MA ENERGY EFFICIENCY ADVISORY COUNCIL

→ CONSULTANT TEAM

COMPARISON OF PA 2016-2018 DRAFT PLAN AND CONSULTANT TEAM GOAL ANALYSIS

- EEAC Consultants

- May 19, 2015

SUMMARY OF COMPARISON AND EEAC CONSULTANT REVIEW

- **Significant differences between PA Draft Plan and Consultant Team analysis**
- **PA savings are lower than 2014, drop to 2013 levels**
  - No supporting data from PAs to explain why
- **PA costs climb significantly, even with lower savings**
  - No supporting data from PAs to explain cost increases
- **Difference in opinion regarding what will happen to LEDs, both savings and costs**
- **Static behavior program participation is puzzling**
- **Different views on amount of CHP available**
- **Council priorities not comprehensively addressed**
  - Need PA commitments, action steps, and schedule

SUMMARY OF PROPOSED STATEWIDE ELECTRIC SAVINGS AND BUDGETS

Table 1 | Massachusetts Portfolio Level Statewide Electric Summary

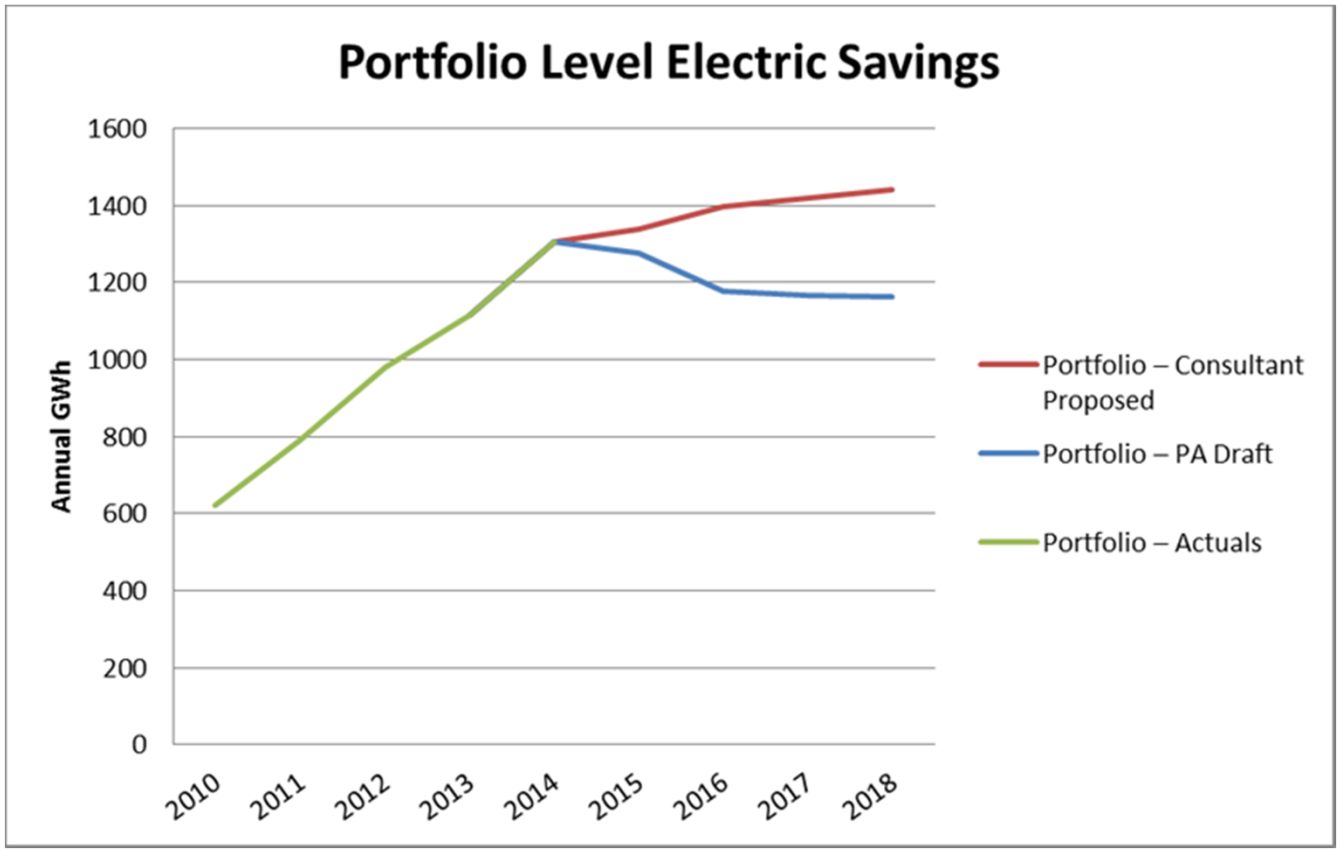
	2014 (Q4/ Planned)	2015 (Estimated/ Planned)	2016	2017	2018	Total (2016-18)
Electric Savings – Consultant Proposed						
Annual Energy (GWh)	1,306	1,340	1,398	1,421	1,440	4,259
Annual Energy (% of Sales)	2.69%	2.81%	2.98%	3.03%	3.09%	3.04%
Lifetime Energy (GWh)	13,342	13,855	14,506	14,765	14,988	44,259
Summer Peak Demand (MW	172	189	188	195	201	584
Program Budget (million $)	$504	$520	$522	$530	$534	$1,586
Electric Savings – PA Draft						
Annual Energy (GWh)	1,237	1,275	1,179	1,168	1,162	3,509
Annual Energy (% of Sales)	2.55%	2.60%	2.51%	2.49%	2.50%	2.50%
Lifetime Energy (GWh)	13,269	13,864	11,049	10,987	11,136	33,171
Summer Peak Demand (MW	174	177	173	171	171	515
Program Budget (million $)	$496	$519	$581	$605	$633	$1,819

SUMMARY OF PROPOSED STATEWIDE GAS SAVINGS AND BUDGETS

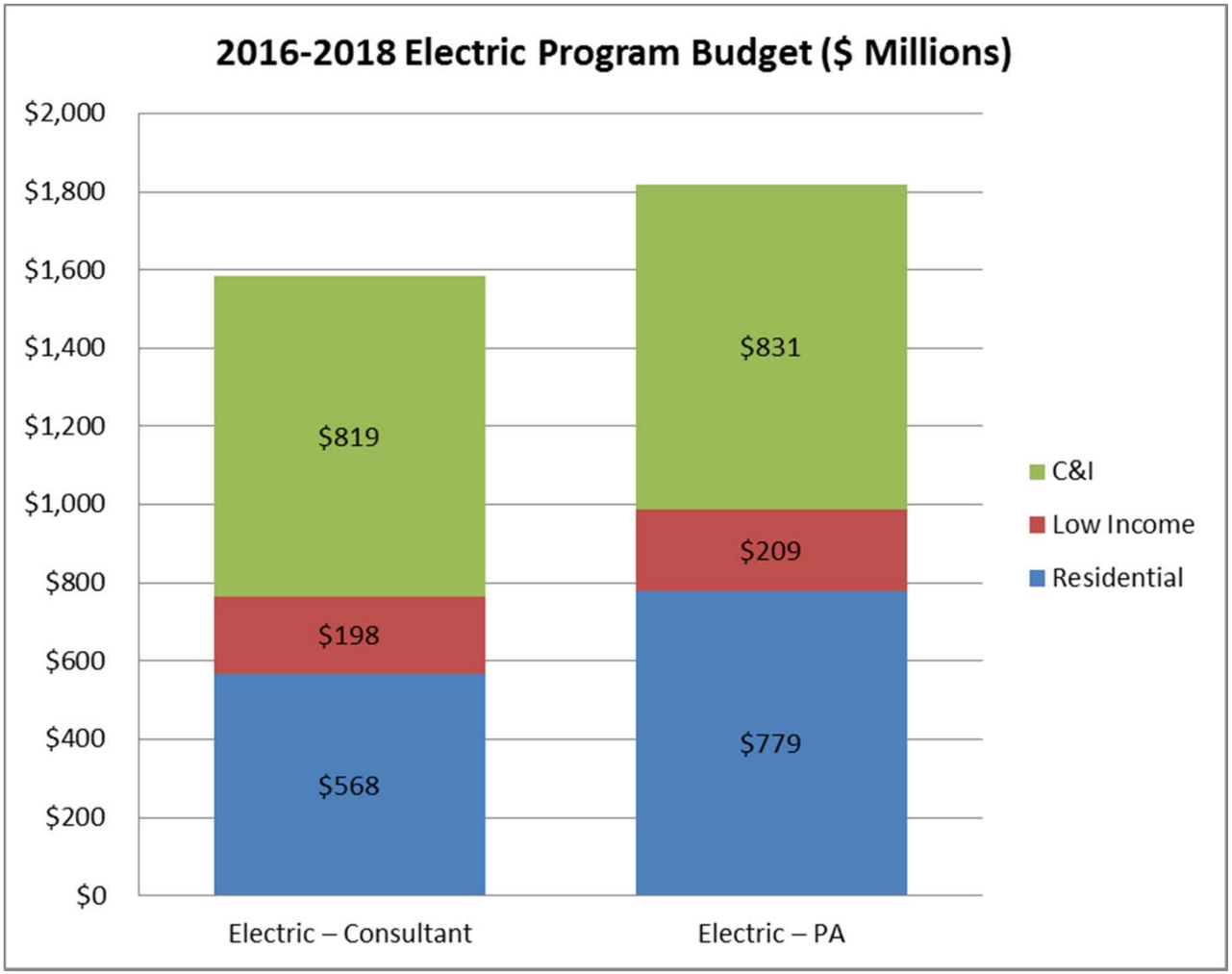
Table 1 | Massachusetts Portfolio Level Statewide Gas Savings

	2014 (Q4/ Planned)	2015 (Estimated/ Planned)	2016	2017	2018	Total (2016-18)
Gas Savings – Consultant Proposed						
Annual Energy (Milli	28	29	31	34	36	101
Annual Energy (% c	1.33%	1.37%	1.38%	1.47%	1.54%	1.47%
Lifetime Energy (Mil	380	393	421	452	476	1,349
Program Budget (m	$166	$169	$189	$210	$234	$633
Gas Savings – PA Draft						
Annual Energy (Milli	24	25	24	25	25	75
Annual Energy (% c	1.15%	1.17%	1.07%	1.09%	1.09%	1.08%
Lifetime Energy (Mil	313	321	325	339	345	1009
Program Budget (m	$175	$180	$202	$208	$213	$623

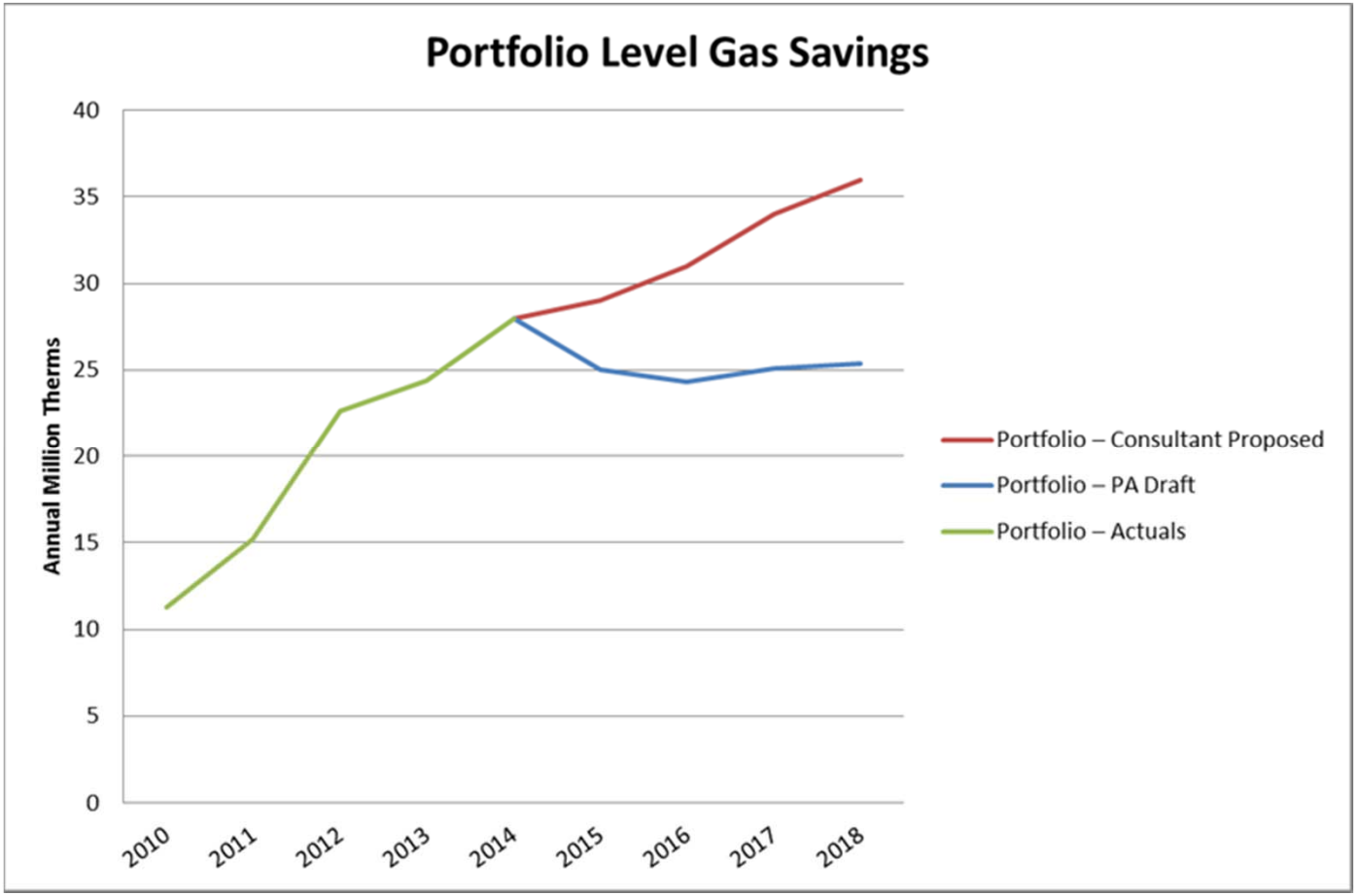
COMPARISON OF HISTORICAL AND PROJECTED ELECTRIC SAVINGS



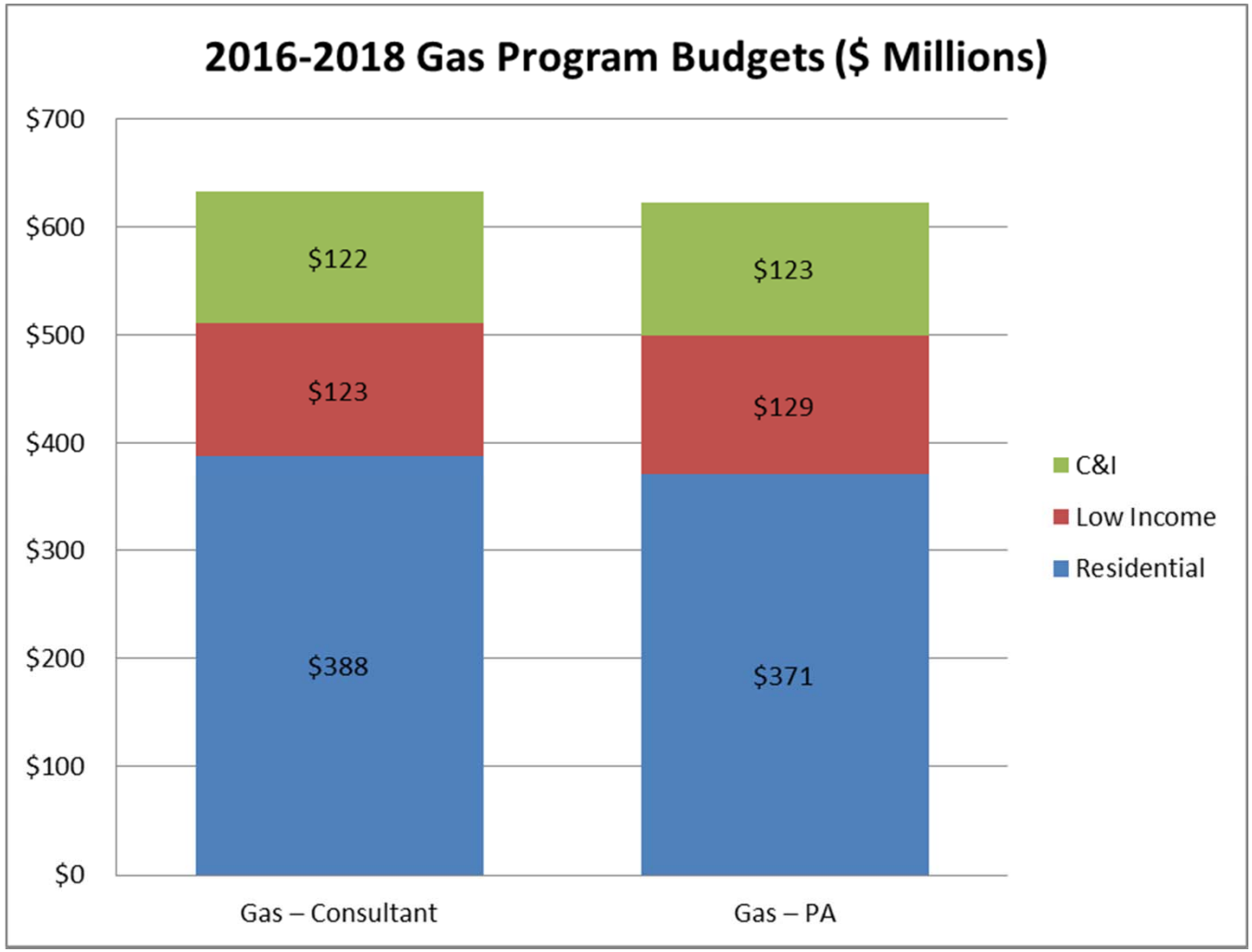
COMPARISON OF PROPOSED 2016-2018 ELECTRIC BUDGETS



COMPARISON OF HISTORICAL AND PROJECTED GAS SAVINGS



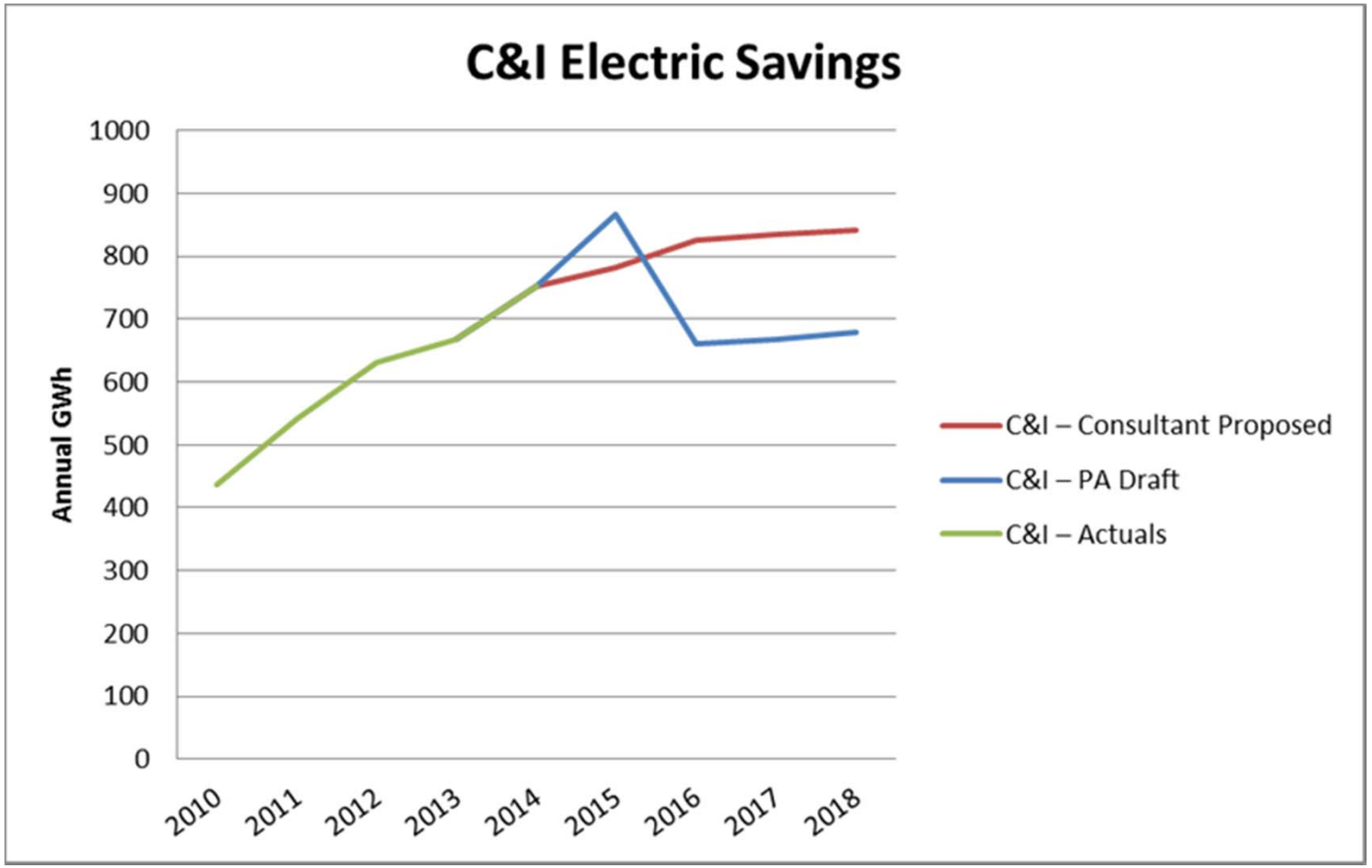
COMPARISON OF PROPOSED 2016-2018 GAS BUDGETS



SUMMARY OF KEY ISSUES

- Across all sectors, PA draft plan savings are low compared to the Consultant Team goals and Q4 2014 preliminary results
- PA electric costs are higher (with lower goals) than Consultant estimates; PA gas costs are slightly lower with much lower goals
- It is difficult to assess whether all PAs intend to implement all elements in the Draft Plan
- Addressing the Council Resolutions comprehensively in the Plan will be important in the goal development process
- More information needed on what will be offered through some of the C&I programs/initiatives
- PAs proposing to move backwards rather than forwards with share of LEDs in lighting initiative, and with behavioral initiative

C&I HISTORICAL AND PROJECTED ELECTRIC SAVINGS



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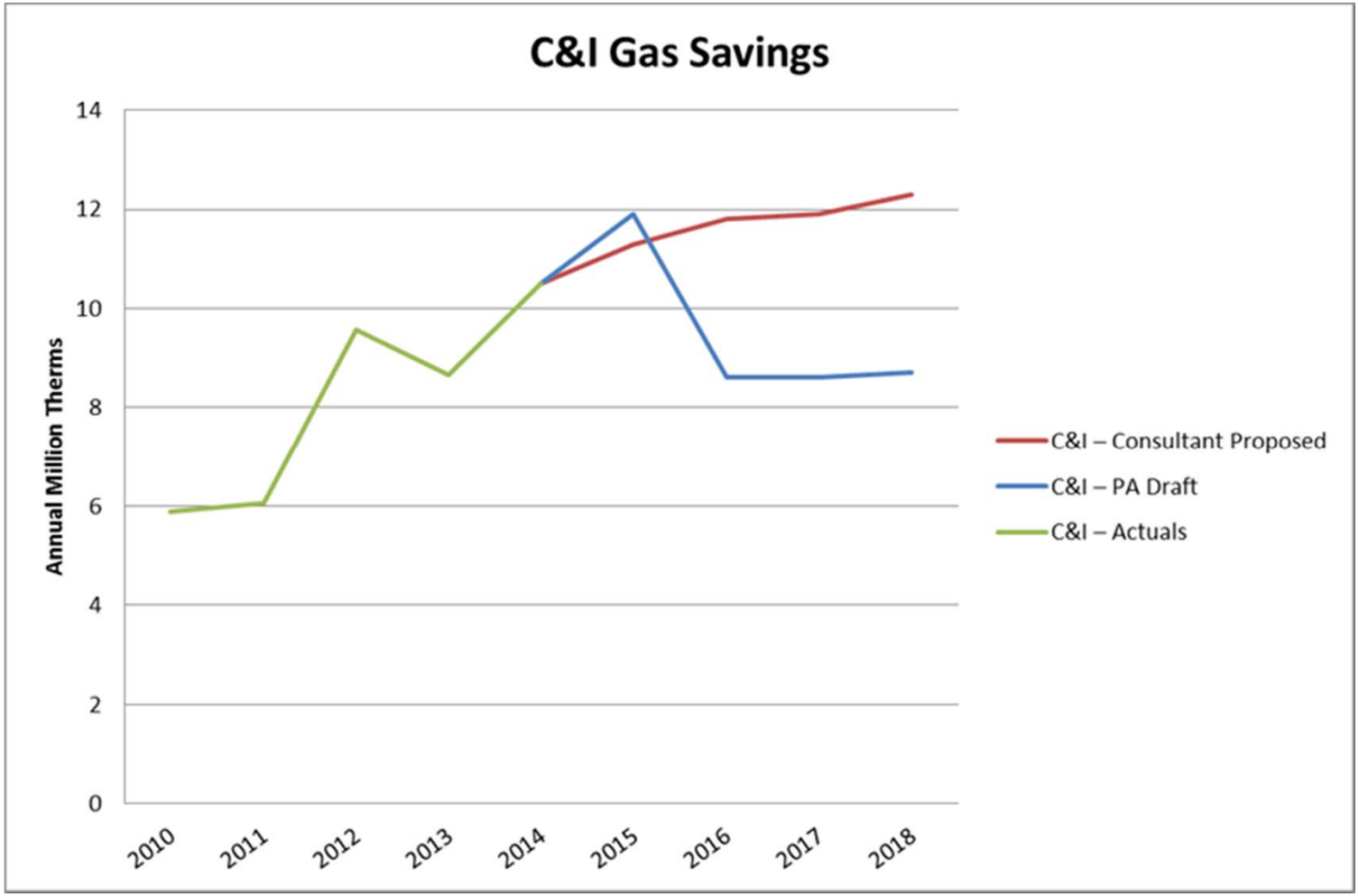


QUALITATIVE C&I PLAN REVIEW OBSERVATIONS

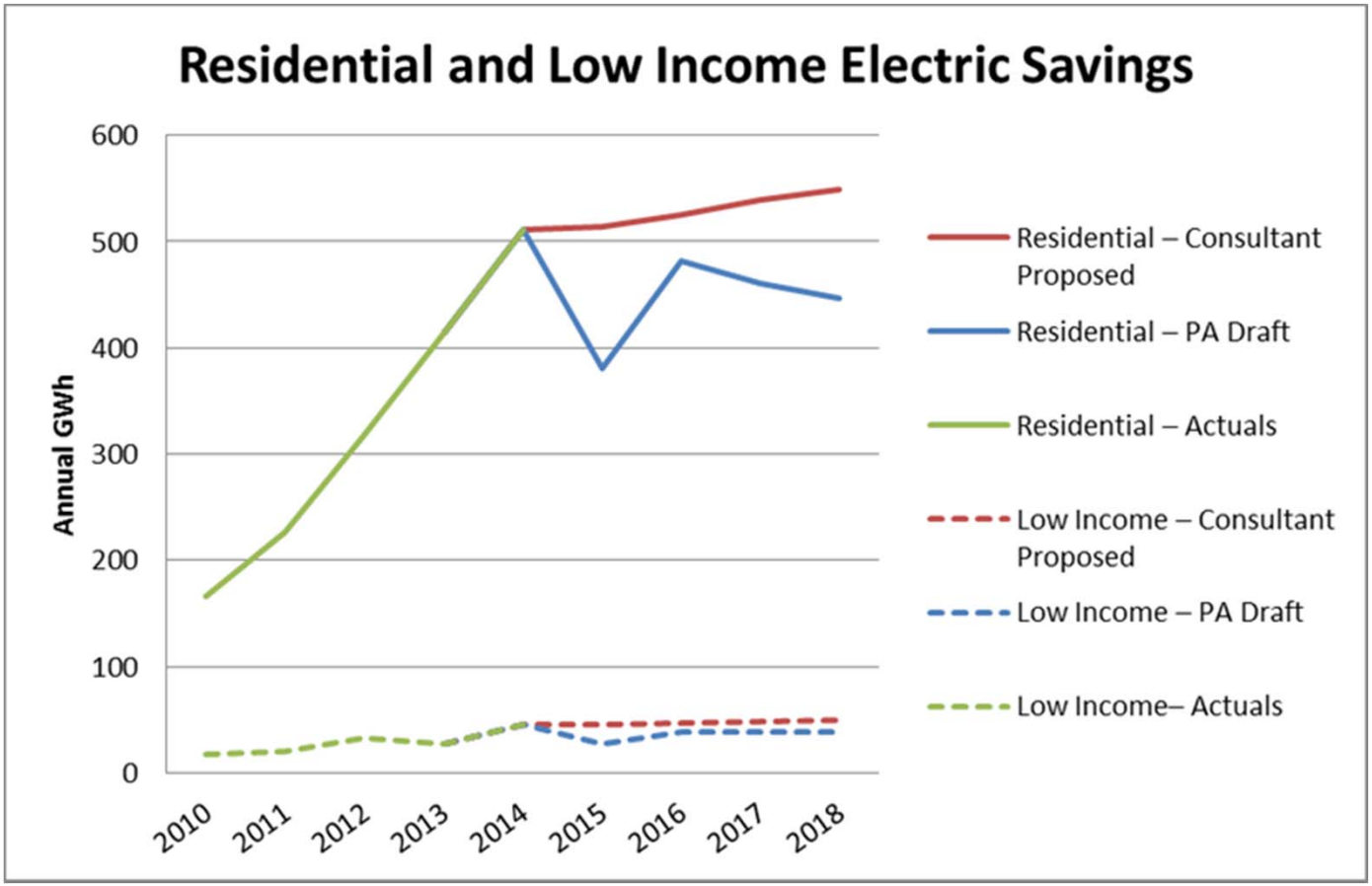
- C&I plan lacks specifics for improvements to the programs, and when they will be implemented
- Plan does not fully meet the intent of the Green Communities Act
- Plan states market saturation and codes will limit savings, but doesn't present plan to meet challenges
- Comprehensiveness: Sustainable office design addresses only lighting and lighting controls
- Participation: Large projects/CHP not included in planning; how to increase participation in other initiatives?

KEY DIFFERENCE – C&I

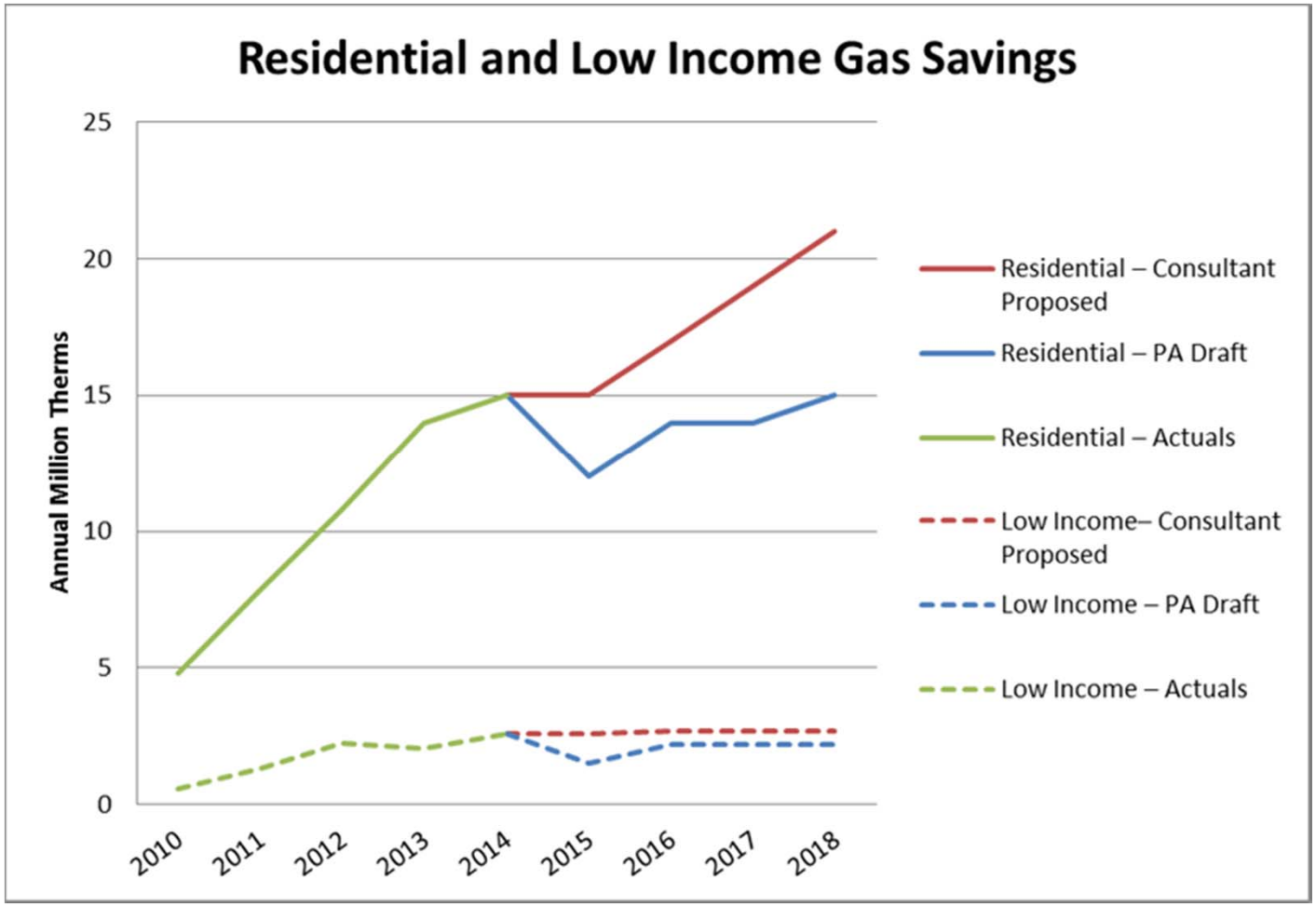
- **CHP assumptions vary significantly**
- **Important driver of savings and cost to achieve**
- **Actual CHP achievement 2011-2013 was 38 MW**
- **Three different estimates for 2016-2018:**

CHP Pipeline Estimates	MW
DOER	85
Consultant Team - Assessment of Potential	60
PA 3YP	21

RES AND LOW INCOME HISTORICAL AND PROJECTED ELECTRIC SAVINGS



RES AND LOW INCOME HISTORICAL AND PROJECTED GAS SAVINGS



QUALITATIVE RES AND LOW INCOME PLAN REVIEW OBSERVATIONS

- Initiative planning assumptions yield lower savings
- Insufficient acceleration of support for LEDs
- Limited growth in behavioral initiative savings and participation
- Several positive additions to multi-family retrofit Initiative
- Promising step for renters
- Additional information needed regarding plans to serve moderate income customers
- No incentives for net-zero new construction
- PAs did not reassess HEAT loan offering

LIGHTING SAVINGS DIFFERENCES

- Primary difference in lighting savings between PAs and consultants (208,603 MWh over 3 years) is unit numbers
  - In 2018 consultants assume 10.2 million units vs. 7.2 million for PAs
- **Higher annual cost of LEDs has been major factor in pace of transition, but appears overstated in Plan**
  - BCR model for 2016-2018 Plan assumes TRC cost of $15 for all LEDs bulbs in each year of Plan
  - BCR model also shows incentives for LEDs constant over all three years
  - Historic trends as well as information from U.S. Department of Energy, NEEP, Lawrence Berkeley National Laboratory, and preliminary analysis of MA information support continuous and significant price reductions

LED Share in Residential Lighting Initiative (statewide)

April 2015 (invoiced)	2016	2017	2018
45%	33%	42%	51%

BEHAVIORAL SAVINGS DIFFERENCES

From PAs' Draft 2016-2018 Plan (statewide numbers)	Electric			Gas		
	2016	2017	2018	2016	2017	2018
Participants	950,350	950,400	950,450	470,000	470,000	470,000
Annual savings (MWh/millions of therms)	125,414	123,623	123,232	5.4	5.5	5.5
Savings per partic. (kWh/therms)	132	130.1	129.7	11.6	11.7	11.7

- **Consultant assumptions:**
  - Participation: +10%/yr. elec. (2016-2018) and +10%/yr. gas (2016-2017)
  - Savings per participant: +5%/yr. elec. (2016-2018) and +5% (2017) gas
  - Difference is 102,465 MWh and 4.6 million therms over 2016-2018
- **Additional savings opportunities that merit consideration:**
  - Increase partic.: 2.5 million households in MA (13% served by munis)
  - Increase savings per partic. through innovations proposed by PAs—home automation, real-time feedback, smart appliances and controls—as well as K-12 education programs (kit-based programs have savings of 166-242 kWh according to a draft evaluation)

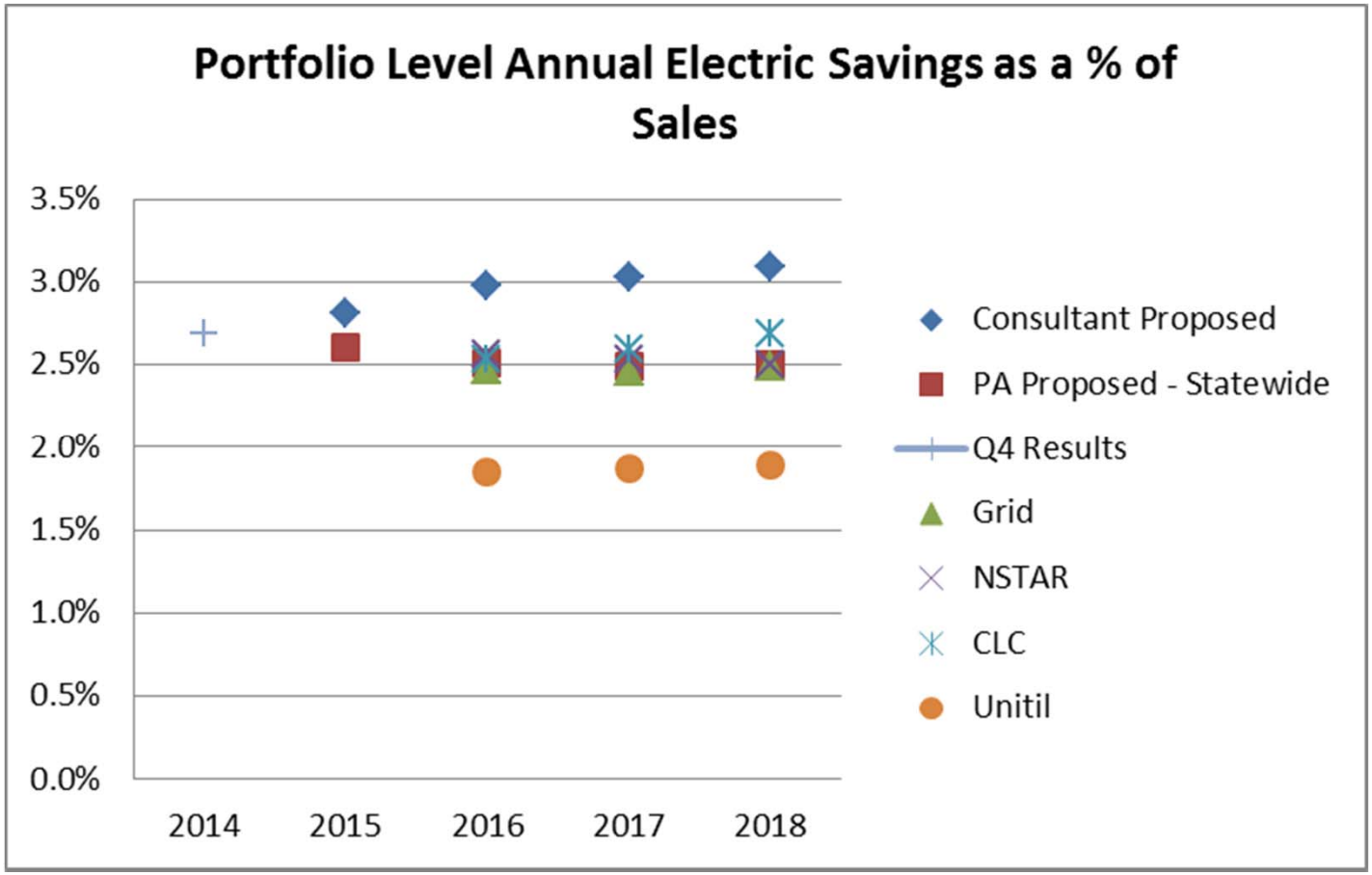
PA RESPONSES TO EEAC PRIORITIES AND RECOMMENDATIONS

- **PAs prepared a summary matrix of responses**
- **Still needed: PA commitments, action steps, and schedule**
  - E.g., develop XYZ approach by Q2 2016, implement by Q3 2016
- **Example of PA language in the 2016-2018 Plan:**
  - "PAs will also explore lighting controls as a possible initiative expansion measure."
  - "During the 2016-2018 Plan period the PAs will aggressively explore more ways to increase CHP installations…"

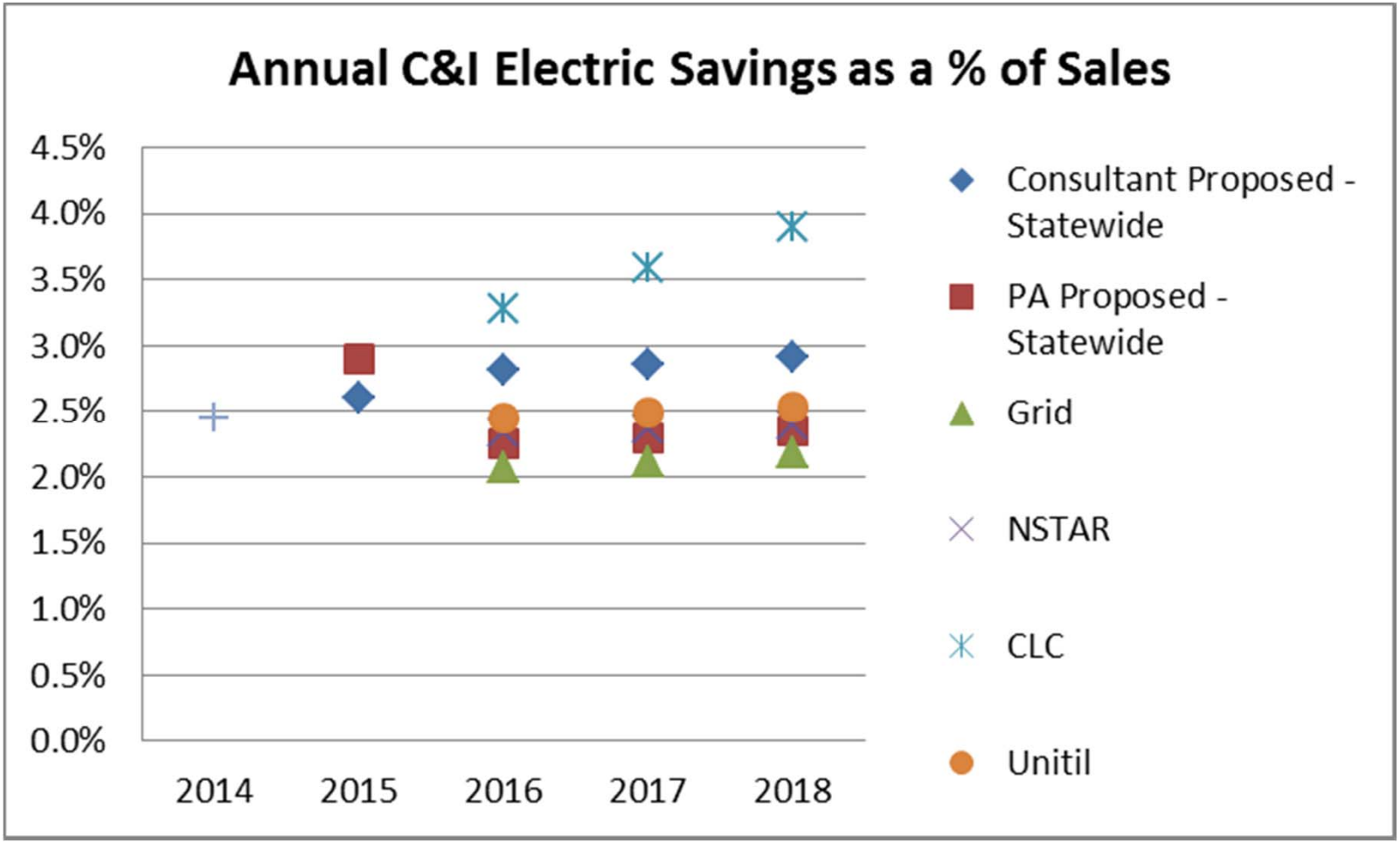
PA RESPONSES TO EEAC PRIORITIES AND RECOMMENDATIONS

- **Examples of Action Items from the 2013-2015 Plan:**
  - *Home Energy Services Initiative*: "The PAs plan to incorporate the multi-family new construction pilots mentioned above by Q1 2013."
  - *Residential Heating and Cooling*: "An early replacement package offer, which provides ECM Furnace with Central Air Conditioning. The PAs plan to work with evaluation team to develop the offer for measure implementation by Q2 2013."

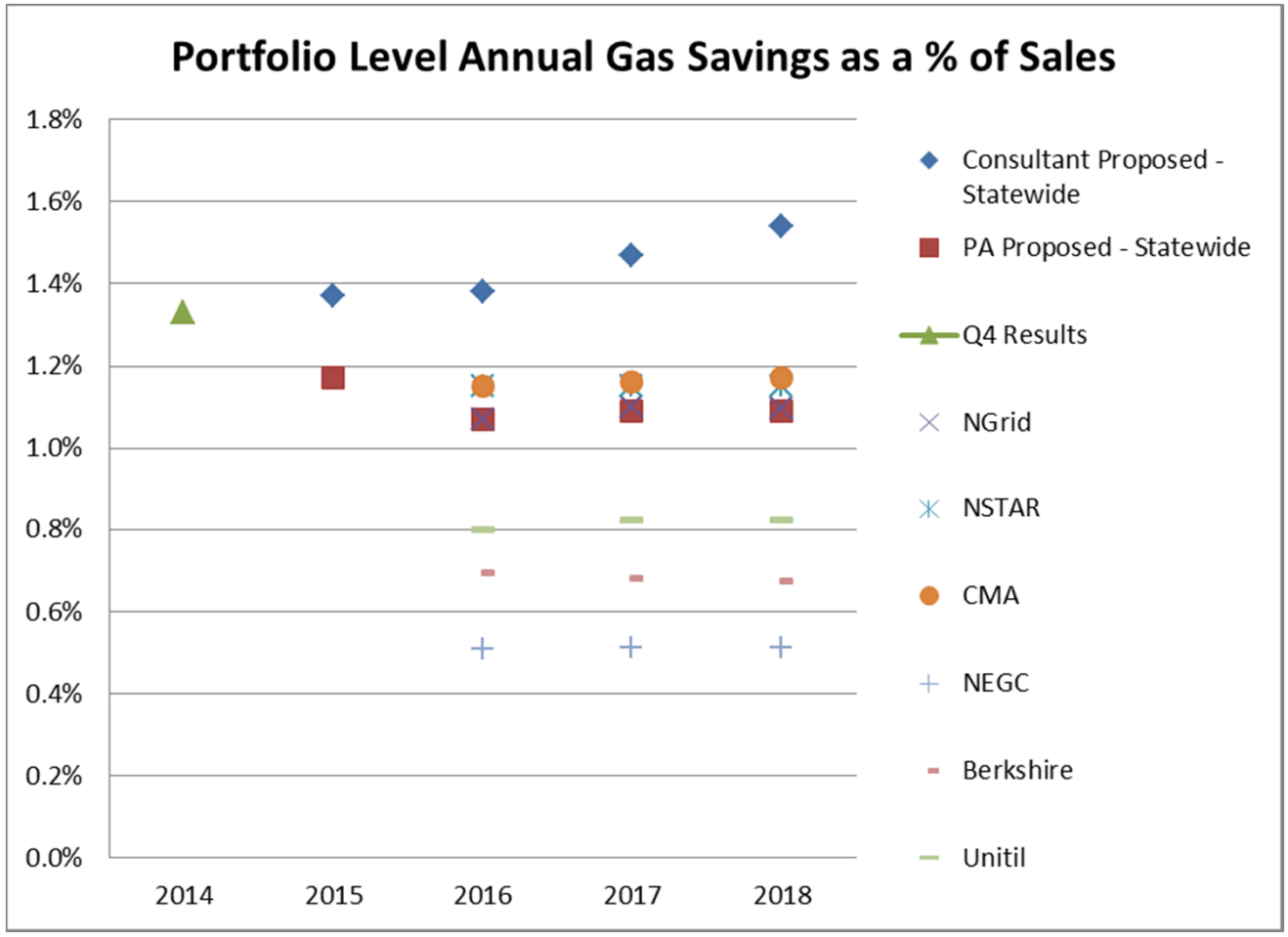
SAVINGS VARIATIONS ACROSS PAS: PORTFOLIO ELECTRIC SAVINGS



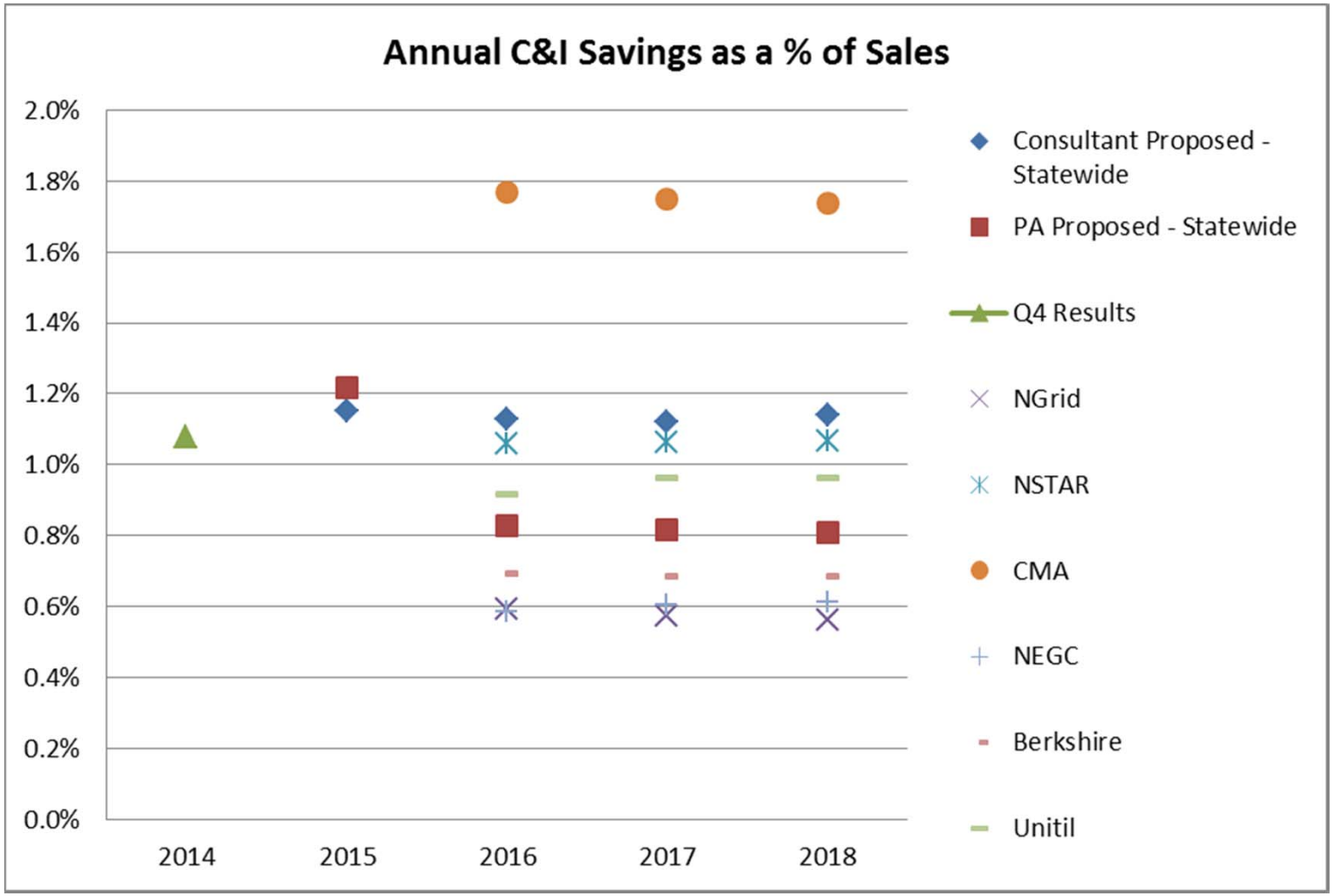
C&I ELECTRIC SAVINGS BY PA



SAVINGS VARIATIONS ACROSS PAS: PORTFOLIO GAS SAVINGS



C&I GAS SAVINGS BY PA



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THANK YOU

Questions?

▶ **May 19, 2015**

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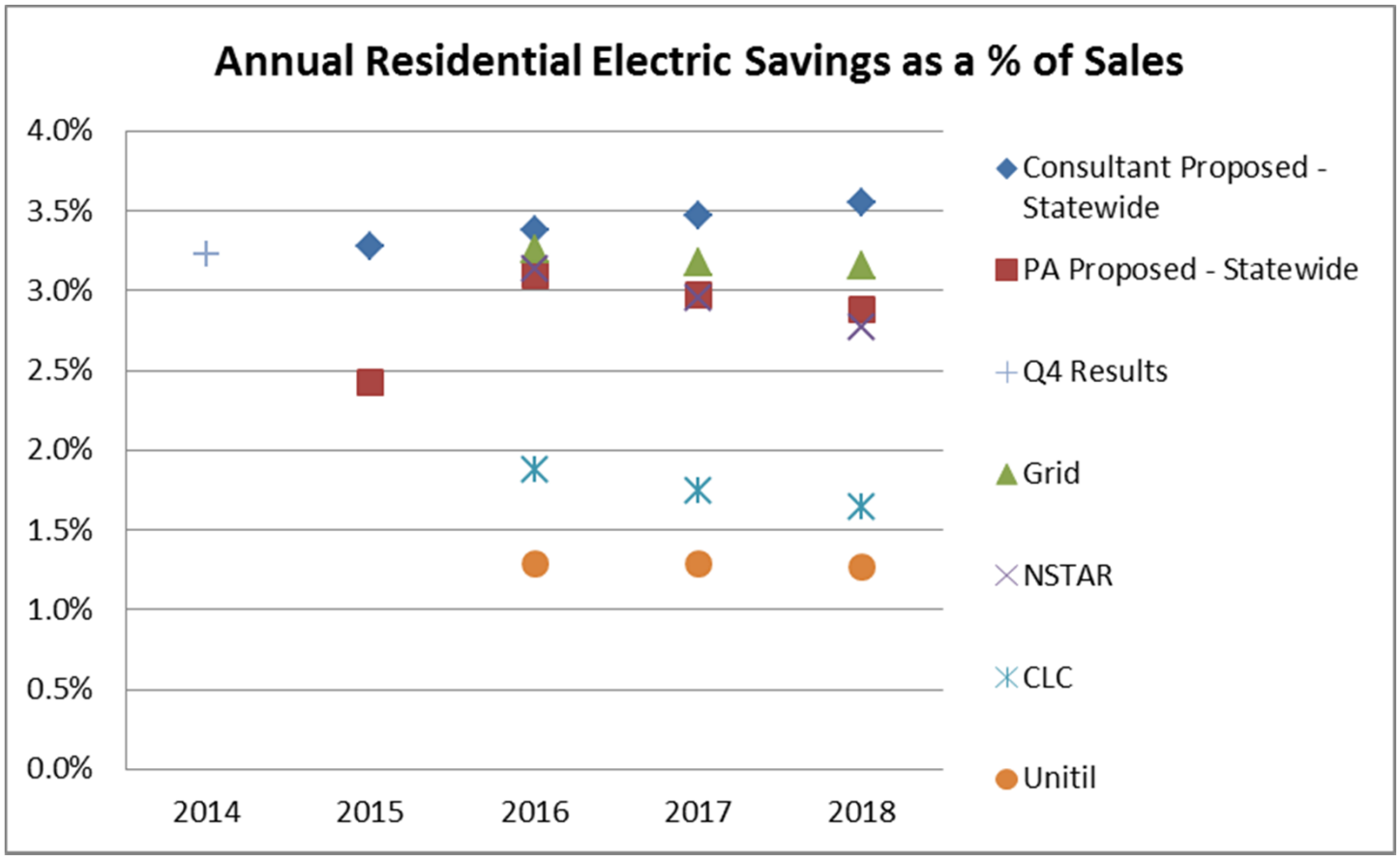
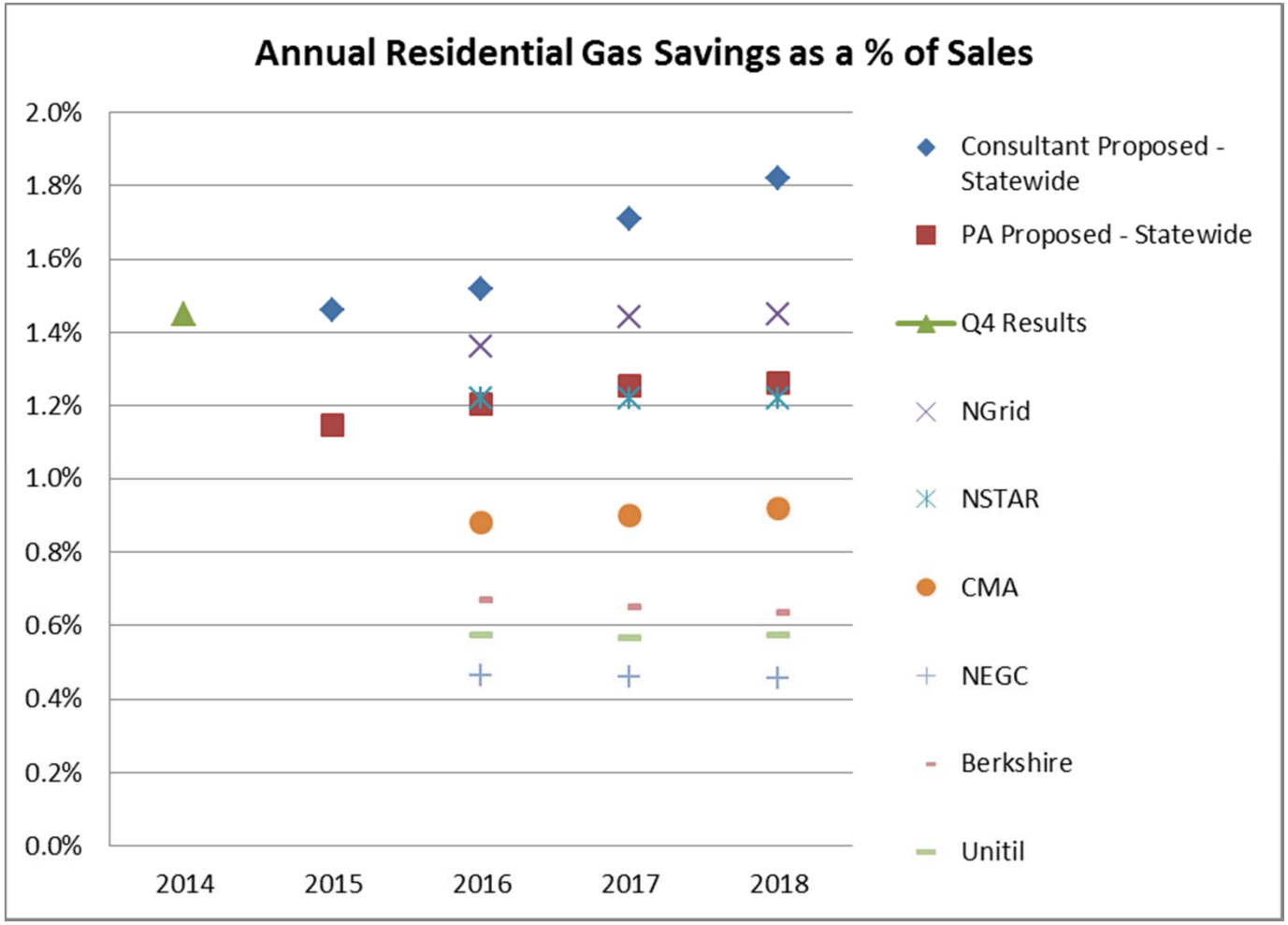
NEXT STEPS IN MAY–JULY

- **Key Drivers Analysis (May-June)**
  - Review and analysis of key drivers of savings and costs
  - Collaborative process with PAs and EEAC Consultants
  - In the past, resulted in resolving differences or narrowing gaps
- **Evaluation (EM&V) Results**
  - 2014 Plan-Year Report with final evaluation results (June 5)
  - Some EM&V results that were not applied to 2014 (not retrospective) will be applied to 2016-2018 (prospective only)
- **EEAC Priorities and Recommendations**
  - EEAC review of PA responses (summary matrix)
  - Need PA commitments, action steps, and schedule
- **EEAC review of above at June 29 (TBD) meeting**
- **EEAC Resolution & Comments on Draft Plan (by July 31)**

RESIDENTIAL ELECTRIC SAVINGS BY PA



RESIDENTIAL GAS SAVINGS BY PA