MA ENERGY EFFICIENCY ADVISORY COUNCIL

→ CONSULTANT TEAM

2019 Q3 KEY PERFORMANCE INDICATORS (KPIS)

▶ **December 18, 2019**

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INTRODUCTION

- **Presentation intended to review quarterly Key Performance Indicators (KPIs) provide observations**
- **6 KPIs Launched in Q1 of 2019**
  - 3 residential and income eligible focused, 3 C&I focused
- **Broad purpose of KPIs is to track progress towards certain Council priorities in real time**
- **KPIs data will be most meaningful when trends can be established**
- **Some on-going data quality issues and questions still need to be addressed**
- **A formal process for reviewing data with PAs would be beneficial**

ONGOING DATA QUALITY ISSUES COMPROMISE ABILITY TO USE DATA

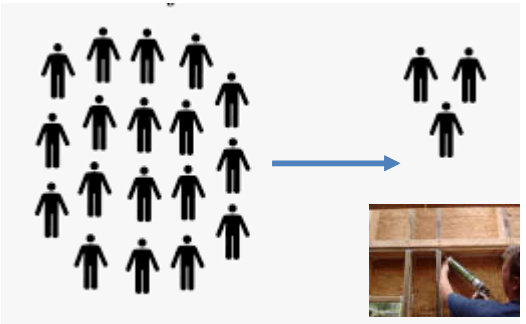
- **Significant progress in meeting reporting commitments and reporting more data than ever**
- **Much of the quarterly KPI data reported with reasonable confidence in accuracy, others not**
- **Issues effecting data accuracy not being proactively disclosed by the PAs when data are published**
- **A formal process for reviewing data with PAs is necessary**

Step 1: review and discuss issues related to data quality prior to or shortly after publication

Step 2: review and discuss substantive implications of the data (at management committees)

KPI #1: RECOMMENDATION TO INSTALLATION CONVERSION RATES (RES)

- **Purpose: Assess success of PA efforts to secure customer conversions**
- **Tracks 4 measures: insulation, air sealing, duct sealing, duct insulation**



- **Structured to capture conversions within one year of recommendation**
  - No real conclusions from data since don't yet have full year
  - Provides additional useful information on:
    - Rate at which measures are recommended at HEA
    - Lag time between recommendation and installation
- **Limitation: Does not include heating system conversions**

KPI #1: RECOMMENDATION TO INSTALLATION CONVERSION RATES (RES)

Measure	# of Recommendations	# of Conversions (Incremental)					Total # of 1-Year Conversions (Cumulative)	1-Year Conversion Rate
	2019 Q1	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2019 Q1-2020 Q1	
Insulation	19,820	2,132	4,198	1,449	-	-	7,779	39%
Air Sealing	18,091	2,318	4,402	1,441	-	-	8,161	45%
Duct Sealing	2,135	208	445	133	-	-	786	37%
Duct Insulation	331	23	70	19	-	-	112	34%
Total	40,267	4,676	9,090	2,983	-	-	16,749	42%
	2019 Q2	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2019 Q2-2020 Q2	
Insulation	18,074	2,026	3,846	-	-	-	5,872	32%
Air Sealing	16,431	2,130	3,882	-	-	-	6,012	37%
Duct Sealing	2,082	247	461	-	-	-	708	34%
Duct Insulation	334	27	58	-	-	-	85	25%
Total	36,745	4,424	8,213	-	-	-	12,637	34%
	2019 Q3	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2019 Q3-2020 Q3	
Insulation	17,064	2,060	-	-	-	-	2,060	12%
Air Sealing	15,738	2,112	-	-	-	-	2,112	13%
Duct Sealing	1,819	262	-	-	-	-	262	14%
Duct Insulation	338	43	-	-	-	-	43	13%
Total	34,826	4,472	-	-	-	-	4,472	13%

KPI #2: MEASURE QUANTITIES (RES AND INCOME ELIGIBLE)

- **Purpose: Assess progress on program goals and**
- **Not able to make real use of the KPI#2 data**

  - PAs and vendors updating tracking systems to align with new programs, initiatives, and measures for 2019-2021
    - PAs reported at RMC that issue will be resolved for 2019 annual report filing on 5/1/2020 at latest
  - Cape Light Compact and National Grid have had challenges with their HVAC rebate processing vendor(s) that have prevented uploading of HVAC data
    - PAs reported at RMC that expect issue to be resolved for Q4

KPI #2: MEASURE QUANTITIES (RES AND INCOME ELIGIBLE)

- **Once data quality issues addressed, KPI#2 will be extremely useful for several reasons:**
  - Includes ALL residential and income eligible measures
  - Reported by individual PA
  - Data previously available only in Plan Year reports, published the following May 1 after end of a given Plan year
- **Consultants will use data to open door to discussions with PAs and LEAN regarding:**
  - Progress of new initiatives
  - Program opportunities and barriers/concerns
  - PA differences to support sharing of best practices

KPI #3: # OF HEATING SYSTEM RECOMMENDATIONS BY FUEL TYPE AT HEAS

- **Purpose: Assess impacts of PAs' new Energy Optimization (EO) framework**
  - Particularly interested in fuel switching recommendations
- **Supporting educational framework for EO not fully rolled out yet, including:**
  - Energy Specialist and HPC training continuing to ramp up
  - Calculator
- **Without full educational framework, early results more a baseline than indicator of progress**
- **Data most useful when paired with quarterly KPI#2 data (all measures) and biannual KPI#3 (heat pumps)**

KPI #3: # OF HEATING SYSTEM RECOMMENDATIONS BY FUEL TYPE AT HEAS

Statewide - Recommended Heating System →

Existing Heat System ↓	Gas Furnace	Gas Boiler	Oil Furnace	Oil Boiler	Propane Furnace	Propane Boiler	Electric Resistance	DMSHP	Central HP	Central AC	Total	HEA Count
Biomass	1	1	1	1	-	-	-	5	-	-	9	104
Electric resistance	38	42	5	9	12	15	1,786	987	42	40	2,976	2,653
Gas boiler	93	7,861	2	28	-	18	1	887	64	951	9,905	22,266
Gas furnace	5,009	67	14	2	6	1	1	168	80	2,005	7,353	15,275
Heat pump	4	3	-	3	1	-	-	18	128	6	163	548
Oil boiler	27	499	43	3,606	5	83	-	1,849	292	670	7,074	13,609
Oil furnace	207	8	1,217	20	44	2	-	237	246	479	2,460	3,875
Other	11	21	-	-	5	30	-	12	6	1	86	270
Propane boiler	3	5	-	6	36	120	-	90	27	33	320	713
Propane furnace	10	15	-	-	20	1	-	37	36	27	146	1,304
Grand Total	**5,403**	**8,522**	**1,282**	**3,675**	**129**	**270**	**1,788**	**4,290**	**921**	**4,212**	**30,492**	**60,617**

RESIDENTIAL AND INCOME ELIGIBLE QUARTERLY KPI NEXT STEPS

Conduct discussion with RMC on 2019 results in early 2020

*Will make use of all res KPI data

Continue to monitor rollout of energy optimization supporting educational resources and affect on heating system recommendations (KPI#3)

Continue discussions re: program opportunities and concerns and PA differences (KPI#2) with RMC

*Have already begun discussions re: duct sealing and quality installation opportunities

KPI #4: RATIO OF PROJECTS THAT INCLUDE LIGHTING CONTROLS (C&I)

- **Purpose: Provide insight into lighting projects and with controls**
- **Limitations**
  - Data provided by some PAs changed from Q1 to Q2 to Q3
  - Data provided as cumulative year-to-date
  - Unable to conduct trend analysis until data consistently reported quarter to quarter
  - Does not include any data from the small business turnkey pathway

KPI #4: RATIO OF PROJECTS THAT INCLUDE LIGHTING CONTROLS (C&I)

- **Observations for Q3 Data**
  - New construction and existing building retrofit (N&RE) show potential
  - Upstream Lighting Initiative has:
    - Highest volume program (# of projects)
  - DLC and DOE estimate 55-65% of C&I lighting projects could cost-effectively include controls

Statewide			
C&I Program/Initiative	**YTD Lighting Projects**	**YTD Projects with Controls**	**YTD % projects w/ controls**
New Buildings & Major Renovations	115	37	32.2%
Existing Building Retrofit	1,039	389	37.4%
N&RE - Upstream Lighting	23,657	542	2.3%
Statewide	**24,811**	**968**	**3.9%**

(*)Existing Building Retrofit excludes Small Business Turnkey Pathway & N&RE - Upstream Lighting Pathway

KPI #4: RATIO OF PROJECTS THAT INCLUDE LIGHTING CONTROLS (C&I)

▶ Observations for Q3 Data

- New construction and existing building retrofit show potential
  - National Grid leading in controls adoption

National Grid			
C&I Program/Initiative	**YTD Lighting Projects**	**YTD Projects with Controls**	**YTD % projects w/ controls**
New Buildings & Major Renovations	41	24	58.5%
Existing Building Retrofit	551	314	57.0%
N&RE - Upstream Lighting	15,878	329	2.1%
Total	**16,470**	**667**	**4.0%**

Unitil			
C&I Program/Initiative	**YTD Lighting Projects**	**YTD Projects with Controls**	**YTD % projects w/ controls**
New Buildings & Major Renovations	1	0	0.0%
Existing Building Retrofit	21	1	4.8%
N&RE - Upstream Lighting	22	1	4.5%
Total	**44**	**2**	**4.5%**

Eversource			
C&I Program/Initiative	**YTD Lighting Projects**	**YTD Projects with Controls**	**YTD % projects w/ controls**
New Buildings & Major Renovations	71	12	16.9%
Existing Building Retrofit	415	71	17.1%
N&RE - Upstream Lighting	7,334	196	2.7%
Total	**7,820**	**279**	**3.6%**

Cape Light Compact			
C&I Program/Initiative	**YTD Lighting Projects**	**YTD Projects with Controls**	**YTD % projects w/ controls**
New Buildings & Major Renovations	2	1	50.0%
Existing Building Retrofit	52	3	5.8%
N&RE - Upstream Lighting	423	16	3.8%
Total	**477**	**20**	**4.2%**

(*)Existing Building Retrofit excludes Small Business Turnkey Pathway & N&RE - Upstream Lighting Pathway

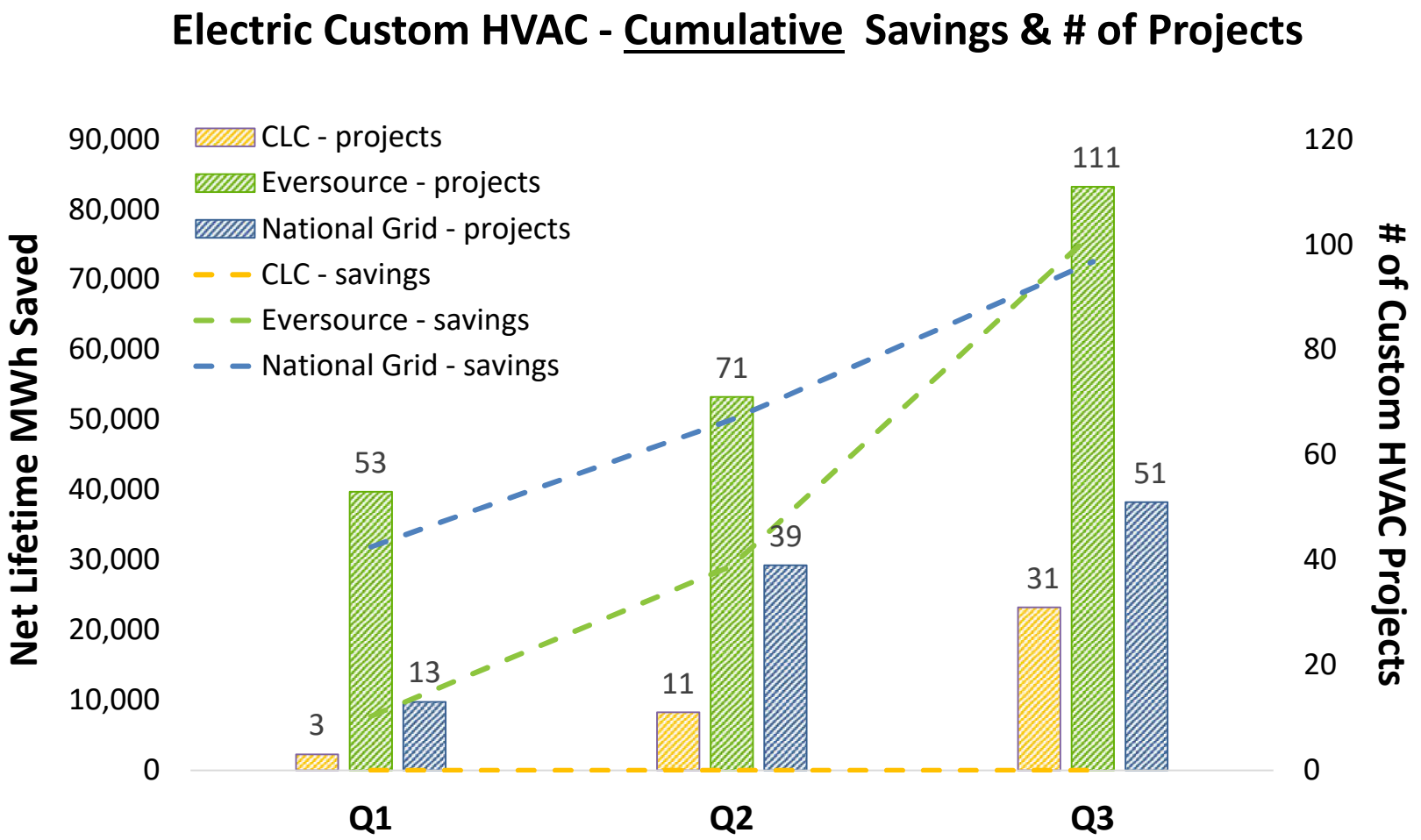
KPI #5: ELECTRIC AND GAS NET LIFETIME SAVINGS FROM CUSTOM HVAC PROJECTS

- **Purpose: Understand program performance from a key HVAC delivery pathway**
  - Electric measures Included
    - "Custom"
    - Retro-commissioning
    - Energy Management Systems
  - Gas measures included
    - "Custom"
    - Controls
    - Heat recovery
    - Retro-commissioning

Program Adminstrator	# of Electric Projects	Net Lifetime MWh	# of Gas Projects	Net Lifetime Therms
Berkshire				
CLC	31	3,227		
CMA			67	3,034,200
Eversource	111	76,719	19	771,635
Liberty				
National Grid	51	72,583	71	6,952,824
Unitil	-	-		
Statewide	**193**	**152,528**	**172**	**14,005,957**

Cells shaded in grey represent data unreported due to privacy rules. Included in aggregated statewide number.

KPI #5: ELECTRIC AND GAS NET LIFETIME SAVINGS FROM CUSTOM HVAC PROJECTS



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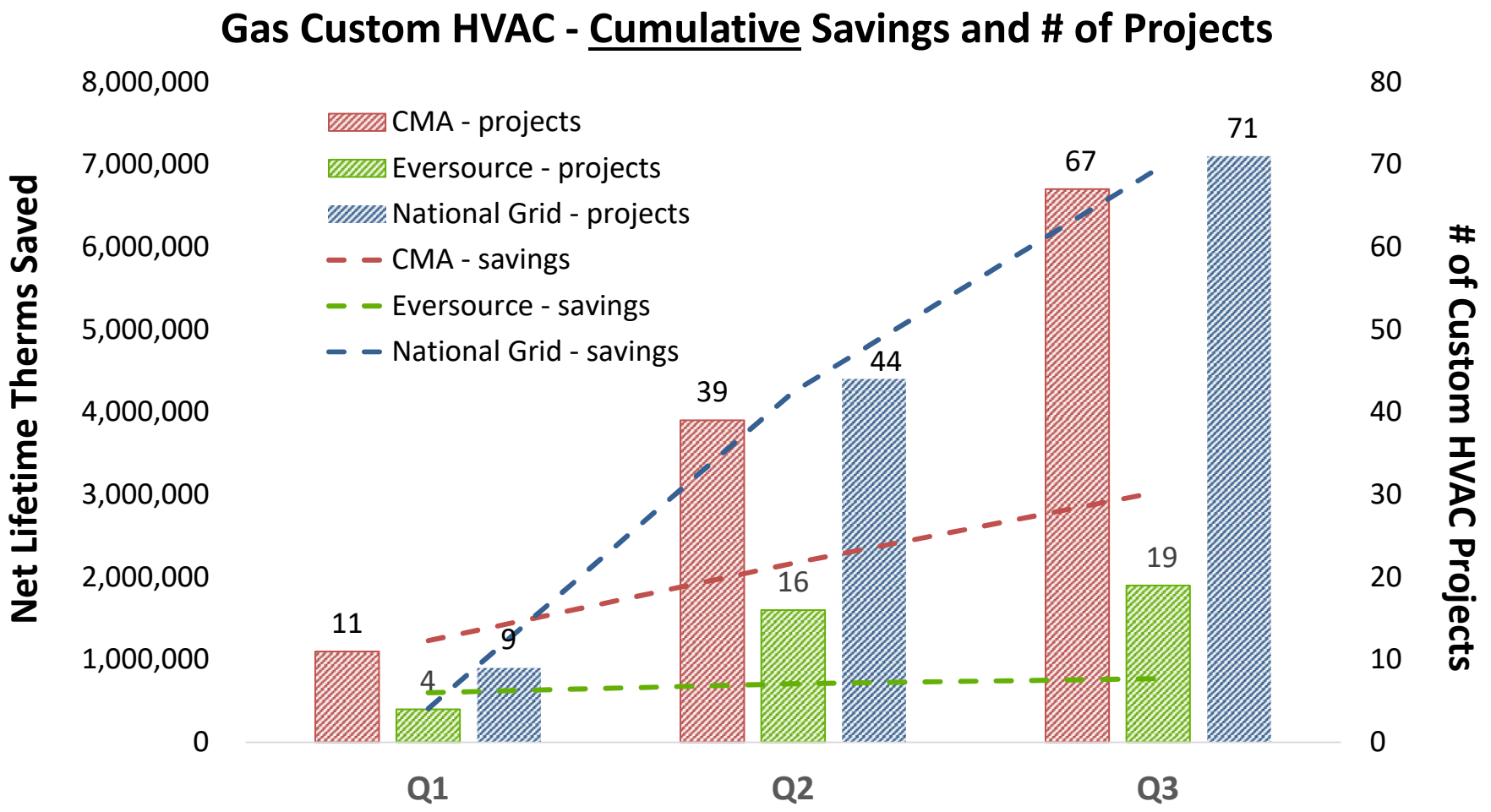


KPI #5: ELECTRIC AND GAS NET LIFETIME SAVINGS FROM CUSTOM HVAC PROJECTS

- **Observations for Q3 Data**
  - Electric HVAC Savings
    - 24% Q3 YTD achievement towards 2019 planned values for these measures
    - Custom projects account for 79% of planned 2019 electric HVAC savings
  - Gas HVAC Savings
    - 22.4% Q3 YTD achievement towards 2019 planned values for these measures
    - Custom projects account for 87% of planned 2019 gas HVAC savings

KPI #6: SMALL BIZ TURNKEY MEASURE DIVERSITY

- **Purpose: Provide insight into comprehensiveness of turnkey initiative**
  - Small Biz Turnkey program offers –
    - free energy audit
    - Up to 70% incentive
    - 0% interest financing

KPI #6: SMALL BIZ TURNKEY MEASURE DIVERSITY

▶ Observations for Q3 Data

- CLC and Berkshire Gas leading in electric and gas measure mix diversity respectively
- PAs have most control over Small Biz Turnkey pathway
  - Referenced in July presentation on Small Biz
  - Referenced in October presentation on C&I lighting; recall – Small Biz not included in KPI #4 (% lighting projects w/ controls)

Program Adminstrator	Savings from Lighting Measures	Savings from Non Lighting Measures	% Saving from Non-Lighting Measures	Savings from Aerators*	Savings from Non-Aerators	% Savings from Non-Aerators
Berkshire				29,065	219,275	88.3%
CLC	39,246	5,129	11.6%			
CMA				381,915	436,979	53.4%
Eversource	420,961	57,658	12.0%	393,170	107,692	21.5%
Liberty				38,664	76,957	66.6%
National Grid	162,751	14,875	8.4%	611,617	118,835	16.3%
Unitil	4,808	9	0.2%	9,729	0	0.0%
Statewide	**627,766**	**77,671**	**11.0%**	**1,464,160**	**959,739**	**39.6%**

** "Aerators" are defined as aerators, showerheads and spray nozzles.*

** All Savings reported are Net Lifetime MWh/Therms*

C&I QUARTERLY KPI NEXT STEPS

KPI #4

*Use results of upstream lighting vendor survey to inform program changes to increase comprehensiveness

*National Grid to identify and share any best practices for including controls in new construction and retrofit

*Investigate why lighting controls can't be tracked in the turnkey program

KPI #5

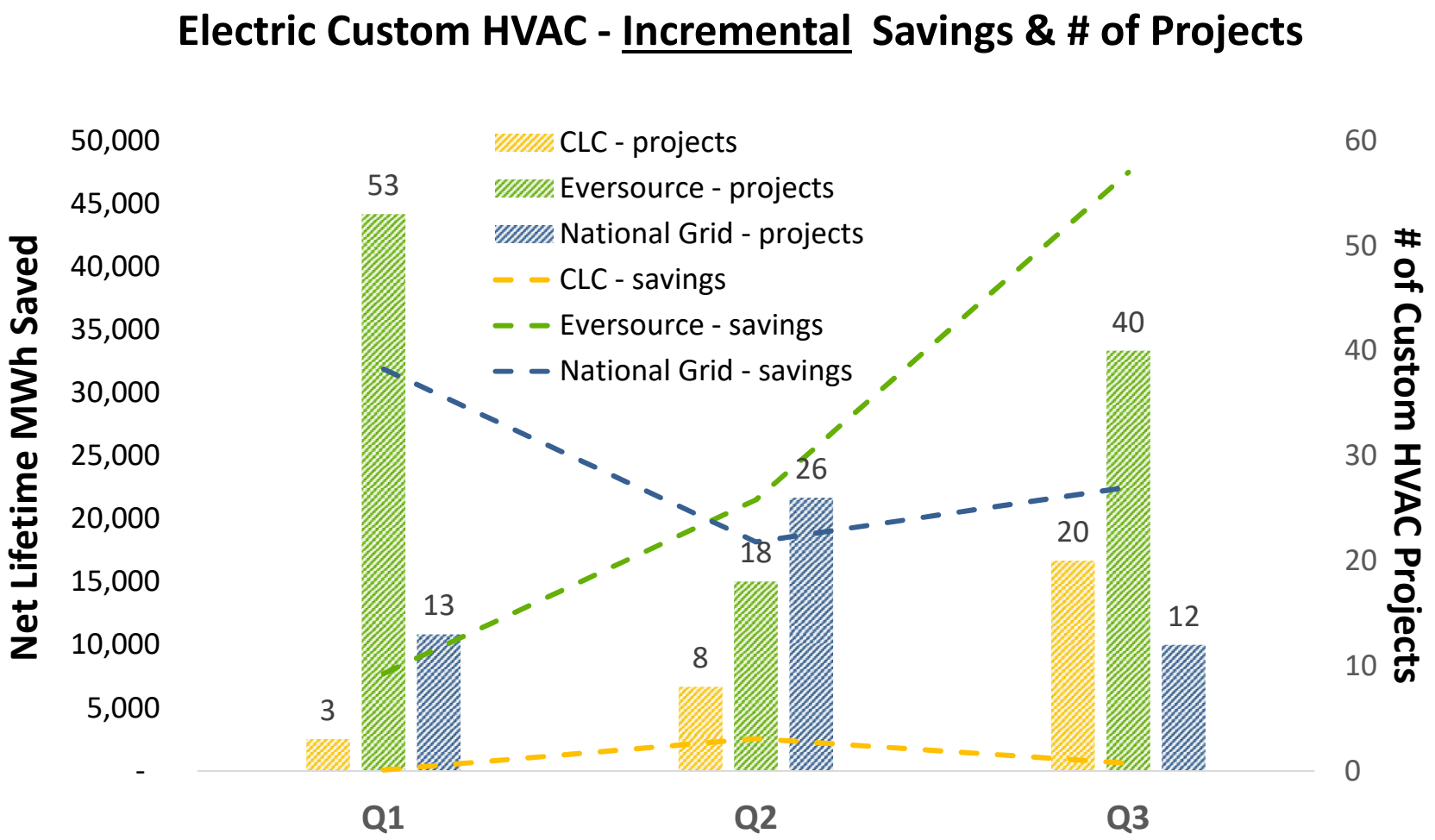
Continue to monitor Q4 to see hockey stick effect in HVAC saving

KPI #6

Consider inclusion of comprehensiveness requirements/goals in the next small business contract cycle (CT example)

THANK YOU

Questions?

- **December 18, 2019**

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