The Matchmaker

Methods for Encouraging Participation and Finding the Best Demand Response Programs for Customers

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Many voluntary demand response programs face a challenge with low participation in events

- **Mismatch**: Initial enrollment processes did not give enough consideration to which customers were the best fit for their program

- **Evaluation**: Typically only looks at event performance in the aggregate, without further examining the characteristics of customers that do/do not participate to maximize event participation

**Result**: program administrators may be missing out on additional, cost-effective participation and impacts
Our Mission:

- QUANTITY of participation
- QUALITY of participation
- Improved future enrollment in the program
Two methods to encourage event participation and achieve greater impacts in demand response events

- **Approach 1**: Determine what types of customers are likely to participate and which are not
  - **Data Source**: Existing program data on participation and survey data on participation experiences

- **Approach 2**: Identify and prioritize reduction of participation barriers
  - **Data Source**: Survey questions on barriers to participation and likelihood to participate in the future
We developed these methods evaluating a 2012-13 statewide demand response program

- **Program Description**
  - Implemented by two utilities in California
  - Voluntary program for commercial, industrial and institutional customers
  - Participants submit bids prior to events and receive per kW incentives for demand reduction

- **Key Data Sources**
  - Reviews of program tracking databases
  - Depth interviews with program managers and customer relationship managers
  - Survey of participants across the two utilities
Approach 1

What types of customers are more likely to participate in events?
We used program tracking and survey data to characterize the participant population

- Reviewed participation databases to flag customers as “active” or “dormant” in terms of their event participation
  - **Active:** Submitted bids prior to events or attempted to reduce load during events
  - **Dormant:** Enrolled in the program but did not submit bids or attempt to reduce load during events

- Used tracking and survey data to develop profiles of active and dormant customers
  - Examples: Firmographics, load reduction performance, knowledge of participation processes, engagement with IOU customer relationship managers
Active Participants
(N=85) (n=14)

NAICS Codes
445110, 111920, 486910

Knowledge

Knowledge of Baseline Prior to Event
- Don't know: 7%
- No: 36%
- Yes: 64%

Knowledge of Load Reduction (in kW) Needed for Bid
- No: 14%
- Yes: 86%

How your facility's baseline is calculated (n=38)
- 7.1

How to view results of your participation after an event (n=14)
- 7.4

The "Day of Adjustment" option available (n=13)
- 7.7

How to submit, adjust or withdraw a bid for an upcoming event (n=14)
- 7.8

The process for participating in events overall (n=14)
- 8.1

Program Performance (kW per hour)*
- Average Bid: 518
- Average Reduction: 630

Multiple Sites 38%

Market as Green 57%

Own 100% Rents 0%

Square Footage
- Up to 50,000: 29%
- 50,001 - 100,000: 7%
- 100,001 - 300,000: 21%
- 300,001 - 1,000,000: 29%
- 1,000,000+: 7%

Employees
- Up to 20: 7%
- 21 - 50: 14%
- 51 - 100: 7%
- 101+: 64%

Usage Goals & Strategies

- Have kW Reduction Goal: 70%
- Event Day Action Plan Listing: 80%
- Demand Reduction Actions during Event: 100%
- Monitors Energy Use: 100%
- Encourages Energy Efficiency: 100%

Top Barriers and Drivers

Top 2 Drivers
- Avoid rolling blackouts: 50%
- Corporate social responsibility/being a good citizen: 42%

Top 2 Barriers
- Shutting down or reducing production and/or service schedule: 6.4
- Concerns about employee and/or customer satisfaction: 5.5

Arrows indicate differences between active and dormant participants.
*Based on a review of program databases
Example: Firmographics and Event Performance

<table>
<thead>
<tr>
<th>Program Performance (kW per hour)*</th>
<th>CRM Assigned</th>
<th>Large Customer (&gt;=200kW max summer demand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Bid</td>
<td>518</td>
<td>87%</td>
</tr>
<tr>
<td>Average Reduction</td>
<td>630</td>
<td>Average Size (max summer demand)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,253</td>
</tr>
</tbody>
</table>
Example: Knowledge of Program Processes

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>How your facility's baseline is calculated (n=38)</td>
<td>7.1</td>
</tr>
<tr>
<td>How to view results of your participation after an event (n=14)</td>
<td>7.4</td>
</tr>
<tr>
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<td>8.1</td>
</tr>
</tbody>
</table>
Example: Company Culture and Practices

- Monitors Energy Use: 100%
- Encourages Energy Efficiency: 100%

Market as Green: 57%
Dormant Participants
(N=330)  (n=26)
Own 92%  Rents 4%
Multiple Sites 38%  (N=330)

NAICS Codes
531123, 551114, 115114

Contact with CRM 60%
Became aware of program through CRM 82%

Market as Green 65%

Square Footage
Up to 50,000 15%
50,001 - 100,000 19%
100,001 - 300,000 31%
300,001 - 1,000,000 8%
1,000,000+ 8%

Employees
Up to 20 15%
21 - 50 12%
51 - 100 23%
101+ 42%

Knowledge

The “Day of Adjustment” option available (n=25) 3.6
How to submit, adjust or withdraw a bid for an upcoming event (n=25) 4.9
How to view the results of your participation after an event (n=24) 5.2
How your facility’s baseline is calculated (n=25) 5.6
The process for participating in events overall (n=25) 5.6

Usage Goal

Event Day Action Plan Listing Demand Reduction Actions during Event 36%
Have kW Reduction Goal 46%
Encourages Energy Efficiency 62%
Monitors Energy Use 85%

Top Barriers and Drivers

Top 2 Drivers
Lowering utility bills 59%
Reducing operational costs 45%

Top 2 Barriers
Shutting down or reducing your production and/or service schedule 7.0
Your facility’s ability to adjust production or service schedules 7.0

Program Performance (kW per hour)

Average Bid 0
Average Reduction 0

CRM Assigned 79%
Dual-Enrollment 10%
Large Customer (>=200kW max summer demand) 76%
Average Size (max summer demand) 939

Arrows indicate differences between active and dormant participants.
Who should the utility target for program enrollment?

- Not surprisingly...
  - Active customers are more knowledgeable about program processes and tend to be more prepared for events (i.e. action plans, goals)

- Who are “active” customers?
  - Larger in terms of energy usage
  - Have an assigned customer relationship manager
  - Monitor their energy use
  - Have a company culture that encourages energy efficiency

Conclusions:
1. Ensure existing customers are knowledgeable about program processes
2. The utility should screen for these types of customers for new enrollment in the program
How can the utility encourage customers to participate in events?
By combining three concepts, we can identify cost-effective barriers to eliminate.

Three Dimensions of Barriers

- Which barriers are the hardest to overcome?
- Which barriers have the greatest impact on participation?
- Which barriers can program design changes address?
Addressable Barriers: Barriers program design changes can address

Convenience of participating

- No action plan for events
- Time required for events
- Manual effort for events
- Finding staff for events
Addressable Barriers: Barriers program design changes can address

**Program Understanding/Support**

- Understand event participation process
- Understand load reduction needed to meet bid
- Lack of support from utility staff
- Unaware of events
- Don’t receive notification of events
Structural Barriers: Barriers related to the nature of a company’s business

Loss/Risk to Revenue Stream

- Shutting down / reducing production or service schedule
- Employee / customer satisfaction
- Loss of revenue
**Structural Barriers**: Barriers related to the nature of a company’s business

**Nature of Business Operations**

- Facility operating hours
- Ability to adjust production or service schedules
- Product or service
- Health and safety regulations
We identified priority barriers through a survey of program participants

- Asked questions on the size of potential barriers to event participation
  - 0-10 scale, with 10 being a “big obstacle”
  - We developed these barriers after completing depth interviews with program managers and customer relationship managers
We identified priority barriers through a survey of program participants

- Asked questions on the likelihood customers would participate in future events
  - 0-10 scale, with 10 being a “very likely”
- We then correlated the size of barriers with likelihood to participate in future events
Correlation Between Barrier and Interest in Participating in Future Events (Absolute Value)

- **A**: Large Barrier, Strong Correlation with Interest in Participating
- **B**: Small Barrier, Strong Correlation with Interest in Participating
- **C**: Large Barrier, Weak Correlation with Interest in Participating
- **D**: Small Barrier, Weak Correlation with Interest in Participating

Average size of the barrier on a scale from 0 to 10, where 10 is a big obstacle.
TOP PRIORITY

Correlation Between Barrier and Interest in Participating in Future Events (Absolute Value)

- **All structural barriers**: No dormant customer barriers, Many addressable active customer barriers
- **No/lowlow priority**: No/low priority
- **A few addressable dormant barriers, if cost effective**: A few addressable dormant barriers, if cost effective

Average size of the barrier on a scale from 0 to 10, where 10 is a big obstacle.
How can active customer participation be enhanced?

- Address barriers in “top priority” quadrant
- Most can be addressed through program design changes:
  - Unaware of events/not receiving event notifications
  - Too much effort/time required to participate in events (i.e., address through automation)

Conclusion: Overcoming these barriers may potentially lead active customers to participate more frequently or increase load reduction during events.
How can dormant customers be encouraged to participate?

- No dormant customer barriers are “top priority”
- A few barriers can be addressed, if cost-effective:
  - Improve utility staff support
  - Improve understanding of program requirements
- Ultimately, these changes have only marginal potential for encouraging participation

Conclusion: Do what can be done cost-effectively, but dormant customers may just not be the right fit for this program.
Conclusions on How to Increase Event Participation

- **Existing participants:**
  - Address the “top priority” active customer barriers for potential increases in event performance or frequency of event participation
  - Address non-structural dormant customer barriers, if cost effective
  - Consider whether other programs are a better fit for dormant customers

- **New participants:**
  - Use the active customer profile (Approach 1) as a guide for future enrollment
Thank you!

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Additional Data Slides
TOP PRIORITY

A

Large Barrier, Strong Correlation with Interest in Participating:
These barriers may be difficult to overcome. However, if overcome, customers may be much more likely to participate in events.

Recommendation: Target these barriers only if it is possible to address them.

B

Small Barrier, Strong Correlation with Interest in Participating:
These are the low-hanging fruit. These barriers are relatively easy to overcome and, if addressed, may lead to much higher participation in events.

Recommendation: Assign top priority to targeting these barriers.

C

Large Barrier, Weak Correlation with Interest in Participating:
These barriers may be difficult to overcome. Even if addressed, customers may only be marginally more likely to participate in events.

Recommendation: Do not prioritize targeting these barriers.

D

Small Barrier, Weak Correlation with Interest in Participating:
These barriers are relatively easy to overcome, but, even if addressed, customers may only be marginally more likely to participate in events.

Recommendation: Target these barriers only if cost-effective.

Average size of the barrier on a scale from 0 to 10, where 10 is a big obstacle.
Key Barriers to Event Participation Faced by Utility’s Customers (Active vs. Dormant Customers; n=40)

- **Large Barrier, Strong Correlation with Interest in Participating**
  - Concerns about employee and/or customer satisfaction, 5.5
  - The current state of the economy, 3.9
  - Loss of revenue due to shutting down equipment, 4.9
  - The amount of load reduction needed to meet bid is difficult to understand, 4.5

- **Small Barrier, Strong Correlation with Interest in Participating**
  - We don’t receive notification of program events, 0.7
  - Small Barrier, Weak Correlation with Interest in Participating
  - Employee comfort during events, 3.1
  - Lack of support from utility staff/customer relationship managers, 1.7

- **Large Barrier, Weak Correlation with Interest in Participating**
  - Your facility’s ability to adjust production or service schedules, 5.4
  - Concerns about employee and/or customer satisfaction, 5.5

- **Active Customers**
  - Bigger Obstacle
  - Average size of the barrier on a scale from 0 to 10, where 10 is a big obstacle

- **Dormant Customers**
  - Smaller Obstacle