STUDY CONTEXT

PROJECT OVERVIEW + REVIEW OF SCOPE

PROJECT TIMELINE + BUDGET

QUESTIONS + DISCUSSION

STUDY CONTEXT

STUDY CONTEXT: BACKGROUND

BACKGROUND:

- The Energy Opportunities (EO) Program is the FLAGSHIP commercial and industrial (C&I) program for the Connecticut Energy Efficiency Board (EEB).
- The program provides Connecticut businesses with FINANCIAL INCENTIVES and TECHNICAL ASSISTANCE to ENCOURAGE the early replacement/retrofit of outdated, less energy efficient equipment with high efficiency alternatives.
- The program offers DOWNSTREAM INCENTIVES for equipment sold directly to end-users.
- There is also an UPSTREAM component, reported as part of EO, comprised of incentives to distributors to reduce the cost of high-efficiency lighting equipment at point-of-sale.
- The program is administrated by staff at EVERSOURCE ENERGY and UNITED ILLUMINATING.

PROJECT OVERVIEW & REVIEW OF SCOPE

PROJECT GOALS

THIS WORK WILL:

- Establish free-ridership and spillover estimates for the custom and prescriptive elements of the program using industry best practices.
- These analyses will be conducted for each of the major end-uses in the EO program:
  - **Gas**: Controls, Heating, DHW, Custom, and Other
  - **Electric**: Controls, Cooling, Heating, Lighting, Motors, Process, Refrigeration, Custom
- This study also includes an estimation of NTG for the upstream lighting program component.
- The net-to-gross (NTG) approach will follow the standardized methodology developed for the Massachusetts Program Administrators in 2011 and modified in 2014.
- To develop the net-to-gross ratio, EMI Consulting will use self-report data from:
  - Participants/End-users
  - Contractors
  - Distributors
- These data will estimate the impact of the EO program on purchase decisions and business practices.

PROJECT TASKS

1. Task 1 – Survey / Interview Guide Development
2. Task 2 – Data Collection
3. Task 3 – Analysis
4. Task 4 – Reporting
5. Task 5 – Ongoing Project Management

PROPOSED SAMPLE DESIGN: DATA PREPARATION

- EMI Consulting cleaned, merged, and reviewed program tracking data from both Eversource and United Illuminating to determine measure categories of interest.
- Once the data were prepared, EMI Consulting stratified the sample based on each measure category and measure savings.
- Within each end-use stratum, EMI Consulting created sample targets using an 80/10 confidence and precision level (increased target for lighting, lower target for smaller measures)
- At the program level, EMI Consulting created sample targets using a 90/5 confidence and precision level for electric and gas measures.
- The sample design was developed at the measure level.

PROPOSED SAMPLE DESIGN: ELECTRIC

Sample Stratum	Population	Total Savings (kWh)	CV	Confidence	Precision	Sample Size
Controls	26	11,547,799	0.5	80	20	8
Cooling	218	49,992,866	0.5	80	10	25
Custom / Other	1,480	79,512,452	0.5	80	10	40
Heating	73	20,503,111	0.5	80	20	10
Lighting	4,386	395,893,334	0.5	90	10	67
Motor	87	16,767,120	0.5	80	20	10
Process	95	26,985,250	0.5	80	10	29
Refrigeration	166	27,640,863	0.5	80	10	34
Total	**6,531**	**628,842,795**	**0.5**	**90**	**5**	**223**

- Numbers shown here represent proposed sample sizes.
- Each measure was assigned to one of the eight measure based on measure descriptions.
- The “Custom/Other” represents all other remaining electric measures that did not fit the four priority categories or if a measure description included the word “custom” .

PROPOSED SAMPLE DESIGN: NATURAL GAS

Sample Stratum	Population	Total Savings (CCF)	CV	Confidence	Precision	Sample Size
Custom / Controls	91	860,538	0.5	80	10	20
DHW / Heating	228	4,953,481	0.5	80	10	35
Other	104	1,422,905	0.5	80	10	30
Process	49	2,325,447	0.5	80	10	23
Total	**472**	**9,562,372**	**0.5**	**90**	**5**	**108**

- Numbers shown here represent EMI Consulting’s recommended approach to sampling for gas measures, merging domestic hot water and heating due to the small savings of DHW shown the previous slide.
- Each measure was assigned to one of the four measure based on measure descriptions.
- The “Custom/Controls” group was created if a measure description included the words “custom” or “controls”.
- The “Other” category represents all other remaining measures.

PROJECT DETAILS

TASK	PURPOSE	ACTIVITIES
1 Survey / Interview Guide Development	• Create NTG data collection instruments. • Provide the EEB Evaluation Administrative, the EEB, and the PAs with drafts for review prior to fielding any surveys / interviews.	• Develop participant surveys. • Develop vendor interview guide. • Develop distributor interview guide for the upstream lighting component .

NTG METHODOLOGY

- Overall NTG methodology will follow the standardized methodology developed for Massachusetts PAs in 2011 and revised in 2014 – this approach is in accord with industry best practices.
  - Uses a scoring system based on participant responses to program influence.
  - Calculate quantity and efficiency scores:
    - Quantity score: Percentage of rebated equipment that would have been installed in the absence of the program.
    - Efficiency score: Equates to the percentage of savings per unit installed that would have occurred without the program.
  - Raw free-ridership estimate = Quantity score (x) Efficiency score (x) Timing factor / adjustment
- Three data collection efforts:
  - Participant surveys
  - Vendor interviews
    - Triggered by survey responses
  - Upstream lighting interviews

→
- Conduct structured interviews with participants
- In-depth interviews with distributors
- Incorporate updated Massachusetts question battery (once available)

PROJECT DETAILS

TASK	PURPOSE	ACTIVITIES
2 Data Collection	• Employ the Blackstone Group to collect data for the participant NTG survey via a CATI telephone survey. • As necessary, speak with larger vendors and participants from more complex projects via an in-depth telephone.	• Provide EEB Evaluation Administrator with weekly progress reports regarding number of completed interviews by stratum. • Ensure that interviewers are familiar with complex logic associated with the methodology by gathering test data from first five interviews. • Develop advance letter and/or email text that will be used to inform customers of the study prior to telephone recruitment effort.

PROJECT DETAILS

TASK	PURPOSE	ACTIVITIES

3 Analysis	• Develop estimated NTG ratio following industry best practices.	• Inspect outliers and other data quality issues.
		• **Downstream:** Use standardized Massachusetts methodology for analysis of survey results to estimate free-ridership and spillover.
		• **Upstream:** Use new Massachusetts methodology incorporating end-user and distributor responses.
		• Create measure-level and program-level estimates by weighting results by program savings.
		  ◦ Account for disproportional sampling due to stratification and methodology.
		  ◦ Ensure NTG ratio estimates are representative of program population.
		• Exploratory analyses to investigate end-use combinations / stratifications.

PROJECT DETAILS

TASK	PURPOSE	ACTIVITIES

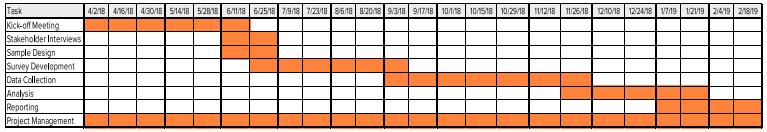
4 Reporting and Presentation of Results	• Develop / submit a draft report to the EEB Evaluation Administrator for review.
	• Revise report based on feedback from EEB and submit a final version.
	• Present overall findings and recommendations as part of the EEB technical meeting.
		• Report will include:
		  ◦ Executive summary.
		  ◦ Introduction (project purpose and scope).
		  ◦ Methods.
		  ◦ Detailed results.
		  ◦ Recommendations.
		  ◦ Appendices (detailed methods, data collection instruments, sample tables, and analysis).

PROJECT DETAILS

TASK	PURPOSE	ACTIVITIES
5 Ongoing Project Management	• Ensure communication of project status to the Connecticut EEB. • Ensure the project stays on schedule and on budget.	• Develop a progress tracking spreadsheet that outlines key deliverable dates and milestones within one week of kick-off meeting. • Submit a comprehensive project report each month in conjunction with monthly invoices. • Hold twice-a-month conference calls with evaluation staff to ensure effective communications. • Provide a secure file transfer service for transferring sensitive data.

PROJECT TIMELINE AND BUDGET

PROJECT TIMELINE



PROJECT BUDGET

Task	Budget
Task 1 – Survey / Interview Guide Development	$43,567
Task 2 – Data Collection	$22,393
Task 3 – Analysis	$25,575
Task 4 – Reporting	$29,054
Task 5 – Ongoing Project Management	$16,222
Other Costs (Survey Costs, Participant Incentives)	$62,812
Total	**$199,623**

QUESTIONS & DISCUSSION


thank you
EMI CONSULTING