

A photograph of a man, Travis Hinck, wearing a bright yellow-green safety helmet with the Ameren logo, safety glasses, and a high-visibility vest over a brown jacket. He is looking off to the side with a focused expression. The background shows a utility site with power lines and a worker on a lift in the distance.

**Ameren Illinois Energy Efficiency Program
Advanced Rooftop Controls Pilot**

Travis Hinck, GDS Associates
July 14, 2021

Advanced Rooftop Controls (ARC) Pilot

Webinar Agenda

- Introduction to ARC
- Value of ARC
- Hurdles to ARC deployment
- Technical description of ARC – and what is NOT ARC
- Details of the Pilot Program
- Examples – studies
- Suppliers
- Questions?

Introduction to ARC



Introduction to Advanced Rooftop Controls

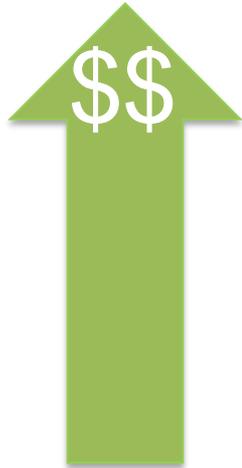
- Install controls to operate rooftop HVAC units more efficiently
- Demand-controlled ventilation (DCV) and supply fan variable frequency drive
- Specific constraints on eligible sites and systems (more details later)
- Off-the-shelf packaged products are available and eligible
- Results in fan, cooling, and heating energy savings
- Lots of potential sites to install



Value of ARC



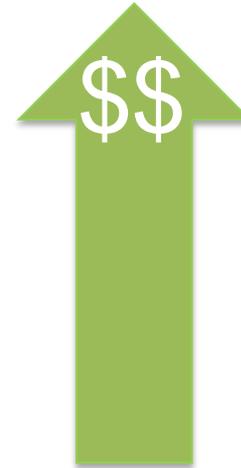
Value of Advanced Rooftop Controls - Site



- Customers – Energy Savings



- Contractors – Sales/ Service Opportunities



- Utility – Incentives Efficiency Goals





Value of Advanced Rooftop Controls - Territory

Potentially large number of eligible sites that could benefit



Hurdles to ARC Deployment



Hurdles to ARC Deployment

- Awareness of the opportunity
- Complicated eligibility
- Identifying products to install
- Building inventory
- Training installers
- Unknown costs

Eligibility Criteria:

- Existing packaged unit rooftop unit (cannot be new installation)
- Serves single HVAC zone with existing constant volume supply fan
- RTU must have integrated economizer, either functional or replaced at time of install
- Existing unit must not be replaced with the new controls
- Existing unit must not be replaced with the new controls
- New controls must meet requirements
- Cannot be combined with other units

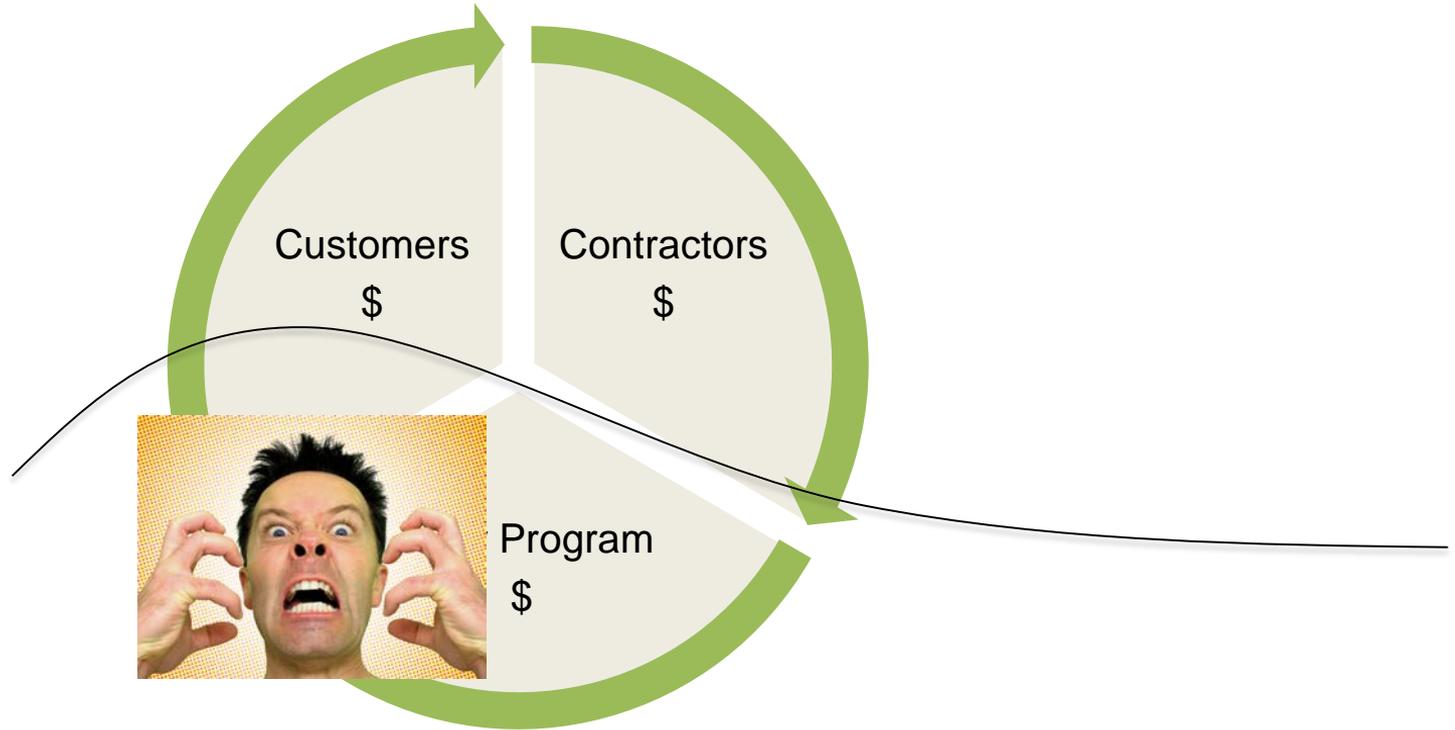




Vision for ARC Pilot Program



Pilot Program



Technical Description of ARC



Technical Description of ARC



- Existing packaged unit rooftop unit (cannot be new installation)
- Serves single HVAC zone with existing constant volume supply fan
- RTU must have integrated economizer, either functional or repaired at time of install
- Existing unit must not have Demand Control Ventilation (DCV) functionality
- Existing unit must not have fan speed controls
- DCV must be installed with the new controls
- Fan speed controls and VFD must be installed with the new controls
- New controls must reduce fan speed during unoccupied periods to minimum ventilation requirements
- Cannot be combined with Measure BPH18 – Demand Controlled Ventilation





Technical Description of ARC

- Existing packaged unit rooftop unit (cannot be new installation)
- Serves single HVAC zone with existing constant volume supply fan
- RTU must have integrated economizer, either functional or repaired at time of install
- Existing unit must not have Demand Control Ventilation (DCV) functionality
- Existing unit must not have fan speed controls
- DCV must be installed with the new controls
- Fan speed controls and VFD must be installed with the new controls
- New controls must reduce fan speed during unoccupied periods to minimum ventilation requirements
- Cannot be combined with Measure BPH18 – Demand Controlled Ventilation



Technical Description of ARC

- Existing packaged unit rooftop unit (cannot be new installation)
- Serves single HVAC zone with existing constant volume supply fan
- RTU must have integrated economizer, either functional or repaired at time of install
- Existing unit must not have Demand Control Ventilation (DCV) functionality
- Existing unit must not have fan speed controls
- ~~DCV must be installed with the new controls~~
- ~~Fan speed controls and VFD must be installed with the new controls~~
- ~~New controls must reduce fan speed during unoccupied periods to minimum ventilation requirements~~
- ~~Cannot be combined with Measure BPH18 Demand Controlled Ventilation~~





What is NOT ARC



- Opposite of eligibility criteria
 - Multi-zone system
 - New Installation of RTU
 - Existing DCV
 - Existing VFD
 - No (or failed) economizer
- Scheduling/programmable thermostat
- Building Automation System
- SAT reset

Many of these projects are great opportunities and may be eligible for other standard or custom incentives through the program - just not the ARC measure



Details of the Pilot Program



Pilot Program Details



GOALS

- Raise awareness
- Increase Incentives (temporary)
- Engage stakeholders
- Ask you what else we can do to help increase installations
- If you have questions, feel free to reach out to me or your Energy Advisor

Total of \$300/ton incentives offered

- Must be installed by **12/31/21** to qualify for increased incentives
- If pre-approval is required, must be pre-approved before **9/30/2021**
- The plan is for incentives to revert to \$200/ton on **1/1/2022**

Example Project

Example Project*

- Assume eligible 10-ton unit
- Incentive \$3,000

- Cost* ~\$3,900
- Bill Savings* ~\$725/annually
- Payback w/ incentive* ~1.25 years



****All values are approximate, estimated by averaging over many building types and use cases. Based on studies that may not reflect impacts observed at a specific site***

Homework

Homework

Installers:

- Consider customers who may benefit
- Explore specific technologies you may want to learn more about
 - Look for off-the-shelf package units that meet the eligibility requirements

Customers:

- Consider whether your site qualifies





QUESTIONS?

Travis Hinck, PE, CEM

Phone: 612.916.3052

Travis.Hinck@gdsassociates.com

AmerenIllinoisSavings.com



AmerenIllinoisSavings.com

