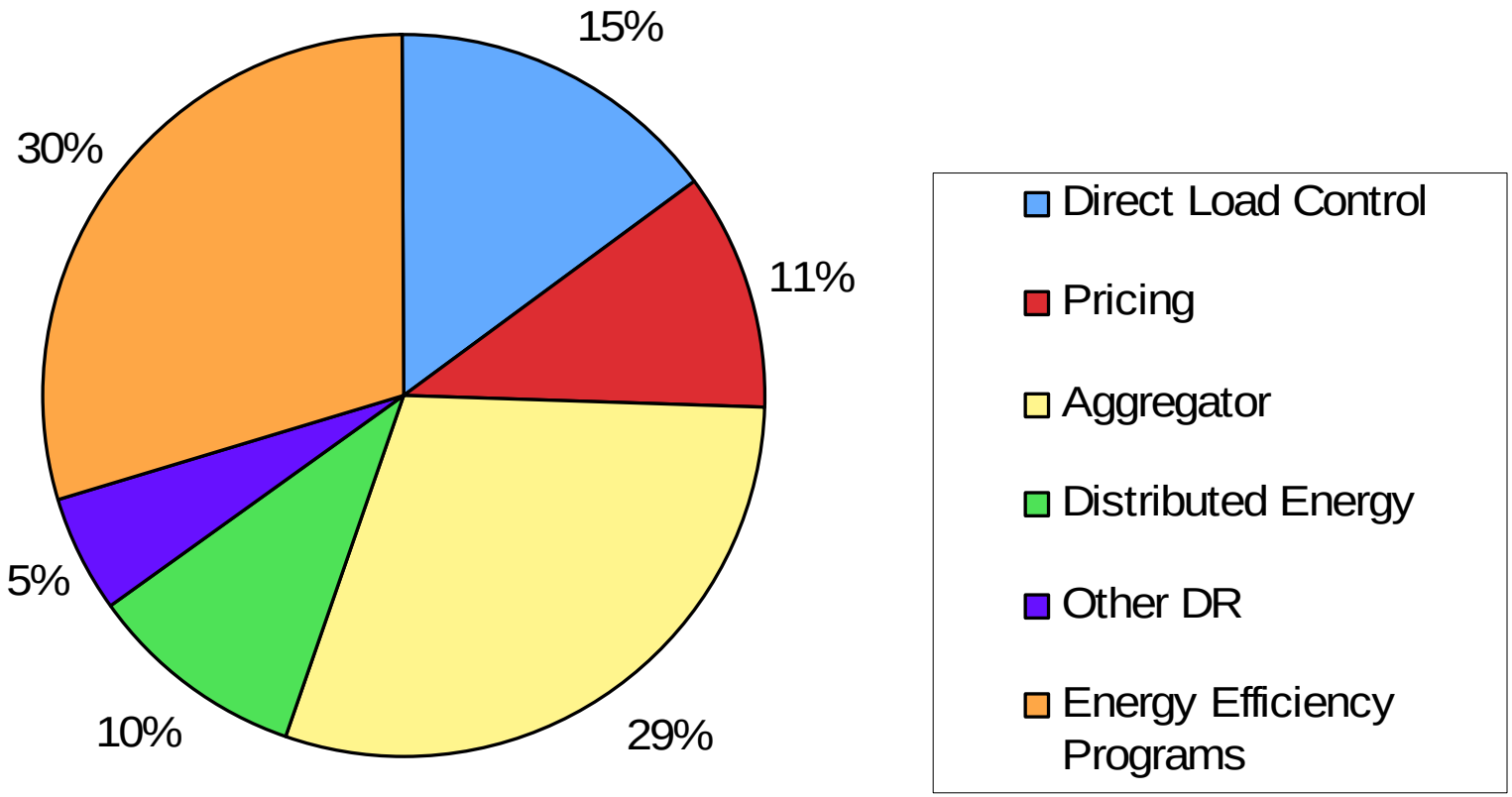
Plan Results (cont.)

✓ Energy Savings by Program Type (kWh)



Plan Results (cont.)

✓ Peak Demand Reductions by Program Type (MW)



Next Steps

- ✓ PUC decision on EE&C Plan expected by 10/15/09
  - PUC has already approved PECO's request for expedited implementation of CFL Initiative
- ✓ CSP contracts in place:
  - CFL Initiative launched – Ecos
  - M&V contractor on board – Summit Blue
  - Final negotiations for data tracking system CSP
- ✓ Launch date for all other programs – First Quarter 2010