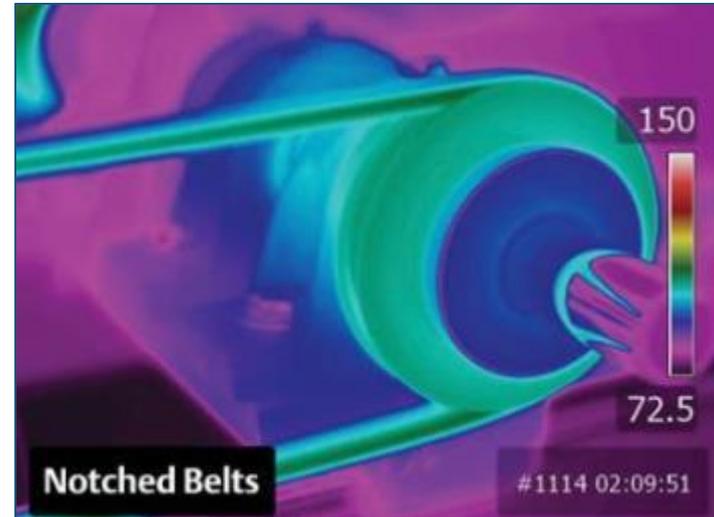


A Midstream Cogged V-Belt Pilot Program: *Concept and Early Challenges*



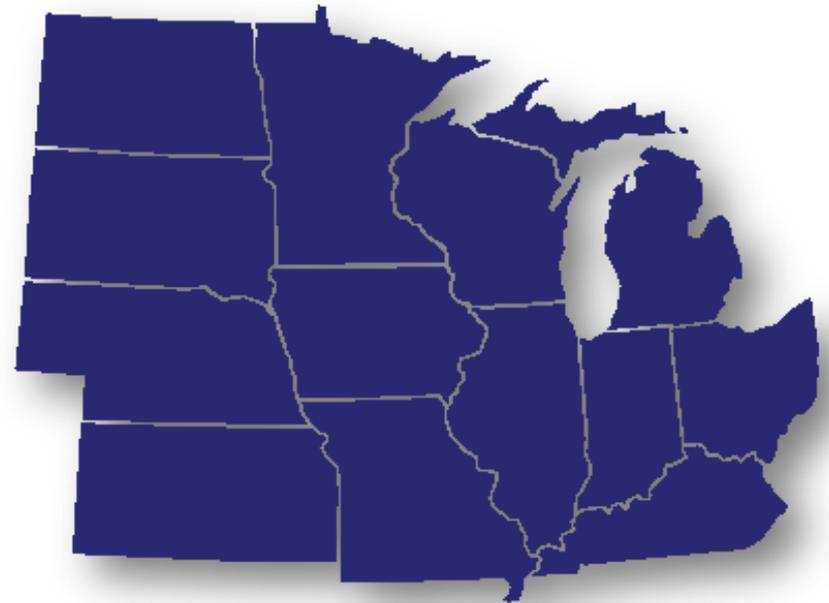
Images from "Browning Belt Drive Thermal Image Video"
www.youtube.com/watch?v=FSMfcZQZBXs

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

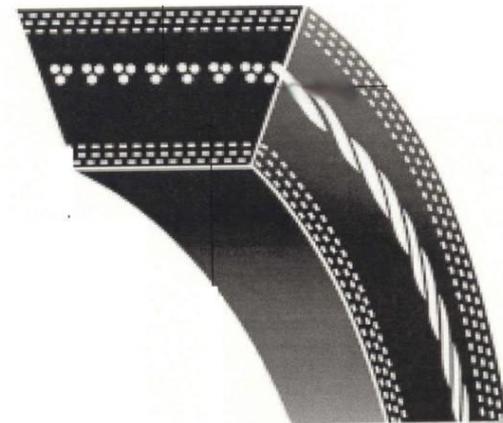
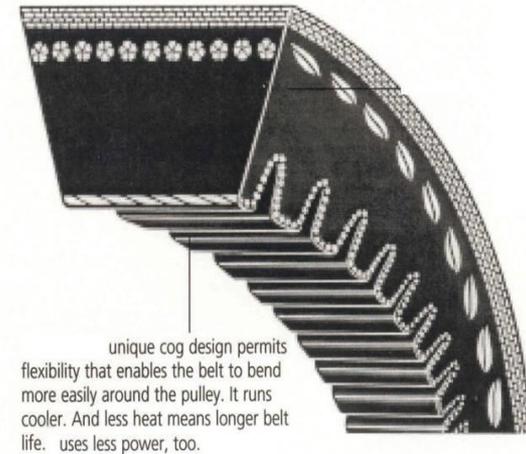
Concept Origination

- **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

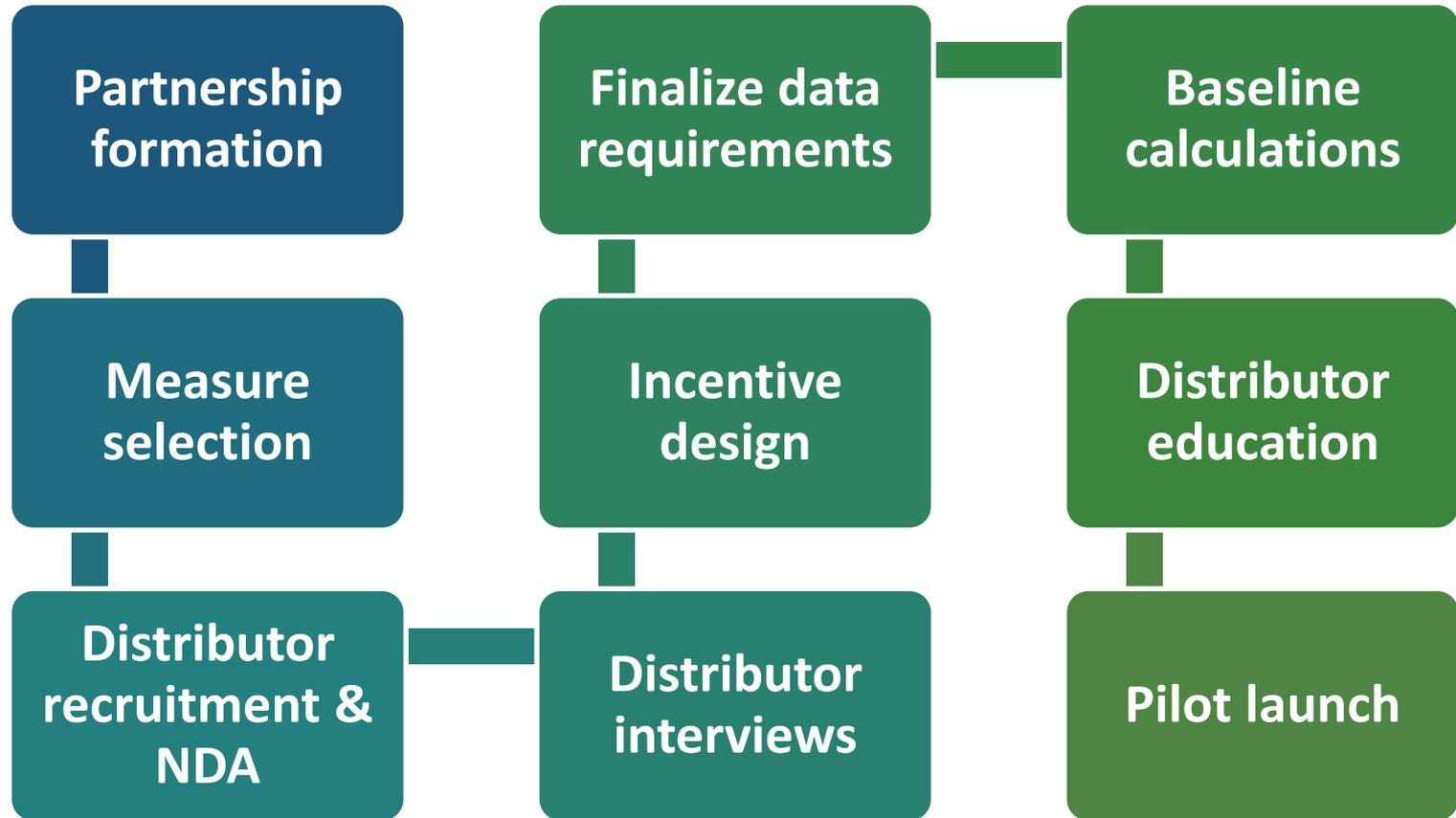
- V-belts lose power from
 - ▣ Bending losses, friction, slip, stretching
- 2-3% more efficient
 - ▣ For 100-hp motor, cogged belt savings ~ 2 homes
- High implementation rate



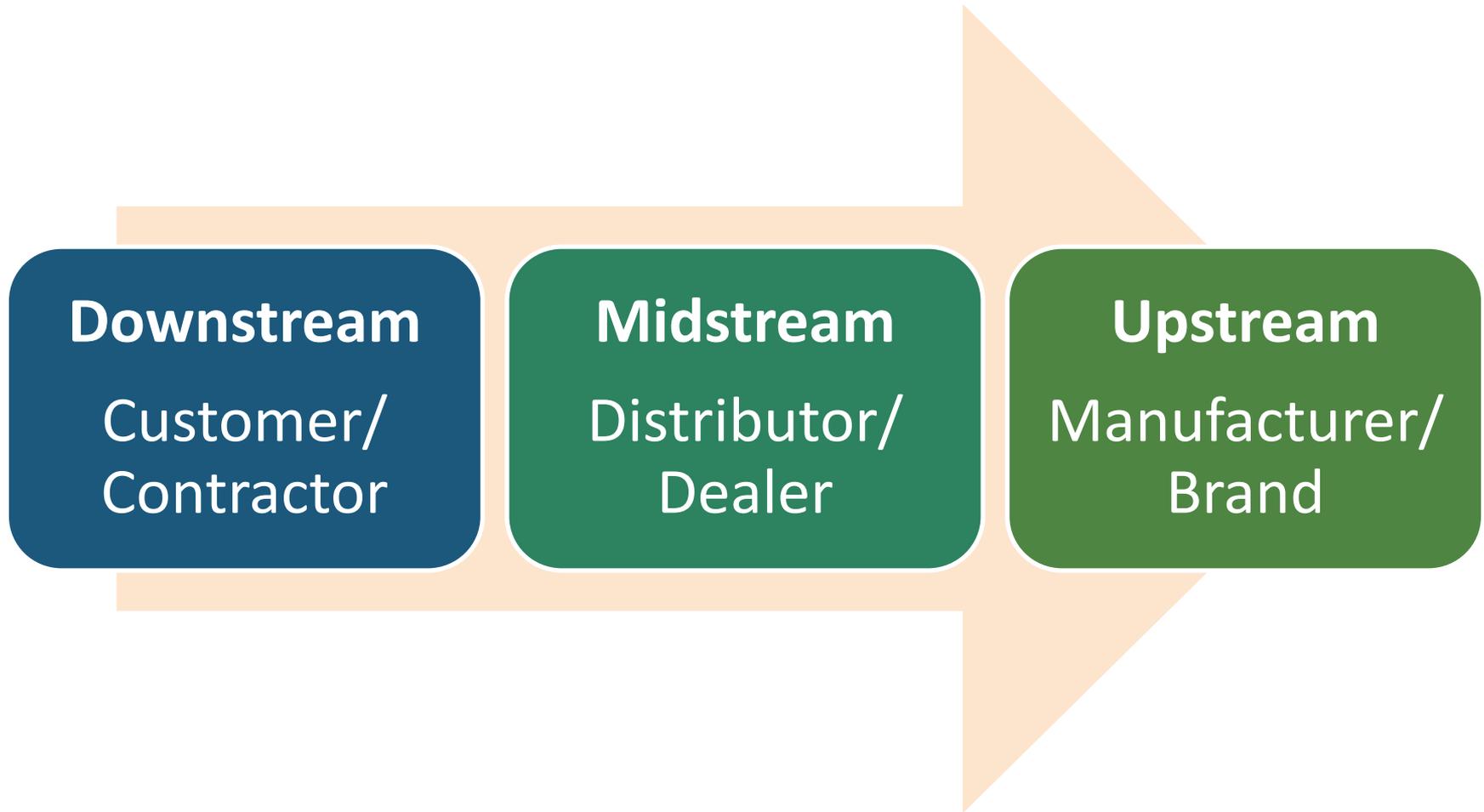
Long-Term Collaborative Goals

- 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



Types of Incentive Programs



Types of Incentive Programs

Streamlined Delivery with Higher Savings Confidence

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

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

Self-educate on measure
Self-inventory stock
Quantify energy savings
Quantify cost savings
Complete paperwork
Approval uncertainty

RISK & EFFORT

Small financial reward
Small customer cost savings
Slightly higher margin sale

BENEFIT



Overcoming Market Barriers

Prescriptive Downstream Incentive - Utility Perspective

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

RISK & EFFORT

Shift risk away from customers
Potentially large claimed savings
in aggregate

BENEFIT



Overcoming Market Barriers

Prescriptive Midstream Incentive - System Perspective

Must obtain installation info
Must mitigate savings uncertainty
Small savings per measure

RISK & EFFORT

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

BENEFIT



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

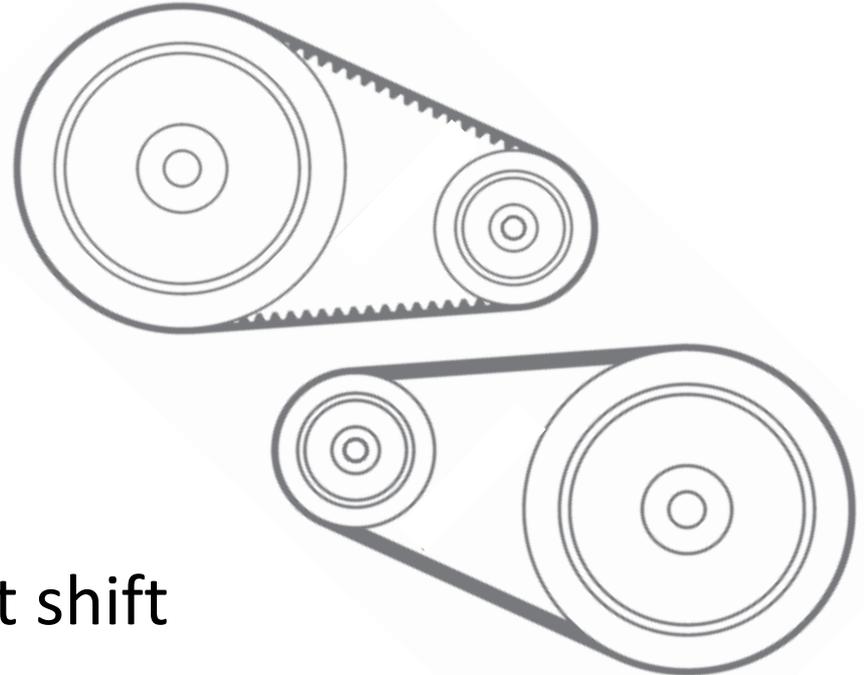


Image: www.hvacoptimization.com

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

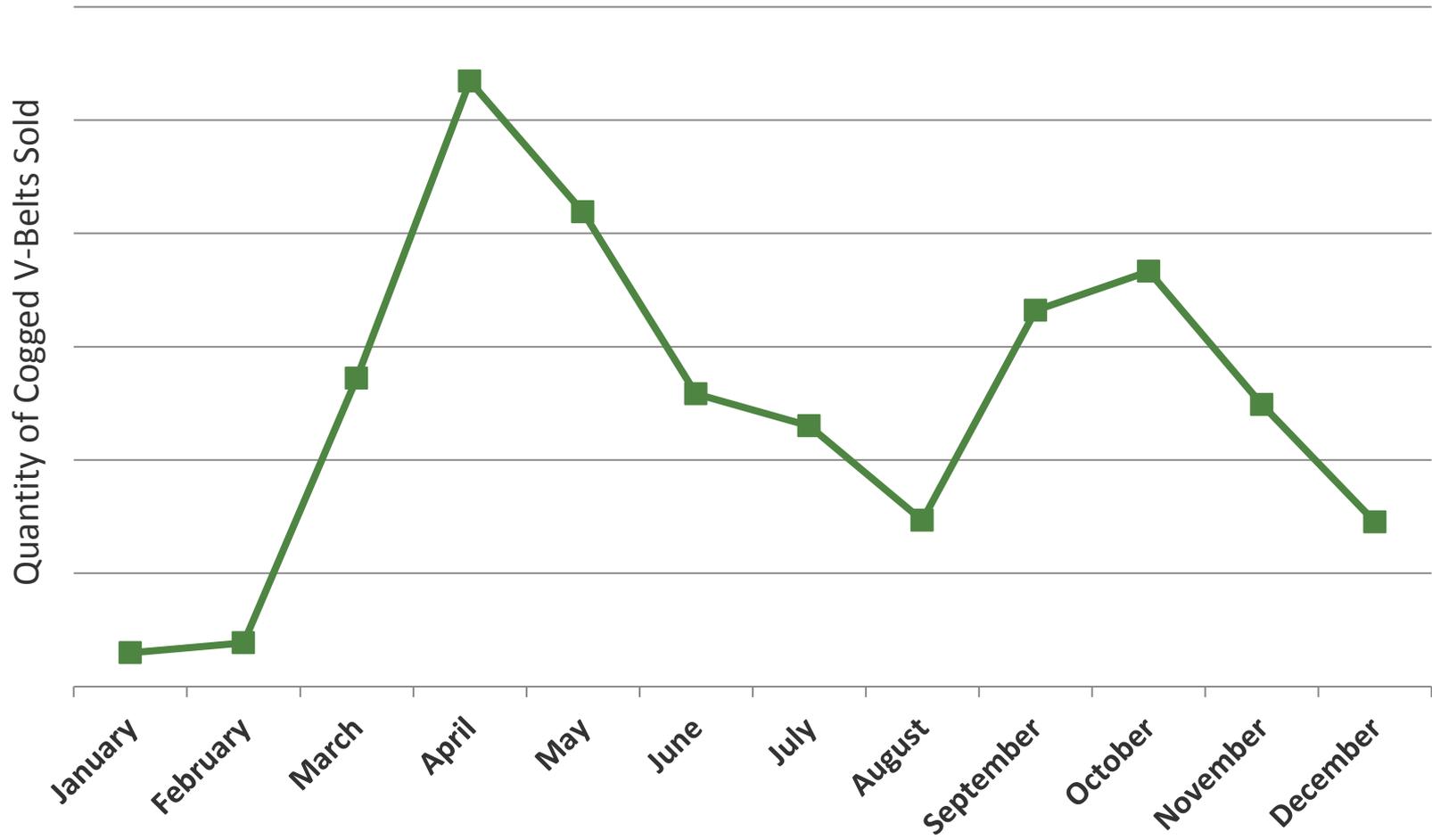
Above-Baseline Design: Benefits

- 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



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

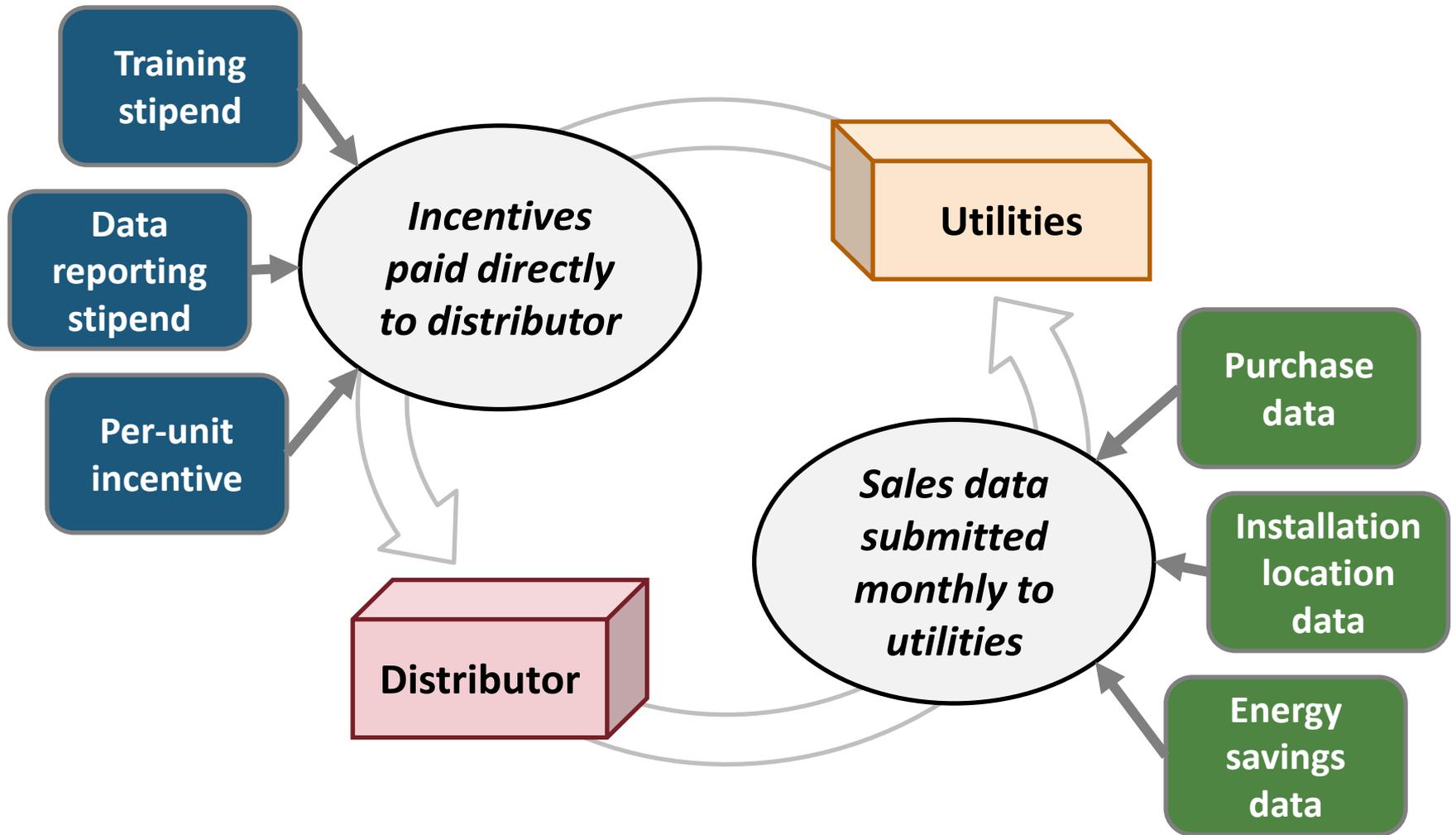
Installation data

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

Energy savings data

- Application type
- Motor size
- Motor usage

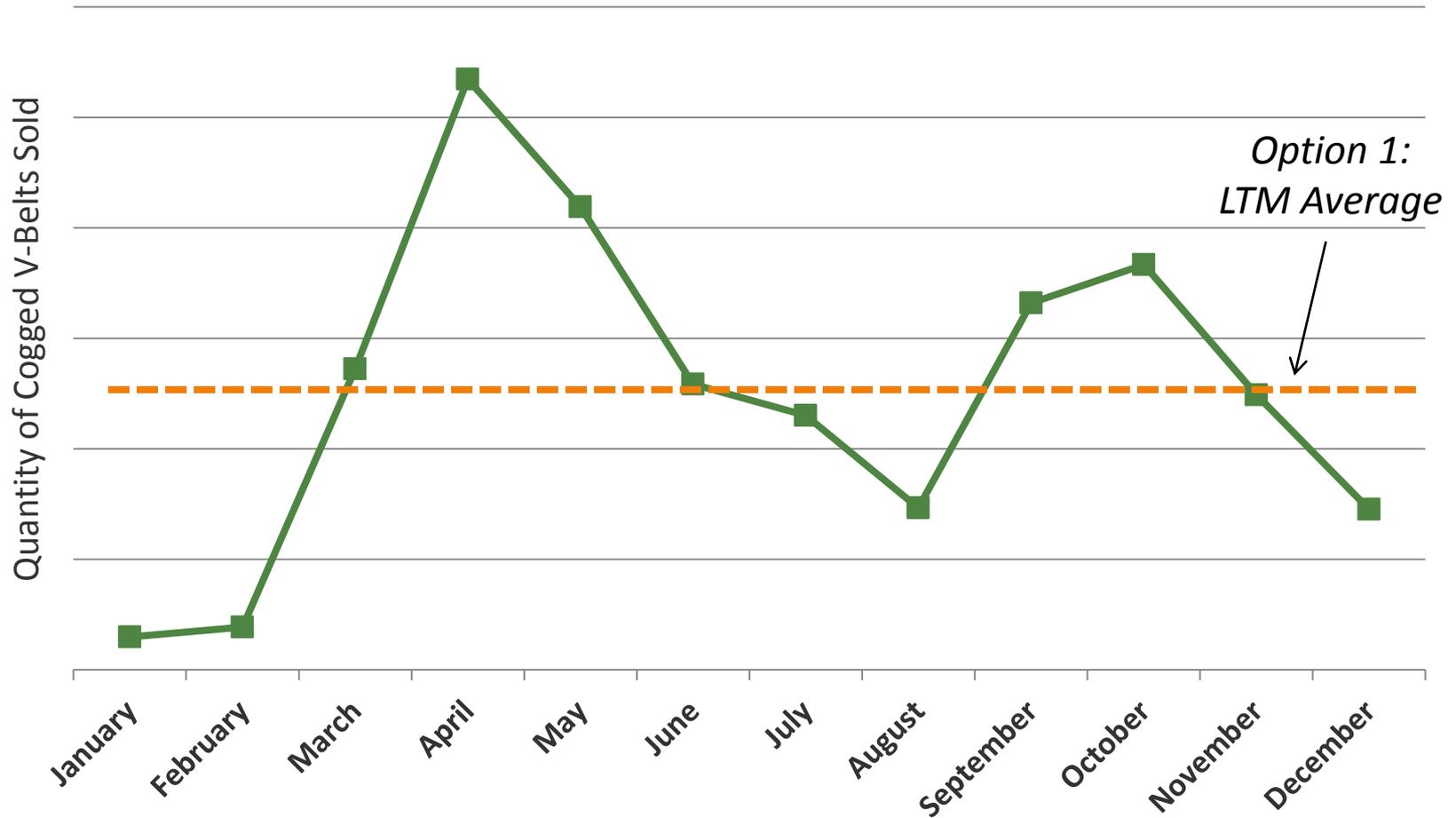
Pilot Structure



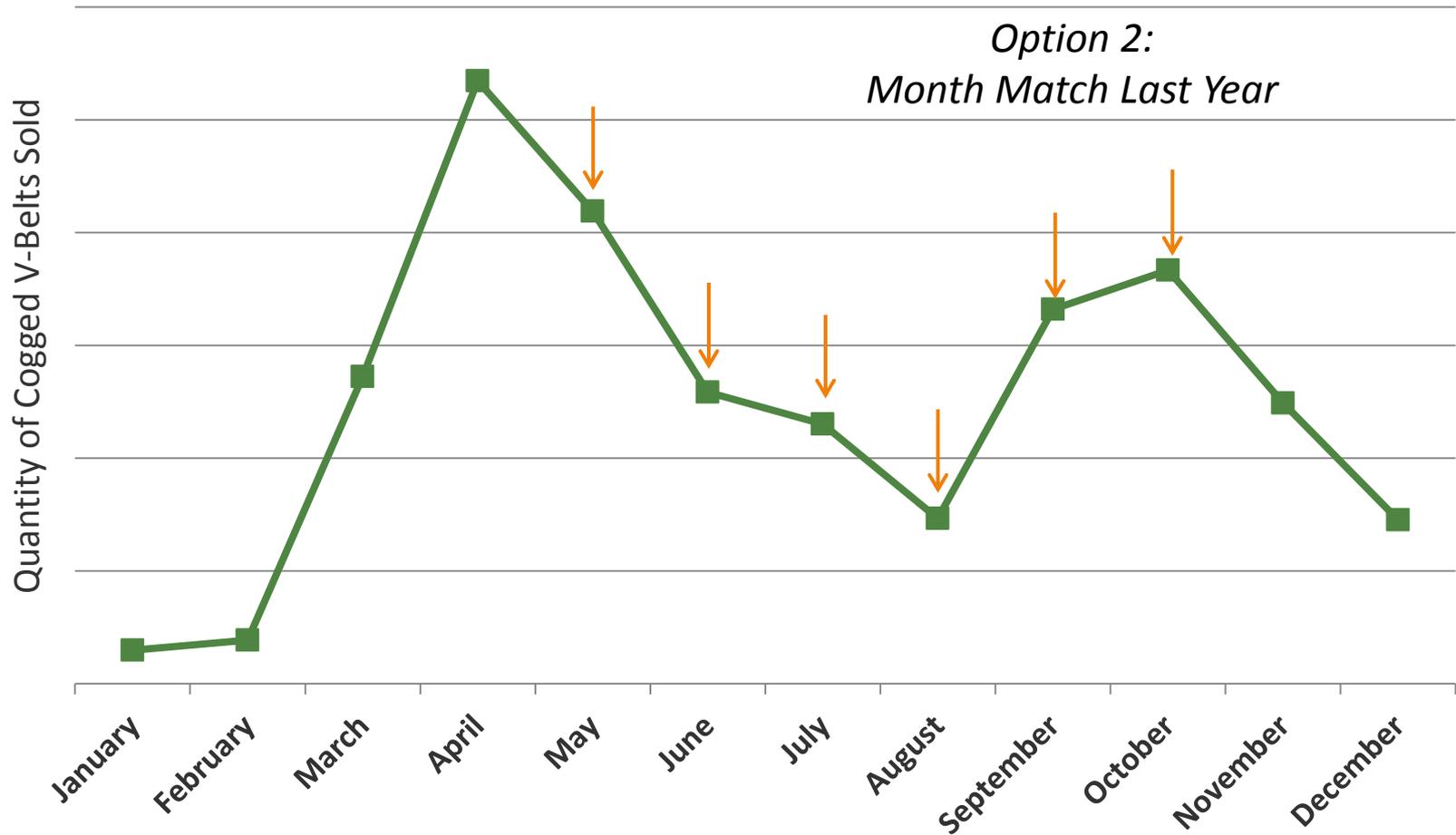
Pilot Structure

- 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



Baseline Methodology



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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Partners



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