

REVIEW OF SEPTEMBER 23 PA DRAFT 2016-2018 ENERGY EFFICIENCY PLAN

► **September 30, 2015**

OVERVIEW



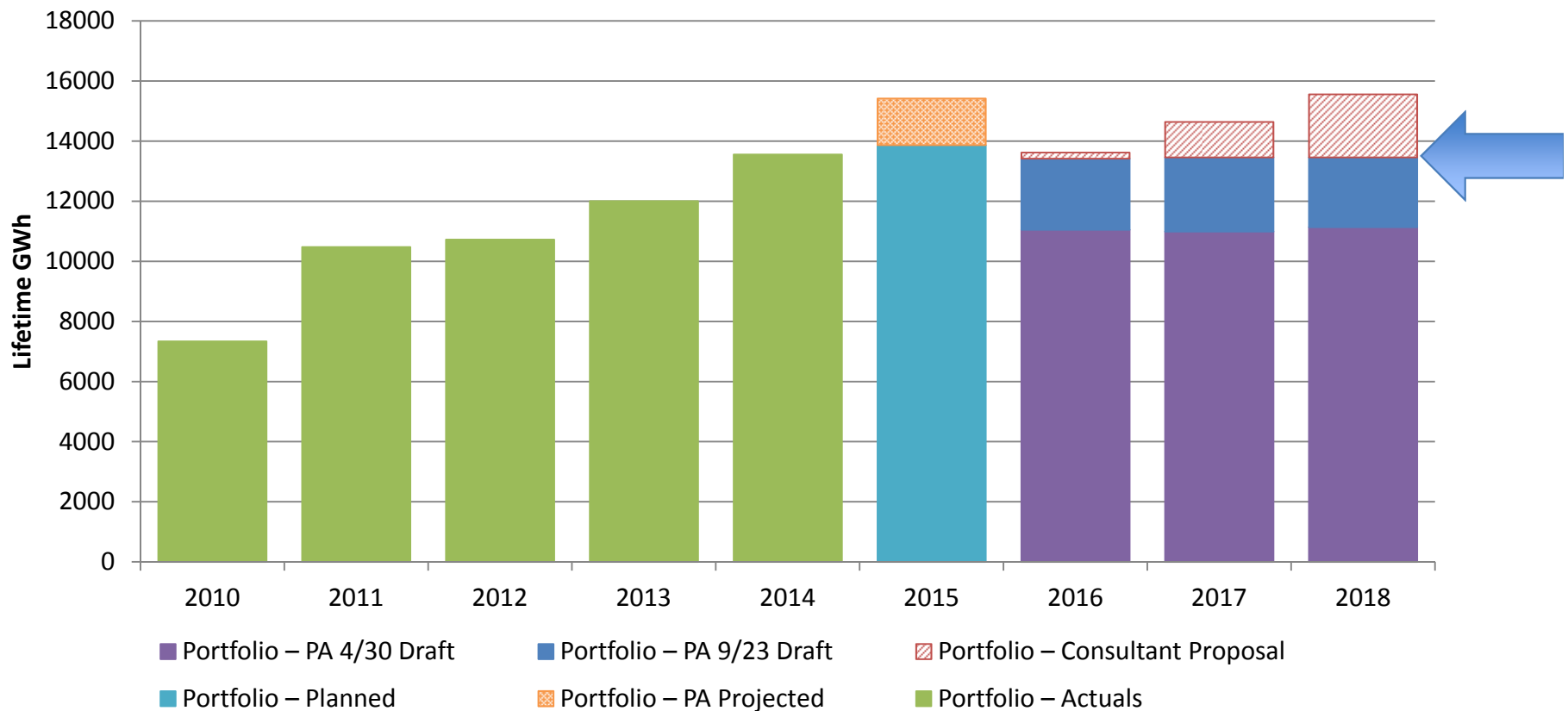
- ▶ Following the key drivers analysis process, the Consultants continued to support DOER and the AGO with analysis for Term Sheet negotiations
- ▶ The second draft of the PA 2016-2018 Plan is the result of a collaborative effort between the PAs, Consultant Team, DOER, and other stakeholders
- ▶ The September 23 draft of the Plan includes many councilor and stakeholder recommendations
- ▶ Terms Sheets reflect higher savings goals and lower costs to achieve than the first draft of the plan
- ▶ This presentation presents key changes between drafts and identifies remaining issues and questions

2016-2018 ELECTRIC PORTFOLIO LEVEL TERM SHEET SUMMARY

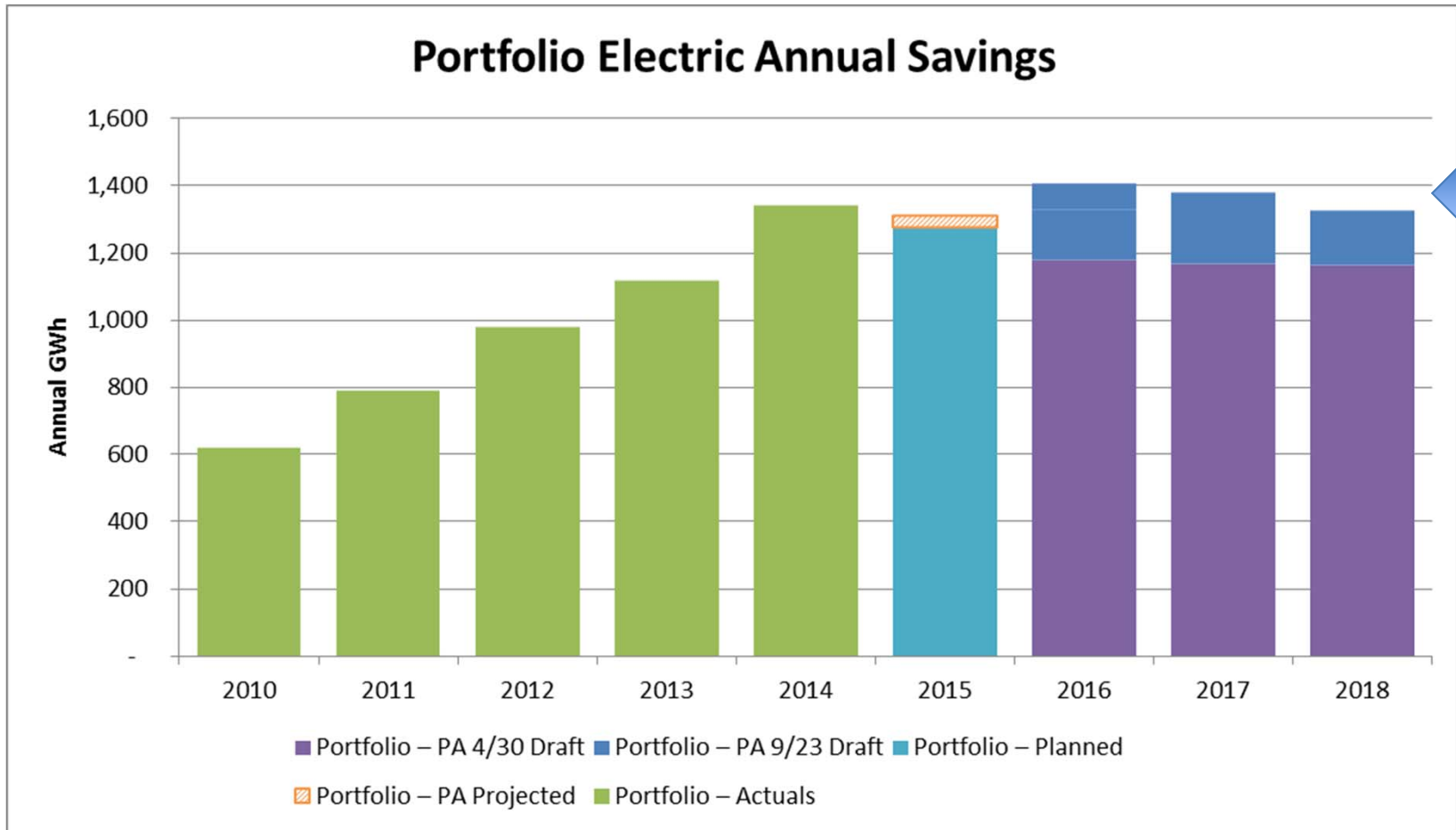
2016-2018	April 30 Draft	Sept. 23 Draft	% Change
Annual Savings (MWh)	3,509,393	4,107,928	17%
Lifetime Savings (MWh)	33,171,473	40,334,904	22%
Summer Peak Savings (kW)	514,175	598,436	16%
Winter Peak Savings (kW)	617,294	649,120	5%
Percent of Sales	2.50%	2.93%	17%
Budget (\$millions)	\$1,818	\$1,860	2%
\$/Annual kWh	\$0.518	\$0.453	-13%
\$/Lifetime kWh	\$0.0548	\$0.0461	-16%
Benefits (\$millions)	\$5,589	\$6,345	14%

REVISED ELECTRIC SAVINGS TRAJECTORIES

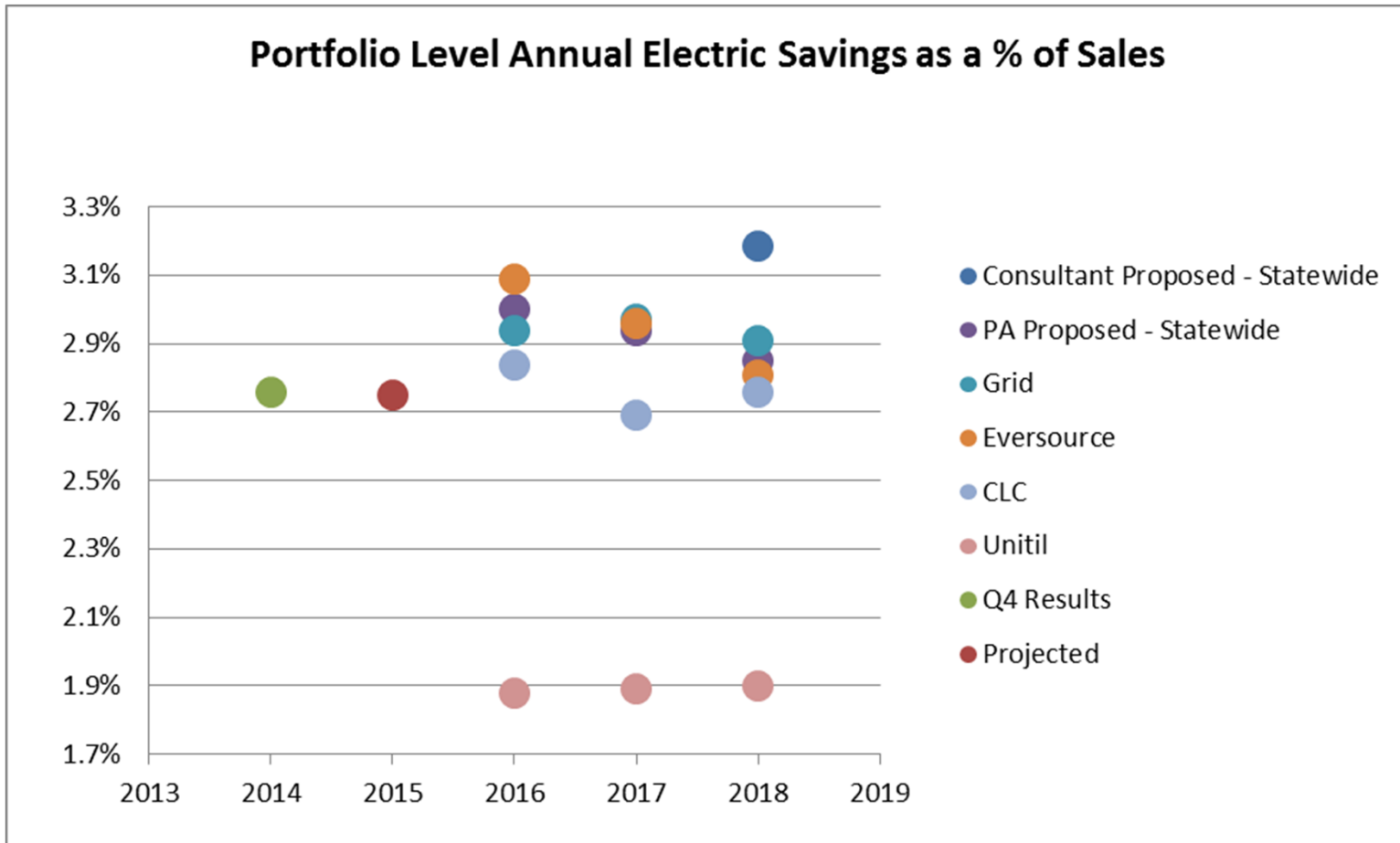
Portfolio Level Lifetime Electric Savings



REVISED ELECTRIC SAVINGS TRAJECTORIES



PA-SPECIFIC ELECTRIC SAVINGS



ANNUAL ELECTRIC SAVINGS AS % OF SALES

	April 30 Plan			September 23 Plan		
	2016	2017	2018	2016	2017	2018
CLC	2.53%	2.60%	2.69%	2.84%	2.69%	2.76%
Eversource	2.57%	2.53%	2.50%	3.09%	2.96%	2.81%
National Grid	2.47%	2.46%	2.49%	2.94%	2.97%	2.91%
Unitil	1.85%	1.87%	1.89%	1.88%	1.89%	1.90%
Statewide	2.51%	2.49%	2.50%	3.00%	2.94%	2.85%

ELECTRIC LIFETIME COSTS/KWH

	April 30 Plan			September 23 Plan		
	2016	2017	2018	2016	2017	2018
CLC	\$0.073	\$0.075	\$0.078	\$0.078	\$0.084	\$0.087
Eversource	\$0.047	\$0.049	\$0.051	\$0.040	\$0.042	\$0.043
National Grid	\$0.057	\$0.060	\$0.061	\$0.048	\$0.048	\$0.048
Unitil	\$0.057	\$0.056	\$0.057	\$0.050	\$0.049	\$0.048
Statewide	\$0.053	\$0.055	\$0.057	\$0.045	\$0.046	\$0.047

ELECTRIC BENEFIT/COST RATIOS (SEPTEMBER 23)

Electric BCRs in 2016-2018

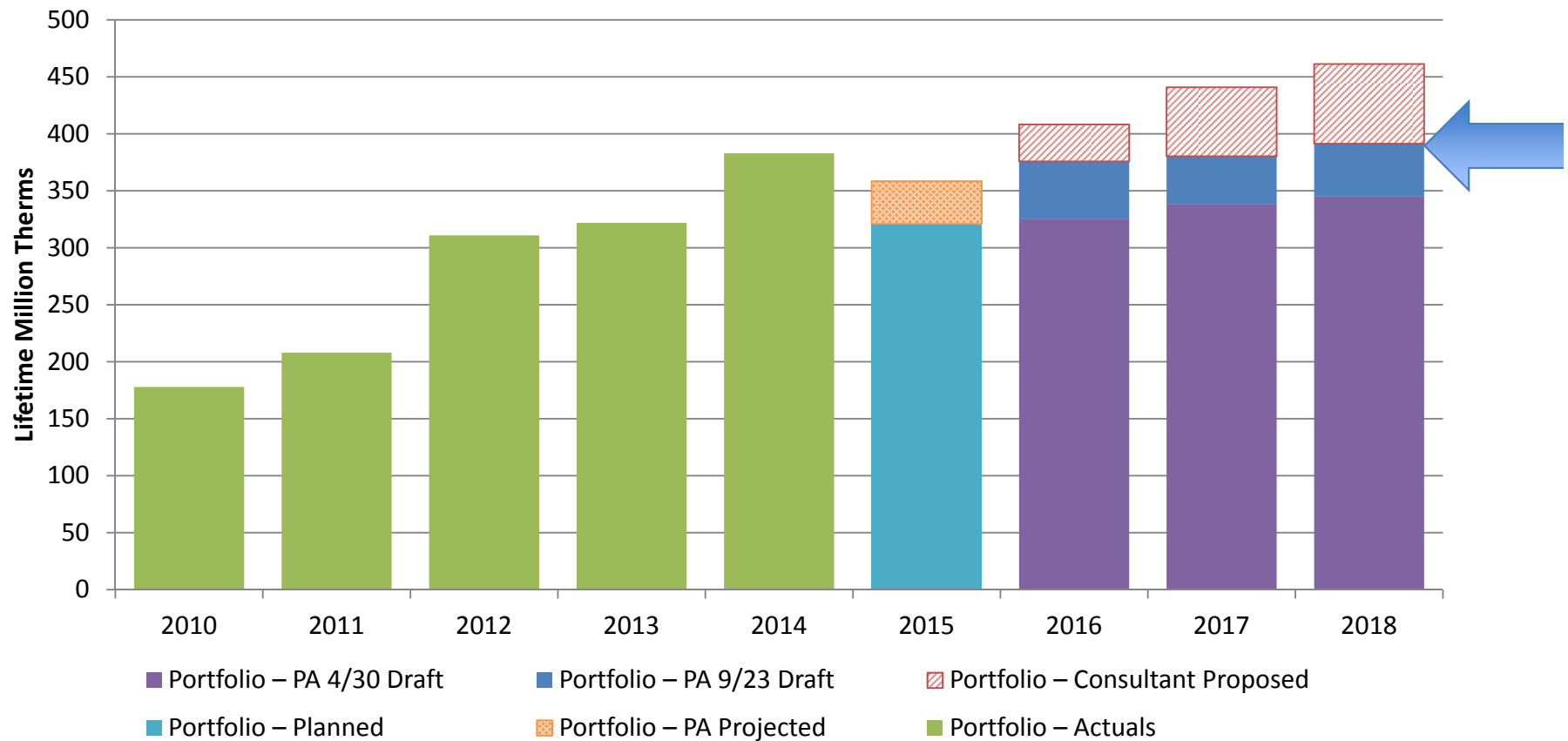
	2016	2017	2018	2016-2018
Residential	2.28	2.21	2.20	2.23
Low Income	1.65	1.71	1.73	1.69
C&I	2.55	2.67	2.79	2.67
Total	2.37	2.39	2.45	2.40

2016-2018 GAS PORTFOLIO LEVEL TERM SHEET SUMMARY

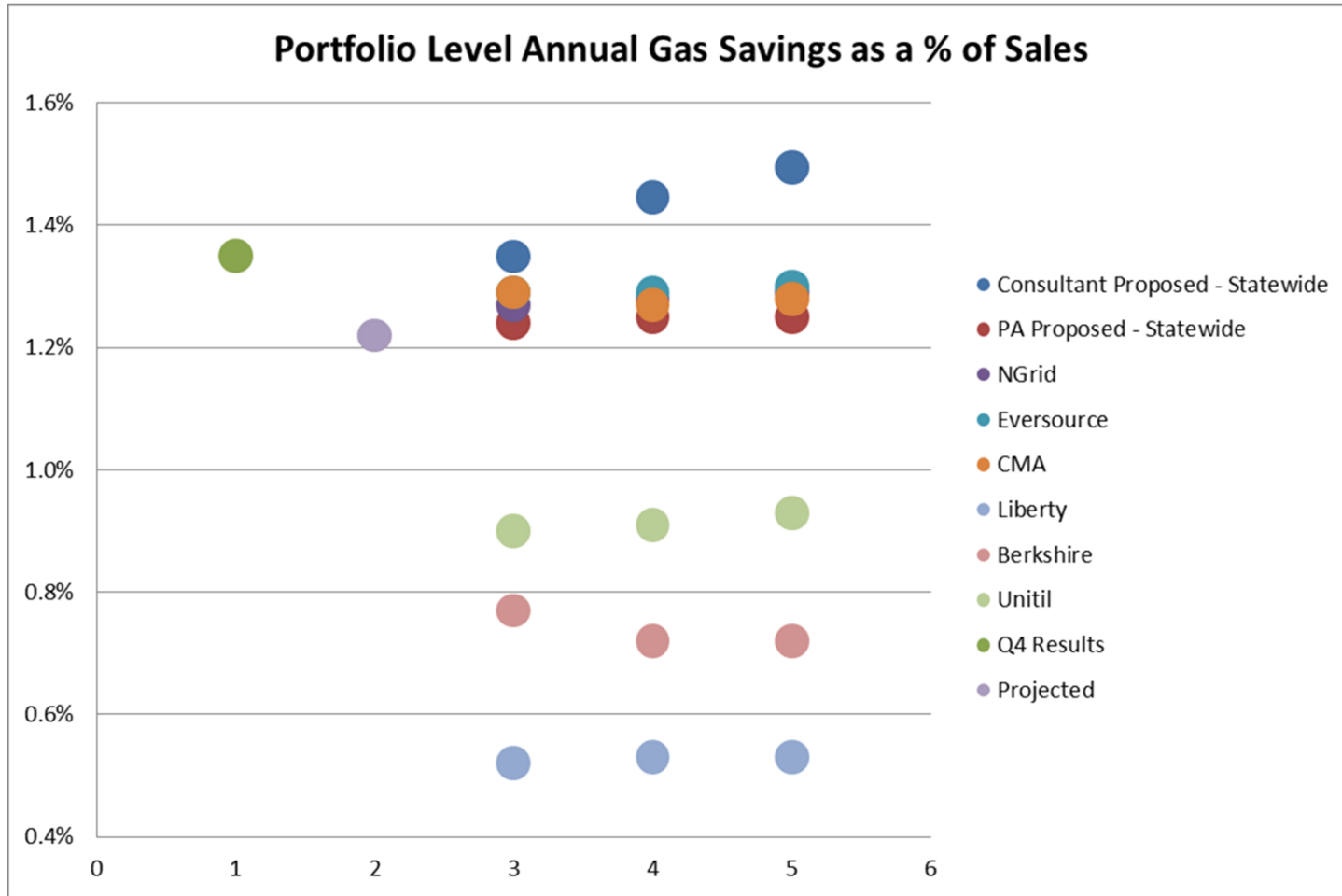
2016-2018	April 30 Draft	Sept. 23 Draft	% Change
Annual Savings (million therms)	75	86	15%
Lifetime Savings (million therms)	1,009	1,148	14%
Percent of Sales	1.08%	1.24%	15%
Budget (\$millions)	\$623	\$670	7%
\$/Annual therm	\$8.33	\$7.81	-6%
\$/Lifetime therm	\$0.618	\$0.583	-6%
Benefits (\$millions)	\$475	\$562	18%

REVISED GAS SAVINGS TRAJECTORIES

Portfolio Gas Lifetime Therm Savings



PA-SPECIFIC GAS SAVINGS



ANNUAL GAS SAVINGS AS % OF SALES

	April 30 Plan			September 23 Plan		
	2016	2017	2018	2016	2017	2018
Berkshire	0.69%	0.68%	0.67%	0.77%	0.72%	0.72%
CMA	1.15%	1.16%	1.17%	1.29%	1.27%	1.28%
Eversource	1.15%	1.15%	1.15%	1.29%	1.29%	1.30%
Liberty	0.51%	0.51%	0.51%	0.52%	0.53%	0.53%
National Grid	1.07%	1.10%	1.10%	1.27%	1.28%	1.29%
Unitil	0.80%	0.82%	0.82%	0.90%	0.91%	0.93%
Statewide	1.07%	1.09%	1.09%	1.24%	1.24%	1.25%

LIFETIME GAS COSTS/THERM

	April 30 Plan			September 23 Plan		
	2016	2017	2018	2016	2017	2018
Berkshire	\$0.484	\$0.485	\$0.487	\$0.520	\$0.531	\$0.535
CMA	\$0.509	\$0.514	\$0.519	\$0.508	\$0.512	\$0.512
Eversource	\$0.545	\$0.556	\$0.562	\$0.529	\$0.540	\$0.551
Liberty	\$0.621	\$0.620	\$0.620	\$0.617	\$0.598	\$0.588
National Grid	\$0.714	\$0.685	\$0.688	\$0.632	\$0.635	\$0.629
Unitil	\$0.526	\$0.515	\$0.515	\$0.507	\$0.514	\$0.510
Statewide	\$0.622	\$0.613	\$0.618	\$0.580	\$0.585	\$0.585

GAS BENEFIT/COST RATIOS (SEPTEMBER 23)

Gas BCRs in 2016-2018 Plan (September 23)

	2016	2017	2018	2016-2018
Residential	1.66	1.65	1.67	1.66
Low Income	1.71	1.72	1.75	1.72
C&I	2.75	2.73	2.70	2.72
Total	1.90	1.89	1.90	1.89

RESOLUTION MATRIX AND PLAN AND DATA OBSERVATIONS

- ▶ The Plan includes many of the Council's recommendations from the workshop process; many are partially or not addressed
- ▶ Tracking and regular reporting to the Council is important for periodic assessment of key initiatives
- ▶ C&I gas savings and costs look good
- ▶ C&I electric savings are low when indexed to load. This drives up statewide portfolio costs
- ▶ Program details and deadlines are not consistently provided
- ▶ PA differences in savings levels, costs to achieve, incentives, and measure numbers still remain and are not fully understood
- ▶ TRL has not yet been provided



RESIDENTIAL PROGRAMS

RENTER INITIATIVE (93-96)



- ▶ Revised draft includes additional details, including Q1 2016 launch
- ▶ Appears to be a carefully considered response to prior challenges in serving this market and expressed stakeholder interest
- ▶ Tracking of renter and landlord participation and savings will be required to assess success in serving renters and converting renter visits to deeper savings
- ▶ Consultants recommend establishment of a clear process for Council and stakeholders to review progress and discuss adjustments with the PAs

MODERATE INCOME CUSTOMERS (88-92)

- ▶ Revised draft includes additional details, including Q1 2016 launch
- ▶ Primary focus on qualifying customers otherwise seeking services and providing enhanced incentives
 - Customers in 61-80% SMI range are ~10% of population
 - Outreach opportunity for stakeholders serving affected populations
 - Due to enhanced incentive increasing participation will increase costs
- ▶ Consultants recommend establishment of a clear process for Council and stakeholders to review progress and discuss adjustments with the PAs

MULTI-FAMILY (107-111, 114)

- ▶ Plan shows continued evolution for addressing the multi-family market
 - Transition to performance path for high rises in new construction
 - Designation of a project-level point of contact for multi-family retrofit
 - Break out of measures by meter type and fuel type
 - Unclear if this is accomplished through a unique site identifier
- ▶ Program approach still does not deliver a true multi-family pay-for-performance model
 - Higher incentives tied to modeled or measured performance with full integration of res and C&I
 - Leverage prior and future benchmarking efforts
 - PAs should offer as an alternative path (alongside prescriptive path); could start as a demonstration/trial

LIGHTING (118-20)

- ▶ **Lighting is by far the most significant driver in Res Sector savings: 72% of 2016 annual savings, 84% lifetime**

- ▶ **Significant progress since April**

	Change since April draft
Cumulative 3-year savings increase	+60% annual, +86% lifetime
Total lighting units	+36%
Lighting Initiative annual cost rate	-27%

- ▶ **Consultants recommend higher LED share**

PA Sept. Plan	Consultants Recommendation
54%/63%/72%	65%/77.5%/90%

- ▶ **Room for additional LED cost savings**
 - TRC costs are static across 3 years; incentives overstated



COMMERCIAL AND INDUSTRIAL PROGRAMS

C&I RESOLUTION MATRIX AND PLAN ADDITIONS – GOOD THINGS

- ▶ There is a good description of new technologies currently being evaluated and of the MA Tech Assessment Committee (MTAC) process
- ▶ Description of collaborations with other entities like NYSERDA and customers
- ▶ Commercial Real Estate meets Council requests
- ▶ Expanded Building Operator Certification and web-based learning opportunities

COMBINED HEAT AND POWER

- ▶ Council asked for reporting on CHP but PAs are only providing data in the BCR models (Matrix C.49)
- ▶ Commitment to commission a best practices review deadline
 - An issue remains: How to streamline CHP approval/interconnection process
- ▶ CHP savings have increased from 117,097 MWh in the April Draft to 174,111 MWh
 - This the equivalent off going from 20.6 MW to 32.7 MW
 - Consultant estimate in July was 42.4 MW

LIGHTING



► Streetlights

- PAs have committed to applying for tariffs for company owned streetlights
- What is the strategy for company owned street lights after the new tariff is available? (Matrix I. 82)

► Upstream

- PAs increased savings from 130,000 to 172,000 gross MWh
- New NTG increases 172,000 gross MWh to 204,000 Net MWh

► Address the linear lighting transition from fluorescent to LED

- This is a major market shift
- PAs are thinking about this, why not share with the Council in the Plan. What is the strategy?

POTENTIAL INNOVATION



- ▶ **Continuous Technical Improvement**
 - PAs talk about MTAC and collaboration
 - Budget for C&I R&D declines from April Plan
 - \$1,577,960 to \$ 1,465,226 electricity and gas combined

- ▶ **Strategic Energy Management (SEM) Programs**
 - Minimum program elements have been defined by CEE (Matrix F. 62). There are established programs following this accepted definition.
 - The PAs say they will consider SEM, but no commitment
 - 44,000 MWh for C&I program in Oregon = 5.8% of 2018 annual planned C&I savings
 - There are 400 Accounts with usage of 10 million kWh or more in MA.

RECONCILE MATRIX AND PLAN

- ▶ Commitment to better communication with the Council is needed in the plan
 - Updates to the Council on CHP, R&D, Streetlights, Segmentation strategies are in Matrix now, also include in Plan (A. 37, B. 47, C. 49, C. 53 and D. 54)
- ▶ Commit to a common RCx tool in Plan (E. 56)
- ▶ Mid-sized customer Matrix response varies from the plan, should be reconciled. (A. 39)
- ▶ Sub-meters are limited to MOU customers (A. 42)
 - Best practice states meters make sense for RCx p. 117
- ▶ Commitment to promote self-funding of the thermal portion of a comprehensive energy assessment using a PA auditor (K. 86)

PA DIFFERENCES



▶ Industrial Process

- National Grid savings average 16,000 MWh/yr at \$402/MWh, which is 0.1% of C&I sales
- Eversource savings average 42,300 MWh/yr at \$107/MWh, which is 0.3% of C&I sales

▶ Small Business

- Nat. Grid and Eversource are planning 22 MWh/Participant
- Unitil and CLC are planning 16 MWh/Participant
- Nat. Grid and Eversource are planning \$486 and \$635 \$/MWh
- Unitil and CLC are planning \$1045 and \$770 \$/MWh



EM&V

EM&V

- ▶ The Strategic Evaluation Plan (SEP) is a consensus document reflecting ongoing collaboration between PAs and EEAC Consultants EM&V Team
 - SEP will continue to evolve incrementally until it reaches final form in October filing
- ▶ Individual PA potential studies were performed outside of statewide EM&V framework
 - Methods and reporting thus do not reflect collaborative statewide EM&V process
 - Consultant Team review determined the PA potential studies are flawed and therefore should not be relied on
 - Studies' estimates of potential savings are less than current achievement

EM&V, CONTINUED



- ▶ **Filing contains some non-consensus language regarding planned emissions study**
 - PAs and EEAC Consultants have agreed to conduct study, but language on pp. 248-249 contains specific study provisions not agreed to, and DEP and others have some comments
 - Our understanding is that the plan has early draft language, which will need to be corrected in October version
 - SEP (p. 1,541) accurately characterizes what has been agreed upon to date

- ▶ **Filing contains many references to implications of completed EM&V studies**
 - Consultants applaud this attention to the EM&V feedback loop
 - However, there are a few references to implications that we believe reflect misinterpretations of study results

QUESTIONS?

Thank You

▶ **September 30, 2015**

www.ma-eeac.org



ADDITIONAL PROGRAM SLIDES

CONTRACTORS (104)



- ▶ **Focus of discussion during stakeholder workshops and ongoing through PAs' continuous improvement efforts**
- ▶ **Addressed in term sheet:**

“The PAs and the Council will collaborate to identify opportunities to continue to maximize the impact of the contractor community in order to maintain high quality, cost-effective/efficient, high impact programs and increase penetration and success in new sectors. As part of this effort, the PAs will participate in a new Residential Contractor engagement effort to be convened by the DOER.”
- ▶ **Could also be affected by pending RCS regulations and associated guidelines (yet to be developed)**

PATH TO ZERO (115-116)



- ▶ **New draft of Plan indicates the PAs will explore a “Path to Zero” for residential new construction**
 - Focus is on recognition rather than incentives
- ▶ **Does not specifically incorporate Council recommendations:**
 - Requiring renewable readiness in the highest two performance tiers/top prescriptive tier and
 - Assessing the impact of creating a ZNE performance tier
- ▶ Positive step that dovetails with DOER efforts, but there should be more concrete steps from a nation-leading program and group of PAs

BEHAVIOR (112)

- ▶ **Focus of Consultants given contribution to annual savings, comparatively low cost to deliver, strong BCR, and mandate to achieve all cost effective energy efficiency**
 - Behavioral annual savings were 25% of electric sector savings and 41% of gas sector savings in 2014
 - 2014 annual electric cost rate was \$0.08 (vs. \$0.40 sector avg.), gas cost rate was \$0.54 (vs. \$6.30 sector avg.)
- ▶ **Plan indicates PAs will be pursuing innovations, including linkages to newer technologies**
- ▶ **Several PAs are offering no behavior initiative or an extremely limited one**
 - To the extent these are cost effective, they could provide additional electric and gas savings

HVAC & WATER HEATING (121)

- ▶ **Electric HVAC contributed 2% of 2014 Res Sector annual savings; Gas HVAC contributed 18%**
- ▶ **Includes promotion of new and emerging technologies that are un- or less affected by federal equipment standards or by recent impact evaluations**
 - Heat pump water heaters
 - WiFi thermostats (increased emphasis in HES in particular)
 - Ductless mini-split heat pumps (questions still to be answered through pending evaluation and RCS regulations proceeding)
 - ECM circulator pumps
- ▶ **Ongoing efforts related to condensing boiler installation could and should increase gas savings**