Overview of 2013 - 2015 Plan

Presentation to the EEAC

May 8, 2012
### 2013-2015 Plan Highlights

<table>
<thead>
<tr>
<th></th>
<th>2010-2012 (per original plan)</th>
<th>2013-2015 (April Draft)</th>
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</thead>
<tbody>
<tr>
<td>Benefits</td>
<td>~$6 billion</td>
<td>~$8.5 billion</td>
</tr>
<tr>
<td>Program Costs</td>
<td>~$1.5 billion</td>
<td>~$2.0 billion</td>
</tr>
<tr>
<td>Est. Net Benefits</td>
<td>~$4.5 billion</td>
<td>~$6 billion</td>
</tr>
<tr>
<td>GHG Reduction</td>
<td>~10 million short tons</td>
<td>~25 million short tons</td>
</tr>
<tr>
<td>LT kWh reduction</td>
<td>~31 million MWH</td>
<td>~40 million MWH</td>
</tr>
<tr>
<td>Cost/LT kWh saved</td>
<td>~$0.039</td>
<td>~$0.038</td>
</tr>
<tr>
<td>LT Therms reduction</td>
<td>~900 million therms</td>
<td>~1 billion therms</td>
</tr>
<tr>
<td>Cost/LT Therm saved</td>
<td>~$0.353</td>
<td>~$0.515</td>
</tr>
<tr>
<td>Ratio of Net Benefits accruing to Ratepayers vs. Shareholders</td>
<td>~98:2</td>
<td>~98:2</td>
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The Trajectory for 2013-2015; Themes of this Presentation

• The PAs have demonstrated a dedication and commitment to achieve excellent results for the benefit of customers
  • Where we were
  • Where we are now
  • Where we are going
  • The PAs build on what has worked and embrace and help drive innovation to bring programs into the future
Plan is Responsive to Council Priorities

- **Council Priority: Achieve 2010-2012 goals**
  - PAs are engaged every day on this task
  - Deeply committed to assisting customers with energy efficiency services

- **Council Priority: Aggressive but achievable savings targets**
  - Electric savings goals of ~2.5% of retail sales for each of the next three years.
  - Gas savings goals of ~1.1% of retail sales in 2013 with slight escalations for 2014 and 2015.
  - A sustained effort over 2013-2015
Plan is Responsive to Council Priorities

- **Council Priority: Focus on cost-efficiencies**
  - Upstream initiatives
  - Statewide evaluation efforts
  - MA Technical Assessment Committee (MTAC) process

- **Council Priority – Provide support on key program development and implementation needs**
  - Continued support for financing with Mass Bankers Association and HEAT Loan Program
  - Focus on developing additional financing options
Plan is Responsive to Council Priorities

- **Council Priority – Identify best practices**
  - Ongoing commitment to management committees as a vehicle to share best practices – do, learn, and share.
  - Intensive EM&V commitment; learning from results and leading the nation
  - Consistent commitment to iterative work and interaction with other PAs, Council, consultants and national experts
Plan Addresses Key Program Development Areas Identified by the Council

- Focus on HTR/HTS customers including renters
- Continued support for pre-weatherization measures
- Continued focus on financing
- Commitment to consistency while also recognizing unique needs in some areas
- Commitment to enhance integration of electric and gas efforts in C&I sector
- Services/go to market strategies informed by customer segmentation
- Goals reflect improved comprehensiveness – going “deeper”
Other Considerations

- Unique circumstances in some service areas affect PA-specific budgets and goals
- Consolidated programs with multiple initiatives will enhance needed flexibility and potentially reduce the need for MTM filings –
  - Increased administrative efficiencies
  - Greater focus on the 3-year plan rather than 3 1-year plans.
- Focus on developing a trajectory for success
  - Commitment to continued focus on community initiatives as a means to increase participation by HTR/HTS customers. Learning from and leveraging community outreach efforts
  - R&D efforts and continuation of MTAC process to bring new measures and services into programs
  - Planned AI Summit to inform efforts in ’13 – ’15 and beyond
  - Continued work with the Council
- Adjustments may be needed to address evolving legislative changes, evaluation findings, and Council feedback.
Electric Cost to Achieve Data Points

- Historic cost-to-achieve has ranged from a low of $329/MWh in 2011 (Prelim. YE) to $447/MWh in the 2012 MTM filings. Low cost in ’11 largely affected by a small number of very large CHP projects.
- Cost to achieve in ’13 – ’15 projected to equal approximately $427/MWh, a lower cost than expected in ’12.
- PA budgeting for April 30 draft (Sector level)
  - Combination of “Top down” and “Bottom up” efforts planning efforts
  - Sharing of information among PAs
  - Review of consultant materials
- Costs will become more refined as EM&V results for 2011 come in (early June) and as “by-program” presentations are developed for July 1 of Filing of full Plan for 2013-2015
Cost of Annual Electric Savings in ’13 – ’15
Projected to Decline Compared to ’12 MTM Filing

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost ($/MWh)</th>
</tr>
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<tbody>
<tr>
<td>2012 (MTM)</td>
<td>$447</td>
</tr>
<tr>
<td>2013</td>
<td>$432</td>
</tr>
<tr>
<td>2014</td>
<td>$424</td>
</tr>
<tr>
<td>2015</td>
<td>$427</td>
</tr>
<tr>
<td>2013-2015</td>
<td>$427</td>
</tr>
<tr>
<td>2010-2015</td>
<td>$413</td>
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Core Drivers/Upward Pressures on Expected Cost of Gas Savings

- Increased funding for Heat Loan Program
- Funding increased to ensure greater comprehensiveness in multifamily facilities leading to increased cost of savings in C&I programs.
- Proposal to sweeten incentives for customers to overcome financial barriers to participation that are exacerbated by current and projected low gas costs.
- Increased funding to address pre-weatherization
- As with existing plan, PAs with uniquely challenged service areas have flexibility to set lower goals.
Cost of Annual Gas Savings Projected to Increase

Cost of Gas Savings ($/Therm)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost ($/Therm)</th>
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<tbody>
<tr>
<td>2012</td>
<td>$5.58</td>
</tr>
<tr>
<td>2013</td>
<td>$7.78</td>
</tr>
<tr>
<td>2014</td>
<td>$7.43</td>
</tr>
<tr>
<td>2015</td>
<td>$7.41</td>
</tr>
<tr>
<td>2013-2015</td>
<td>$7.53</td>
</tr>
<tr>
<td>2010-2015</td>
<td>$6.80</td>
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Cost-Effective Efforts Expected to Produce Over $8 Billion in Benefits

Program Costs and Benefits ($ Millions)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric budget excluding PI, lost revenues, and participant costs</td>
<td>$1,527</td>
</tr>
<tr>
<td>Gas budget excluding PI, lost revenues, and participant costs</td>
<td>$521</td>
</tr>
<tr>
<td>$ Value of Benefits</td>
<td>$8,586</td>
</tr>
</tbody>
</table>
Significant Environmental Benefits

- Reductions in air emissions of over:
  - 24 million short tons of CO2 (GHGs)
  - 34 thousand short tons of SO2
  - 12 thousand short tons of NOx.
- Comparable to taking over 4 million cars off the road or by recycling over 8 million tons of waste instead of sending it to the landfill.
- Other resource benefits beyond electricity and natural gas (e.g., oil and water)
Retention of Existing Performance Incentive Model

- Retention of the Savings Mechanism, the Value Mechanism, and Performance Metrics
- Proposed PI pool is proportionate to pool in ’10 – ’12 Plan.
  - Approximately $88.5 million for electric incentives
  - Approximately $16.8 million for gas incentives
  - Customers retain approximately 99% of anticipated benefits.
Ongoing Commitment to Robust EM&V

- Builds upon EM&V framework developed in 2010-2012 with some enhancements
  - Reduction of research areas from six to three
    - Organized primarily by target markets
    - Allows flexibility for use of vendors
  - Continue EM&V Management Committee ("EMC") formed in 2012
    - EMC provides a forum for statewide evaluation issues, and provides guidance, planning and direction to each evaluation research area.
  - Four percent of total program budgets included for evaluation and market research in each year of the Plan
  - Research will include: Codes & Standards, Behavioral Programs and Initiatives, Quantification of Market Effects, and Market Characterization Studies
  - PAs also to build on 2012 study designed to quantify the job creation impacts of energy efficiency programs
Order in *Cape Light Compact*, D.P.U. 10-106 (2011) clarified that PAs are required to seek Department approval only for a program budget modification that is 20% greater than the program’s three-year budget.

PAs have proposed to apply the D.P.U. 08-50-B Guidelines to program modifications that lead to savings adjustments that vary by greater than 20 percent from the program’s three-year goals.

Allows flexibility to promote innovation and to make adjustments in response to changing markets and evaluation findings.

Emphasizes three-year nature of Plan.
Cost Recovery

- The Plan allows the PAs to recover costs and be made economically whole for energy efficiency efforts, as well as to earn a modest return associated with efforts based on actual performance compared to approved goals.
- Continuation of existing recovery mechanisms, including LBR for PAs that have not yet adopted revenue decoupling.
- PAs to first access other sources of funding, including FCM and RGGI, which are available to electric PAs.
<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
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<tbody>
<tr>
<td>April 30, 2012</td>
<td>Short form of 2013 – 2015 Plan to Council</td>
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<tr>
<td>June, 2012</td>
<td>Multiple evaluation study results become available. Findings are incorporated in planning assumptions</td>
</tr>
<tr>
<td>June 12, 2012</td>
<td>EEAC meeting – additional discussion of Plan</td>
</tr>
<tr>
<td>July 1, 2012</td>
<td>Full draft of 2013-2015 Plan to Council</td>
</tr>
<tr>
<td>July 1, 2012</td>
<td>First draft of 08-50 tables for 2013-2015</td>
</tr>
<tr>
<td>July 13, 2012</td>
<td>Cut-off for EM&amp;V studies to be included in 2013-2015 Plan</td>
</tr>
<tr>
<td>July 30, 2012</td>
<td>Council approval or comments to PAs regarding April 30th Plan</td>
</tr>
<tr>
<td>August 15, 2012</td>
<td>Draft of TRM- 2013 Plan Version to consultants</td>
</tr>
<tr>
<td>September 6, 2012</td>
<td>Proposed full draft of 2013-2015 Plan to Council</td>
</tr>
<tr>
<td>October 2, 2012</td>
<td>PAs to provide final materials to Council for resolution</td>
</tr>
<tr>
<td>October 31, 2012</td>
<td>Each PA to file complete and final Three-Year Plan with Department</td>
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Programs- Overview

- Consolidated programs with multiple initiatives will enhance needed flexibility and potentially reduce the need for MTM filings
- PAs will continue reporting on a quarterly basis on key initiatives within each program – maintains the notable transparency of PA efforts
Residential and Low-Income Programs Overview

- Build on efforts from 2010-2012 and continue to improve program offerings and delivery
- Quick ramp-up of programs has occurred from 2009 to today
- Thanks to all the PAs, vendors, Council members, and other stakeholders
- Review of where we were, where we are now, and the PA plan moving forward
Programs in 2010-2012

**ELECTRIC**
- New Construction (Low-Income and Market Rate)
- ENERGY STAR HVAC
- Multi-family
- MassSAVE/ Home Energy Services
- ENERGY STAR Lighting
- ENERGY STAR Appliances
- Residential Education
- Low-Income Retrofit

**GAS**
- New Construction (Low-Income and Market-Rate)
- High Efficiency Heating
- High Efficiency Water Heating
- MassSAVE/ Home Energy Services
- Weatherization
- Low-Income Retrofit

+ Multiple Pilots
Programs in 2013-2015

- Consolidated electric/gas programs
  - Residential Whole House
  - Residential Products
  - Low-Income Retrofit
- Several initiatives under each program - combined gas and electric efforts where appropriate
- Continue to report on initiatives separately for informational purposes
- Programs to include elements learned from 2010-2012 pilots
Improvements to Program Design from 2010 through Today

- **Home Energy Assessments**
  - Greater support of deeper measures/opportunities now
  - Greater access to financing compared to limited access before
  - Currently working with trade allies to capture lost opportunities

- **Program Integration**
  - Formerly vertical, independent electric and gas programs- now integrated with substantial sharing and collaboration (e.g., HVAC)
  - Initially very limited interaction between electric and gas PAs; interaction now is constant and consistent

- **Community Outreach**
  - Greater emphasis now and going forward on formal outreach
Today’s Residential Efforts

- Electric and Gas
  - Training and Education (including circuit riding)
  - Pre-weatherization
  - Statewide Marketing Efforts and consistent messaging
  - Codes and Standards
- Program planning efforts include electric and gas contributions
- Strong management structure
  - Residential Management Committee ("RMC")
  - Low-Income Best Practices
Enhancements - Residential

- New Construction
  - Greater percentage of housing starts than expected statewide
  - Ever expanding market for HERS raters
- HVAC - Electric
  - Simplified menu under central cooling for customers
  - Continued efforts at quality installation
  - New measures (Heat Pump Water Heaters, Brushless Fan Motors)
- HVAC - Gas
  - Enhanced marketing (400 contractors at conference)
  - Bundled offering
- Lighting/Appliances
  - Expansion into LEDs
  - Exploration of new models like market lift
Enhancements – Residential (cont.)

• Mass Save/Home Energy Services
  • New market model = more contractors in field than previously (HPCs and IICs)
  • Consolidated program model vs. multiple visit model
  • Merit based allocation
  • Greater marketing to customers to participate - common collateral
  • Updated audit standards
  • Positive participation of community outreach
  • Early boiler replacement underway
Enhancements – Residential (cont.)

- Best Practices committee- forum for program contractors
- Implemented independent third-party QA/QC process
- Pre-weatherization- 2013-2015 will build on results of 2012 effort
- Expanded HEAT Loan
  - 2010 had income thresholds, up to $15,000 and only occupying owners.
  - In 2012, up to $25,000 with terms up to seven years
  - Added central AC details
  - Added Multi-Family HEAT Loan for condominium owners
Enhancements – Multi-Family

2010-2011
- Added Multi-family Program for Gas and some Electric PAs
- Added statewide Multi-family Market Integrator (MMI) for the first one point of contact for customer

2012 – Condominium Customer Enhancements
- Provide an individual assessment of the condo unit rather than the entire facility, if the board does not approve.
- Provide the same weatherization incentive as the HES Program if the customer qualifies (75% up to $2,000)
- Offer the opportunity to utilize the HEAT Loan, if residentially metered
- PAs will continue to seek out the condominium association and present the benefits of the program in order to provide opportunities to more units

2013-2015 Plans
- Exploring serving deliverable fuel customers by providing fuel-blind weatherization services (goal for determination: July 1)
- Integrate Residential and C&I facilities to provide more seamless experience for the customers
- Continue to improve on providing comprehensive whole building assessment regardless of fuel or meter type
Enhancements- Low Income

2010-2012:
• Worked to provide more seamless implementation process for LI Multi-family (electric & gas measures) for mostly non-profits.
• Coordinate with Low-Income Multi-family Advisory Committee for prioritization of facilities with high-energy use and facilities where a planned renovation or energy upgrade offers opportunities to obtain cost-effective energy improvements.
• In 2012 MTM, PAs consolidated Low Income Single and Multi-Family into one program to provide greater flexibility.

2013-2015: Low-Income Retrofit Program
• Limited dollars toward minor and major repairs (to facilitate weatherization)
• Screening of variety of measures for inclusion
• Explore inclusion of "For Profit" Low-Income Multi-family properties- many of the low-income qualified tenants in these facilities pay into SBC rates, and participation could aid this population.
  • Funding would be balanced amongst all low-income facilities, and will be included in the program.
• Exploring “fuel blind” for Low-Income Multi-Family (goal for determination: July 1)
New Technologies and Products

- Massachusetts Technical Assessment Committee (“MTAC”) - formed to evaluate new technologies
- New Technologies and Products include:
  - Condensing Water Heaters
  - Heat Recovery Ventilators
  - Boiler Reset Controls
  - LED lighting
  - Mobile applications
Residential and Low-Income Challenges

- Challenging to achieve savings in certain efforts (e.g., Codes & Standards)
- Cost-effectiveness affected by EM&V results
  - Results may dramatically change some programs
- Exploration of new efforts/measures takes time
- Economy affects participation
- Need to prioritize efforts- many initiatives in review among working groups
- Doing it right vs. doing it fast
Incorporating Results of Pilots and Hard-to-Measure Initiatives

- Results from pilots and hard-to-measure initiatives from 2010-2012 are still under review and are pending results of evaluations, in-the-field data, and cost-effectiveness screening.
- Possible elements to be incorporated in programs or as stand-alone pilots in 2013-2015 include:
  - Behavior Feedback (some PAs have as program)
  - Deep Energy Retrofit
  - Major Renovations
  - Lighting Design
  - Heat Pump Water Heaters
- Goal for determination: July 1
PA Goals Moving Forward

- Continued improvement to customer follow-up
- Continued focus on electric/gas integration
- Old Boiler replacement expansion
- Focus on HTR/HTS customers including renters and multi-family customers
- Integration of community outreach as part of our overall marketing and outreach plans
- Continued support for pre-weatherization measures
- Continued focus on financing
- Commitment to consistency while also recognizing unique needs in some areas
- Continued commitment to low-income customers
C&I Programs

- Where we were
- Where we are now
- Our plan moving forward
Before
Nationally recognized programs

- Direct Install
- Compressed Air Challenge
- Performance Lighting
- Marshfield Energy Challenge
- Advanced Buildings
- Comprehensive Design
Good programs but...

Low budgets restricted offerings and strategies

• T8 to HPT8 excluded
• CHP not supported
• Limited support for streetlights
• Tempered support of deeper measures
Semi-formal sharing and best practices

- Prescriptive electric measures
- GasNetworks®
- Goals
- Comprehensive strategies
A rich pool of opportunity

- T12’s & magnetic ballasts
- Condensing boilers
- Large drive opportunities
- Burner controls
- LED exit signs and traffic lights
- Occupancy sensors and other low cost controls
- Projects allowed PA’s to maximize savings with limited budgets
Now
What we’ve accomplished

Management structures

• C/I Management Team
• Residential Management Team
• MTAC

Structured approach to our business and customers

• Uniform processes and procedures
• Leveraging disparate resources
Tested new programs

- Customized MOU’s
- CHP
- PEX
- Upstream
- Pay for Performance
- Multi-Family
- MBA financing
- Behavioral
Tested new promotions with partners

- Governor’s Clean Energy Challenge
- Pacesetter
- Green Ribbon Commission
- Northeast Energy Efficiency Expo
- Mass Savers Award
Tested new models

- Cambridge Energy Alliance
- Main Streets
- Renew Boston
- Efficiency Forward
- Green Communities
- Energy Leaders
- CMI’s
Go to Market

Original Point 380 study from 2009

- Driving quartile and segment based approach
- Continued refinement, aggregating “meters” to “customers”
- Results have allowed us to identify gaps and develop targeted strategies
For many opportunities we have transitioned the market

- CFL’s, T12’s, drives, higher efficiency A/C
- Codes as well as built environment

And now moving towards next generation technologies

- LED’s, variable refrigerant flow, wireless controls

Costs

- New product are always at the top of supply-demand curve
- Savings delta continues to narrow, approaching but never reaching zero
- Dramatic change in cost of natural gas
- Also noting that customers’ criteria generally does not change
Key Measurements of Success

- Achieving goals
- Below planned budgets
- Recognition in industry by ACEEE ranking
Going Forward
Broaden the Market of Opportunity

Going beyond 1-1 interaction

• Upstream
• Codes and Standards
• Self service tools
Expansion of Upstream Efforts

Equipment replacement where...

- Decision is quick
- At point of sale
- Opportunity for upsell is low
- Cost barrier is high

Examples –

- Bulbs
- Unitary air conditioning
- Packaged boilers
- ECM motors
Codes & Standards

- Enhancement of Codes
- Compliance
- Synergies with Green Communities and Stretch Codes
Self Service

Web-based tools to educate and inform

Two-Fold Strategy

• Acquire smaller incremental savings at higher volume
• Screen for higher value opportunity
Target Resources

Further leverage Point 380 study

- Aligning resources and efforts to areas of greatest opportunity
- Sub-segmentation and testing of property management efforts
- Messaging/Packaging such as the Green Grocer Initiative
Formally expand from reactive to proactive

- Best practices from other utilities and programs in the US and Canada
- Monitor and communicate with like groups such as California’s Emerging Technologies and the Northwest’s Energy Efficiency Alliance
- Research and outreach into products/companies where efficiency is not the core value proposition
- Concept papers to drive innovation
Conclusion

Confidence in the next 3 years comes from learnings and success to date

• Build and expand successes
• Integrate learnings
• Encourage and test new ideas
Codes & Standards

- Initial working draft of Codes and Standards Program was provided to DOER and BBRS in September 2011.
- After discussion and soliciting feedback on working draft. Version 2 was provided on May 4, 2012.
- **Timeline:** PAs’ goal is to have full program design included in July 1, 2012 Plan filing for EEAC consideration.
The PAs agree that significant potential remains (with some variation by service area), but current core PA focus is on defining sustainable levels for the next three-year plan.

Marketing Opportunity Analysis (Point 380 Study) are extremely valuable to PAs, but results are misapplied in assessment:

- PAs continue to note that Point 380 Study is not a study of potential, but a market characterization effort.
- Study is directional- illustrates that there is still opportunity without definitively determining the actual potential available.

Early Retirement opportunity is overstated.

Limited confidence in or applicability to MA when considering referenced potential studies.
Concerns with Leveraging the Market Opportunity Analysis to Identify Potential

- Relative market opportunity study
  - Leveraged to inform go-to-market strategies-utilized excessively and very helpful to PAs
  - Not designed and executed to meet goals of a potential study
- Study confirms that there are large opportunities in key segments
  - Study presented relative market opportunity in year one in order to demonstrate importance of sectors and measures, not true potential
  - Intended to forecast the market opportunity for a given set of measures implemented in the near term
- Underlying assumptions
  - Study informed by PA-specific considerations such as customer type, consumption, past energy efficiency performance, budgets and operating characteristics
  - Speed of ramp up, slope of s-curve not defined
- Study relies heavily on secondary data
  - Primary data collection would have been emphasized had potential been key objective
Concerns with Early Retirement Opportunity Assessment

- What is early retirement retrofit?
  - Replacement of older equipment (boilers, furnaces, A/C, etc.) that is still working, but likely to fail soon
  - Customers do not make the decision based on efficiency alone but need to “assume” the equipment will fail in the near future

- Customer Barriers
  - Replacement cost is very high as compared to savings
    - Best case scenarios have paybacks of 10-20 years
  - There is no “burning platform” for customers, equipment is still functioning and can be repaired
  - Furnaces & boilers not 1-1 replacements, larger scope, cost and risk
  - Code compliance issues
  - The target opportunities are 30+ year old equipment, convincing customers the equipment will break down soon will be a difficult sell.
Concerns with Other Potential Studies

• Massachusetts
  • The GDS study was completed in 2009 and thus did not account for significantly lower gas avoided costs and changes in markets, which are considerations when determining cost-effectiveness.

• Vermont
  • While the study was conducted for a state in the same region, the demographics and firmographics of VT differ significantly from MA, which limits the applicability of that study’s findings.

• Rhode Island
  • Significant portion of identified achievable savings from behavioral programs, price response programs, and new and emerging technologies that show promise but are not currently economic. As a result, approximately 50% of identified potential in the study should be discounted.
  • Cost modeling of future technologies not informed by research and likely underestimates the actual costs to realize the “achievable” potential.
Continued PA Review

- Continued PA review of early retirement retrofit and codes and standards sections, along with related studies
- PAs discussing CHP with consulting team, but believe their projections with respect to the number of systems cost-effectively completed (34) and the average size (324 kW) appear high
- PAs continuing to review estimates with respect to residential lighting opportunities
- PAs note variability of C&I New Construction across PA service areas