LIFTING THE LID ON LIFT

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AGENDA

• What is lift?
• Why is it important?
• How can we account for it?
• What are some key issues?
• Summary
**What is Lift?**

- Savings that can be attributed to one program, but are “counted” in another program
- Behavioral energy reports often provide energy saving recommendations that point customers to other Utility programs

- Fridge and Freezer Recycling
- Energy Efficiency Appliances
- High Efficiency Lighting

![Quick Fixes, Smart Purchases, Great Investments]

**Quick Fixes**
- Recycle second refrigerator
  - Old refrigerators are significantly less energy-efficient — even models from 2000 use 40% more energy than today’s best.
  - If you have a second refrigerator or freezer that is older, it’s likely an energy-intensive appliance that costs you more to use than it’s worth. Recycle it to save!
- Get free pickup and recycling, as well as a $35 incentive check. Retire your old appliance and reap energy savings right away.

**Smart Purchases**
- Spotlight your work spaces
  - Whether you’re preparing dinner, writing at a desk, or reading a book, light is important. Instead of spreading it around the room, focus light where you need it most.
  - Using desk lamps or under-the-counter lighting for specific tasks brightens important spaces, and it can significantly reduce your energy consumption.
  - Most of these lights are also compatible with energy-efficient bulbs.

**Great Investments**
- Save up to $200 per year
- Save $15 or more per year
- Save up to $35 annually

![AEG Applied Energy Group Logo]
Before Behavioral Program

40,000 Energy Efficiency Program Participants

After Behavioral Program

100,000 Behavioral Program Participants

60,000 Energy Efficiency Program Participants

20,000 customers participate in both programs
ACCOUNTING FOR LIFT - WHY IT’S IMPORTANT

- Increased participation in utility programs ✓
- Increased energy savings ✓
- Increased awareness of consumption ✓

BUT ISN’T THAT A GOOD THING?

- The behavioral participants are saving energy AND
- Some of them are taking additional action by participating in other utility programs
- So what is the problem?
- The savings achieved by dual participants will be counted in both programs – this is referred to as **Double Counting**
  - Billing analysis will capture all household savings
  - The savings will be embedded in the Behavioral Program as “Lift” increasing average per customer savings
  - The savings will also be included in the EE program during the evaluation
**Upstream vs. Downstream Savings**

Downstream savings are generally easy to calculate
- Count EE participants in treatment and control by program
- Calculate the incremental participation in the treatment group by program
- Assign per participant savings for EE programs by programs
- Estimate incremental impacts

Upstream savings are much trickier
- Savings are not tracked at the customer level (upstream lighting programs for CFLs and LEDs)
- Surveys of treatment and control customers
  - PG&E Survey report (high efficiency lighting and flat screen TVs)
  - TRC lighting analysis memo
- Study results showed that treatment customers installed 0.95 more high efficiency bulbs than control customers
  - About half of those bulbs were likely rebated through the upstream lighting program
Looking Closer at the Savings

- Let's take a closer look at the savings for a Behavioral Program...

- We know the real savings look something like the graph
- Because we use billing analysis, we cannot separate the lift
- Double counted savings is: Average Lift * 20,000

- We want to make sure we don’t count the EE savings twice
- Option A – Estimate the dark blue bar (not usually done)
- Option B – Account for the Double Counting using the Evaluated EE Savings
ACCOUNTING FOR LIFT IN PRACTICE

• Lets assume that our goal is simply to account for (vs. estimate) the lift
  • Usually we give the EE programs full credit for the savings
  • We only want to subtract incremental savings (resulting from EE participation) from the behavioral program
• Luckily we can use the control group (RCT, RED, or Matched) to help us
• Remember we only want to count the incremental lift!
  • There is likely some EE participation in the Control Group
  • Some of the EE savings is already embedded in the baseline
**VISUAL EXAMPLE – TREATMENT VS. CONTROL**

- Lets go back to our treatment group from the Venn diagram, but this time we will add in the control group.
- 20% of the treatment customers AND 5% of control customers participate in EE programs.
- When we estimate savings the 5% will net out, become embedded, etc.
- We only want to account for savings from the incremental 15%.
### Simple Mathematical Example

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Find out how many MORE customers participate in EE in the treatment group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treatment (Behavioral Participants)</td>
</tr>
<tr>
<td></td>
<td>100,000 * 20% = 20,000 customers</td>
</tr>
<tr>
<td></td>
<td>We have 15,000 more EE participants in the treatment group</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2.</th>
<th>Calculate the incremental savings from those participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treatment (Behavioral Participants)</td>
</tr>
<tr>
<td></td>
<td>300 kWh/year * 15,000 customers</td>
</tr>
<tr>
<td></td>
<td>Incremental EE savings = 4,500 MWH</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Step 3.</th>
<th>Subtract the incremental savings from the total annual savings</th>
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<tbody>
<tr>
<td></td>
<td>Total Annual Savings (including lift)</td>
</tr>
<tr>
<td></td>
<td>150 kWh* 100,000 cust. = 15,000 MWH</td>
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- In this case the lift was 30% of the behavioral savings
- The billing analysis estimated 150 kWh/customer
- The lift accounted for 45 kWh/customer (on average)
- The behavioral savings only accounted for 105 kWh/customer
**Monthly Application Illustration**

- We know that participant counts change over time, and that savings are not constant over the course of a program year.
- We can do a similar analysis on a monthly level.
- In the bar graph below – our goal is to estimate the yellow section of each bar.
**Evaluation Results**

- Generally lift accounts for about 1-7% of total program savings
  - There are some outliers
  - In these cases removing the lift from “claimed” savings can be detrimental to programs
- When there is an intentional integration of programs lift can be very large
  - 20-34% of all energy savings for a technology enabled pricing program we evaluated were attributable to EE measures performed when techs were in the home installing thermostats

<table>
<thead>
<tr>
<th>Program</th>
<th>% Lift</th>
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</thead>
<tbody>
<tr>
<td>Ameren IL (2014)</td>
<td>1% - 3%</td>
</tr>
<tr>
<td>PG&amp;E (2015)</td>
<td>1.2%</td>
</tr>
<tr>
<td>PSE (2013)</td>
<td>5.3%</td>
</tr>
<tr>
<td>SCE (2015)</td>
<td>5.7%</td>
</tr>
<tr>
<td>NGRID (2013)</td>
<td>5% - 6%</td>
</tr>
<tr>
<td>SDG&amp;E (2013)</td>
<td>6.1%</td>
</tr>
<tr>
<td>PSE (2014)</td>
<td>7%</td>
</tr>
<tr>
<td>NSTAR (2013)</td>
<td>18%</td>
</tr>
</tbody>
</table>
Other Issues

• Small estimates of lift don’t have a large effect, but large estimates of lift can spell trouble for behavioral (or other) programs
  • C/B tests can be affected if adjusted savings are used
  • Smaller perceived savings
  • Should we be judging these programs on adjusted savings?
• EE programs usually get to claim all the savings
  • EE programs may have already filed their savings
  • They are generally more expensive to run on a per customer basis
  • Might actually be comparable on a total MWH basis
• Should EE programs always get to claim the “lift”?
Recap

- Lift is the incremental savings resulting from increased participation in EE programs that is included in behavioral savings estimates.
- Lift is important because if it is not accounted for properly incremental EE savings will be counted twice.
- We usually account for lift using the control group to estimate only the incremental savings from EE programs and subtract those savings from the behavioral program.
- There are still some questions to answer regarding the usual process.
QUESTIONS?