A Midstream Cogged V-Belt Pilot Program: Concept and Early Challenges

2015 ACEEE Summer Study on Energy Efficiency in Industry
Midwest Energy Efficiency Alliance

- **MEEA** is a collaborative network whose purpose is to advance energy efficiency to support sustainable economic development and environmental preservation.
- Founded in 2000 to bring strategic partners together to improve market conditions for energy efficiency.
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Partner Relationship

- **AEP Ohio** – Utility Partner
- **Dayton Power & Light** – Utility Partner
- **MEEA** – General Coordination
- **Argonne** – General Coordination
- **Go Sustainable Energy** – Concept Origination, Expertise, Distributor Recruitment
Concept Origination

- **Working with the Ohio Manufacturers’ Association**
  - Protect and grow Ohio manufacturing; 1,300+ manufacturing facilities

- **Why energy-efficiency?**
  - Energy-efficiency helps manufacturers manage costs, reduces cost of energy for everyone, creates demand for manufactured goods
  - **Direct energy savings**: do utility program offerings match technical opportunities?
  - **Universal energy savings**: are utility programs incenting new energy-efficiency?
  - **Cost of programs**: Ease of participation & lower admin costs
  - Cogged V-Belts in Top 10 recommended measures from Industrial Assessment Centers
Cogged V-Belt - Refresher

- V-belts lose power from
  - Bending losses, friction, slip, stretching

- 2-3% more efficient
  - For 100-hp motor, cogged belt savings ~ 2 homes

- High implementation rate
Long-Term Collaborative Goals

• Launch and successfully manage a pilot which tests a novel incentive program design
• Accurately quantify energy savings
• Learn best practices in collaborative pilot development
• Create a best practices toolkit to assist Midwestern utilities in replication
Pilot Development

- Partnership formation
- Measure selection
- Distributor recruitment & NDA
- Finalize data requirements
- Incentive design
- Distributor interviews
- Baseline calculations
- Distributor education
- Pilot launch
Types of Incentive Programs

- **Downstream**
  - Customer/Contractor

- **Midstream**
  - Distributor/Dealer

- **Upstream**
  - Manufacturer/Brand
# Types of Incentive Programs

**Custom Programs**
- More appropriate for measures whose savings depend on application
- Incentive amount typically based on the amount of energy saved
- Often require more involved verification
- Allow a wider range of measures, subject to more flexible guidelines

**Prescriptive Programs**
- Specific guidelines for product type and installation criteria
- Often associated with pre-calculated or deemed energy savings
- Can buy down the cost behind-the-scenes, at the register, or require customers to apply for a rebate post-purchase

*Streamlined Delivery with Higher Savings Confidence*
Central Pilot Question

Can shifting the program type reduce overall transaction costs and other market barriers for a commercial/industrial measure and lead to an increase in market share?
Overcoming Market Barriers

**Custom Downstream Incentive - Contractor Perspective**

**RISK & EFFORT**
- Self-educate on measure
- Self-inventory stock
- Quantify energy savings
- Quantify cost savings
- Complete paperwork
- Approval uncertainty

**BENEFIT**
- Small financial reward
- Small customer cost savings
- Slightly higher margin sale
Overcoming Market Barriers

Prescriptive Downstream Incentive - Utility Perspective

RISK & EFFORT

- Significant education need
- Wide range of product variability
- Uncertainty in savings
- Significant administrative burden
- Small savings per measure

BENEFIT

- Shift risk away from customers
- Potentially large claimed savings in aggregate
Overcoming Market Barriers

Prescriptive Midstream Incentive - System Perspective

**RISK & EFFORT**
- Must obtain installation info
- Must mitigate savings uncertainty
- Small savings per measure

**BENEFIT**
- Smaller administrative burden
- Shift risk away from customers
- Minimize education need
- Leverage educational potential
- Higher margin sale for distributor
- Engage small business audience
Measure Selection

- Simple
- Scalable
- Ubiquitous
- Low market share
- Proven energy savings
- High potential for market shift
- High levels of manufacturer engagement
- Potential to enhance distributor relationships

Image: www.hvacoptimization.com
Unique Program Design

- Incentives to distributors only on products sold above a historical sales baseline
- Incentives paid directly to distributors, no strings attached
- Data collection stipend to mitigate effort needed in reporting additional product data
- Training stipend for educating customers on product benefits and installation
Above-Baseline Design: Benefits

- Market transformation focus
- Limit free-ridership
- Clear goal for distributors
- Encourage creativity in salesmanship
- Can be achieved by shifting cogged-smooth ratio or increasing absolute sales volume
Above-Baseline Design: Disadvantages

- Confusing & hard to communicate
- Hard for distributors to track progress
- Potentially discouraging if a distributor does not exceed baseline in consecutive months
  - Magnified by burden of data collection, which is required on ALL cogged v-belts, regardless of baseline
Seasonality in V-Belt Sales

Quantity of Cogged V-Belts Sold

January | February | March | April | May | June | July | August | September | October | November | December

The chart shows the quantity of cogged V-belts sold from January to December. The highest sales are observed in April, with a significant drop in May and June. There is another peak in September, followed by a decline in October, November, and December.
Incentive Design

**Per-unit incentive**
- Above baseline only
- Priced near cost differential
- All above-baselines belts qualify, regardless of utility territory

**Data reporting stipend**
- One payment per distributor per month
- Rewards extra effort
- Keeps participants interested in slow months

**Training stipend**
- Small amount per student
- Intended to cover cost of training
- Helps ensure proper installation
Data Needs

Purchase data
- Belt type
- Belt length
- Unit price
- Quantity
- Customer contact info
- Branch location

Installation data
- Utility service territory
- Installation address
- Facility type
- Service task type

Energy savings data
- Application type
- Motor size
- Motor usage
Pilot Structure

- **Training stipend**
- **Data reporting stipend**
- **Per-unit incentive**

**Incentives paid directly to distributor**

- **Distributor**

**Utilities**

- **Purchase data**
- **Installation location data**
- **Energy savings data**

**Sales data submitted monthly to utilities**

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MEEA

The Source On Energy Efficiency
Pilot Structure

• Multiple distributors
  – Branch locations as test & control
• Different data collection methods
• Different uses of incentive packages
• Third-party evaluator assistance
• Different baseline calculation methodologies
Baseline Methodology

Quantity of Cogged V-Belts Sold

Option 1: LTM Average
Baseline Methodology

Option 2:
Month Match Last Year
Pilot Challenges

- Consensus on required data collection
- Confidentiality and data security
- Distributor participation
- Communicating a new program model
- Inconclusive feedback due to new model
- Budget estimation
- Collaborative coordination & time management
Early Collaborative Goals

• Achieve early consensus on pilot goals
• Establish clear budget goals
• Actively seek wide industry involvement
• Actively seek distributor feedback
• Set reasonable but firm deadlines
• Build trust within industry
• Treat collaborative as permanent or ongoing
Lessons So Far

• Distributor buy-in is critical
• Minimize data collection burden
• Seek wide industry involvement
• Be flexible and address distributors individually
• Find the right contact person
• Simple education is powerful
Distributor Anecdotes

“Simple education is working. I don't let my guys do the hard sale. Most of the time, all it takes is a simple reminder of the facts.”

“I just don’t see how we can expect sales to increase without passing down some of the rebate.”

“I really like the idea of pushing most of the incentives out to the sales team. It won’t work with all of them but once some get into the routine of it, the others will join in.”
Sources


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