



**N O R T H W E S T**  
**ENERGY EFFICIENCY COUNCIL**

## **Unlocking Behavior-Based Energy Savings Through Employer Engagement**

Olga Gazman, CSBA  
Manager of Training  
Building Operator Certification  
[olga.gazman@putnamprice.com](mailto:olga.gazman@putnamprice.com)  
206.486.5011



**[www.NEEC.net](http://www.NEEC.net) | [www.TheBOC.info](http://www.TheBOC.info)**

# Introduction

Northwest Energy Efficiency Council (NEEC), non-profit trade association of the energy efficiency industry and administrator of Building Operator Certification (BOC®) program since 1997.

- \* Awards skills certification to eligible building operators
- \* Provides skills development in energy efficient O&M
- \* Oversee recertification through continuing education (CE)
- \* Certified over 10,000 building operator professionals



**LEARN. LEAD. SUSTAIN**

# Presentation Overview

- ① Background and Rationale
- ② Interventions
- ③ Experimental Design and Sampling
- ④ Data Collection and Analysis
- ⑤ Conclusions, Lessons Learned
- ⑥ References



LEARN. LEAD. SUSTAIN

# Background & Rationale

- \* Impact studies attribute energy savings & link persistence of energy savings to CE
- \* NEEC simplified the re-certification process
- \* Certificants cited “employer support” as key motivator for CE and maintenance of Certification (MOC)
- \* Above background led to rationale for this NEEC study:

*What effect does direct communication with the certificants' employers have on MOC rates?*

*Is the intervention cost effective for BOC to implement?*



LEARN. LEAD. SUSTAIN

# Behavioral Interventions

- \* Emailed on-page letter to facility managers / supervisors
  - \* NOTIFY – employee's credential is expiring
  - \* INFORM - benefits and value of CE/MOC
  - \* ENCOURAGE support
- \* Followed-on with phone calls
  - \* CONFIRM receipt / contact info
  - \* REVIEW benefits & value
  - \* ASK for their support



LEARN. LEAD. SUSTAIN

# Experimental Design and Sampling

**Group 1:** “control”, standard outreach to certificant via postcards & email reminder

**Group 2:** “basic intervention”, post card/email to certificant plus email and letter to supervisor

**Group 3:** “enhanced intervention”, post card/email to certificant, email+letter to supervisor plus follow-up call



LEARN. LEAD. SUSTAIN

# Data Analysis Highlights

- 41% supervisors reached / 49% confirmed receipt / 56% didn't receive
- 25% supervisors intended to help and follow up with certificants
- 15% supervisors cited MOC as certificants' decision
- 7% supervisors cited barriers to CE associated with MOC
- <1% supervisors cited initial training as more valuable than CE/MOC



LEARN. LEAD. SUSTAIN

# Recertification Rate - All Groups

Number of certificants by study group who maintained their certification

	Total in Study	Group 1	Group 2	Group 3
Total eligible ( $n_x$ )	1154	379	403	372
Maintained ( $M_x$ )	265	83	96	86
Maint. Rate (%)	23.0%	21.9%	23.8%	23.1%



LEARN. LEAD. SUSTAIN



# Development & Implementation Costs

## Labor and Material Costs

Development	\$16,270.00
Implementation	\$3,584.93
<b>TOTAL BUDGET</b>	<b>\$19,854.93</b>



LEARN. LEAD. SUSTAIN

# Conclusions

- Interventions not effective in improving MOC rates
- Hence, not cost effective
- Sample size too small, increase to 2,000
- Accuracy of employment data can be improved
- Segment of employers don't see the value in CE or energy efficiency

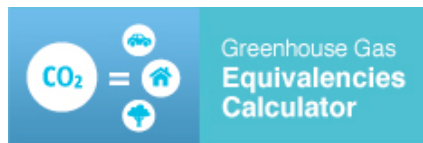


LEARN. LEAD. SUSTAIN

# Potential Impacts on Electrical and Therms

## ANNUAL GROSS ELECTRICAL IMPACTS

	Group 1	Group 2	Group 3
Maintained	83	96	86
Estimated Annual kWh Savings*	2,905,000	3,360,000	3,010,000
<b>GROSS IMPACT kWh</b>		<b>455,000</b>	<b>105,000</b>
Estimated Electrical Cost Savings**	\$427,035	\$493,920	\$442,470
<b>GROSS IMPACT \$</b>		<b>\$66,885</b>	<b>\$15,435</b>
<b>IMPACT GHG Emissions</b>		<b>314 mt</b>	<b>72 mt</b>



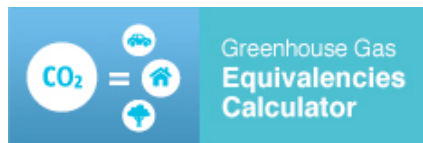
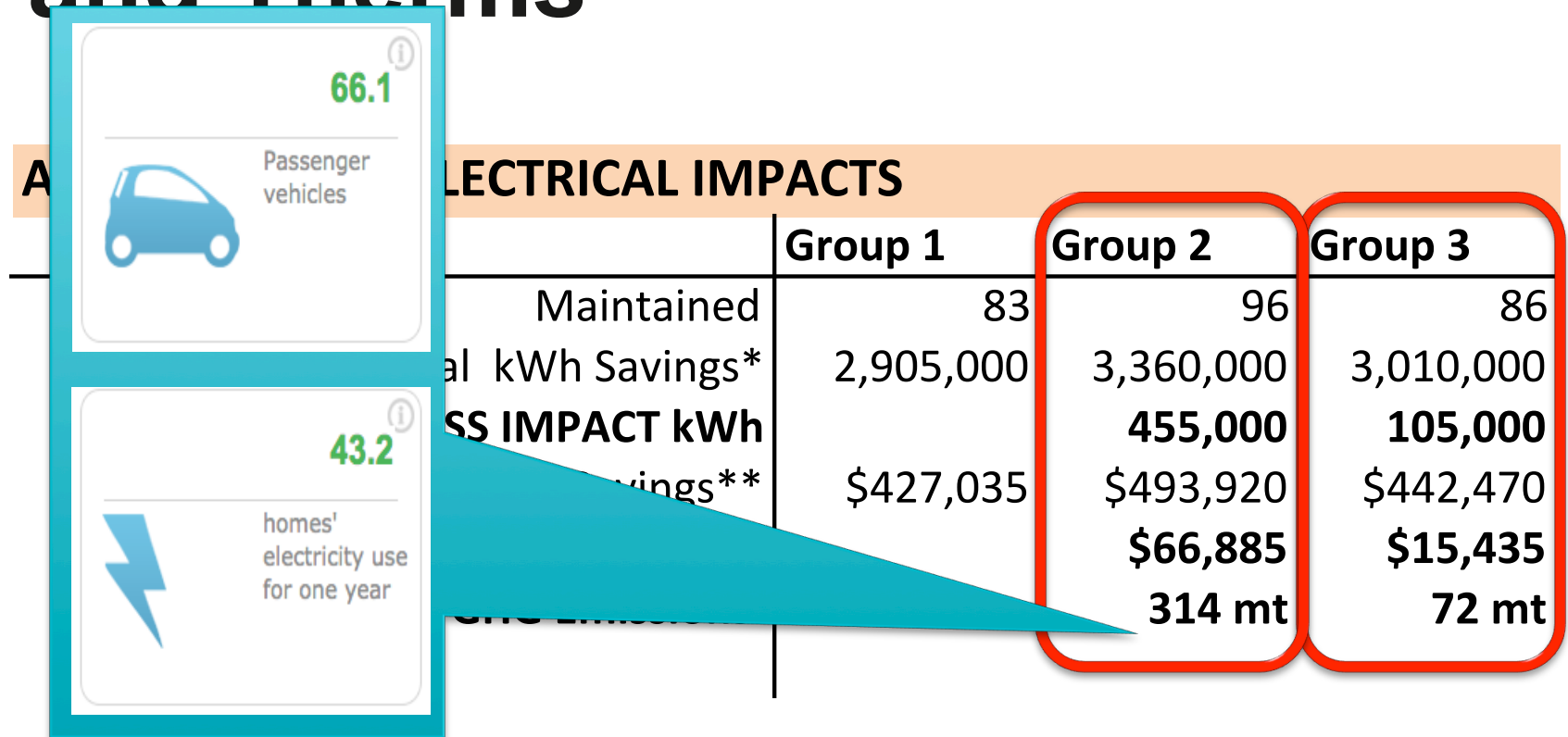
\*Source: Opinion Dynamics, 2014 Estimates are based annual electric impacts by BOC participant reported 35 MWh

\*\* Source: Bureau of Labor Statistics Average Prices for Electricity Jan - Aug 2014: \$0.147/kWh



**LEARN. LEAD. SUSTAIN**

# Potential Impacts on Electrical and Therms



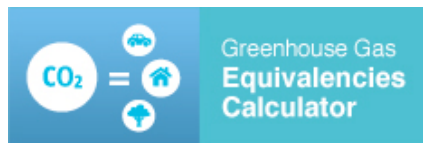
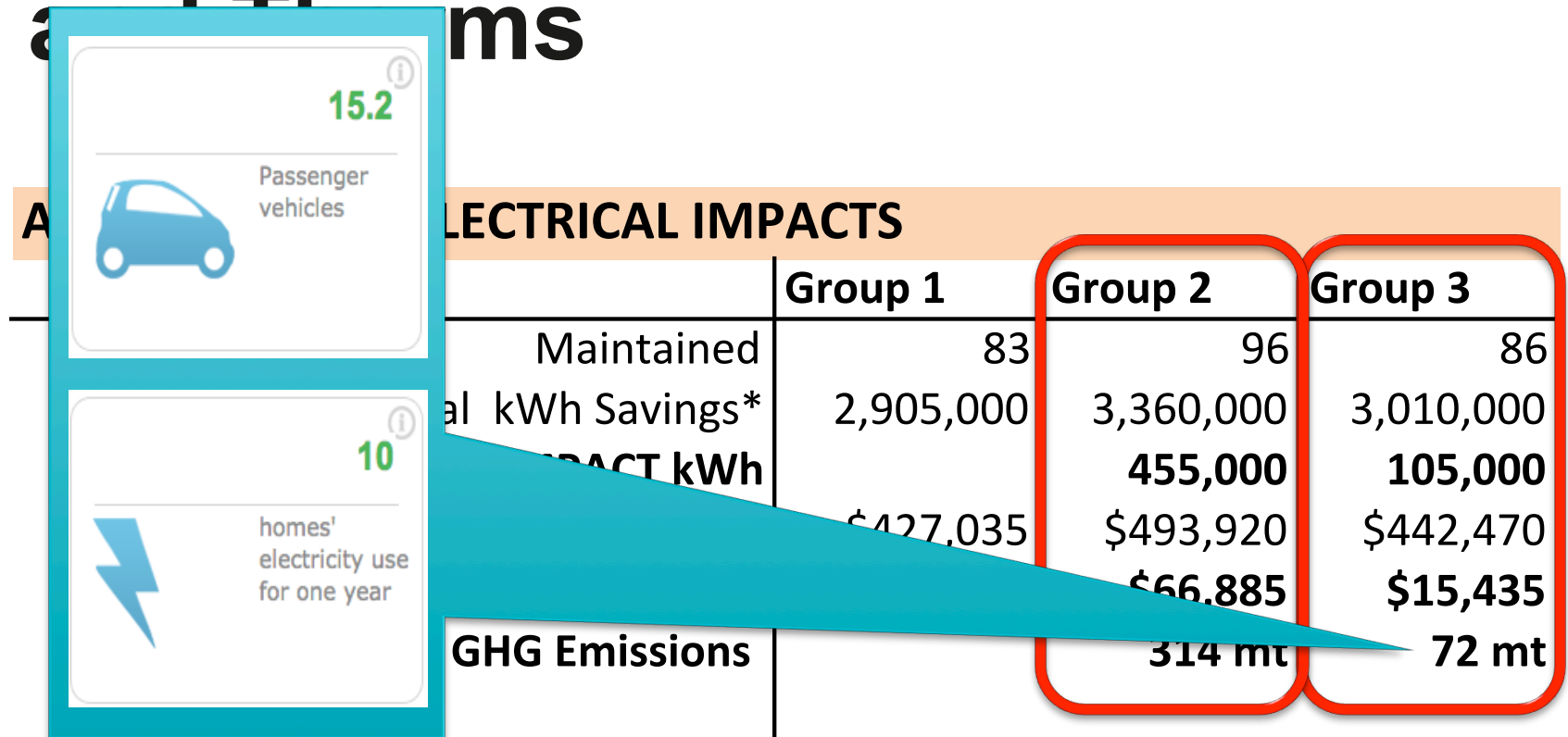
\*Source: Opinion Dynamics, 2014 Estimates are based annual electric impacts by BOC participant reported 35 MWh

\*\* Source: Bureau of Labor Statistics Average Prices for Electricity Jan - Aug 2014: \$0.147/kWh



**LEARN. LEAD. SUSTAIN**

# Potential Impacts on Electrical Systems



\*Source: Opinion Dynamics, 2014 Estimates are based annual electric impacts by BOC participant reported 35 MWh

\*\* Source: Bureau of Labor Statistics Average Prices for Electricity Jan - Aug 2014: \$0.147/kWh



**LEARN. LEAD. SUSTAIN**

# Lessons Learned | Further Research

- More effective/timely/regular communication w/ employers
- Opportunities to better understand employer attitudes/ decision making about CE in EE
- How job performance expectations and goals around EE are established for certificants
- Demographic and psychographic profile of certificant
- Determine whether certificants maintain in future years



**LEARN. LEAD. SUSTAIN**

# References

Navigant Consulting, Inc., 2012, “Long-Term Monitoring and Tracking Report on 2011 Activities”, November,  
Available on the web at [http://www.theboc.info/pdf/Eval-NEEA\\_LTMT\\_BOC\\_2012.pdf](http://www.theboc.info/pdf/Eval-NEEA_LTMT_BOC_2012.pdf), PDF file

Northwest Energy Efficiency Council, 2013, “Maintenance Survey Results Summary”, unpublished

Opinion Dynamics Corporation, 2014, “Impact Evaluation Of The California Statewide Building Operator Certification Program”, November, Available on the web at  
[http://www.theboc.info/pdf/Eval\\_Impact\\_California\\_BOC\\_Program\\_Feb\\_2014.pdf](http://www.theboc.info/pdf/Eval_Impact_California_BOC_Program_Feb_2014.pdf), PDF file

Research Into Action Inc., 2014, “BOC-Expansion Initiative Market Progress Evaluation Report #1”, November,  
Available on the web at  
<http://www.theboc.info/pdf/Eval-BOC-expansion-initiative-market-progress-0414.pdf>, PDF file

RLW Analytics, Inc., 2005, “Impact and Process Evaluation Building Operator Certification (BOC) Program”,  
November, Available on the web a [http://www.theboc.info/pdf/Eval-BOC\\_NEEP\\_2005.pdf](http://www.theboc.info/pdf/Eval-BOC_NEEP_2005.pdf), PDF file

Skumatz, Lisa A., Ph.D., 2012, “Measuring the Impacts of Behavior Change Programs – Filling in the Blanks”,  
Proceedings of the American Council for an Energy Efficient Economy (ACEEE) Summer Study on  
Buildings, Asilomar, CA, August.



**LEARN. LEAD. SUSTAIN**