

A utility worker wearing a bright yellow hard hat with the Ameren logo, safety glasses, and a high-visibility yellow safety vest over a brown long-sleeved shirt. He is looking off to the side with a focused expression. In the background, another worker is visible on a power line tower against a clear sky.

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

Travis Hinck, GDS Associates
April 13, 2022

Advanced Rooftop Controls (ARC)

Webinar Agenda

- Introduction to ARC
- Value of ARC
- Hurdles to ARC deployment
- Technical description of ARC – and what is NOT ARC
- Program Offering – and Last Year's Pilot
- Examples – studies
- 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

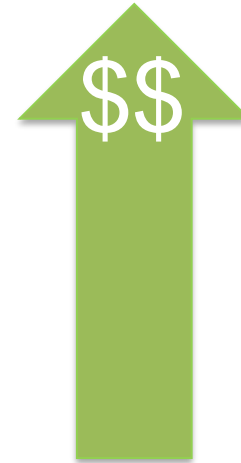
Value of Advanced Rooftop Controls - Site



- Customers – Energy Savings



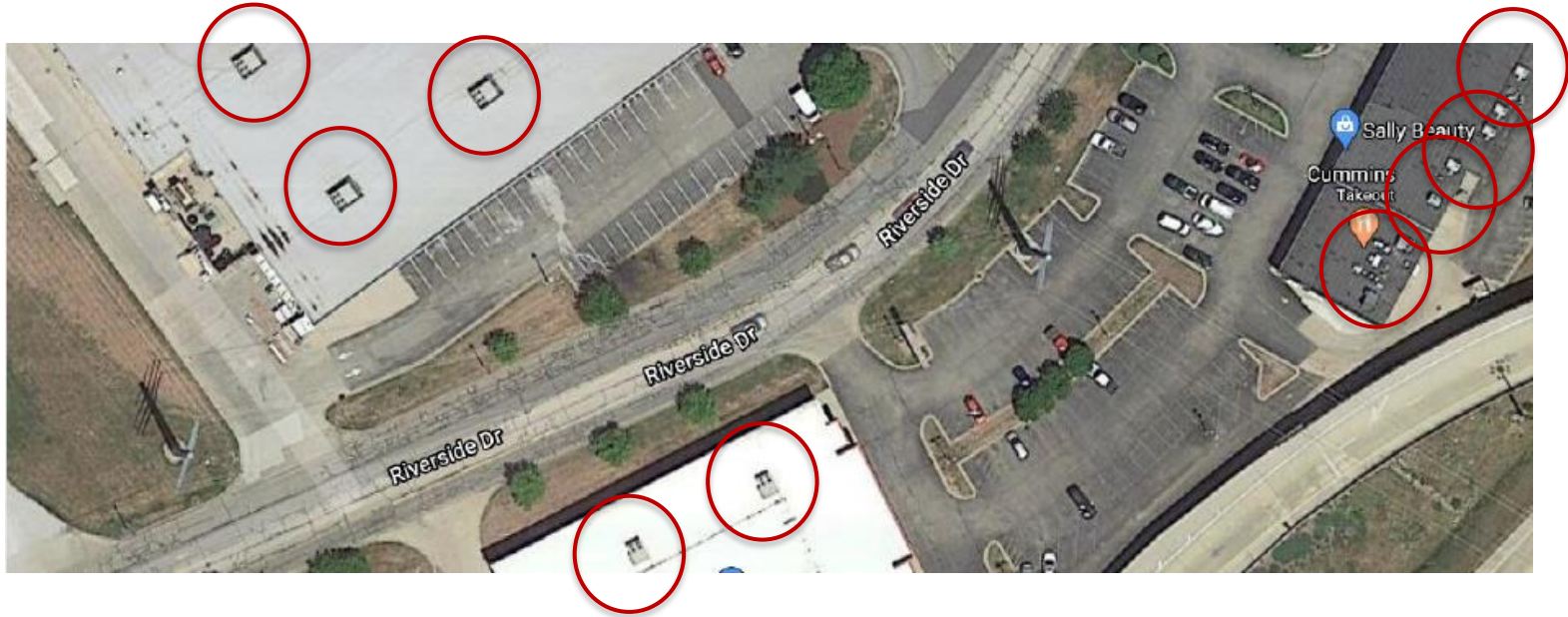
- Contractors – Sales/ Service Opportunities



- 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:

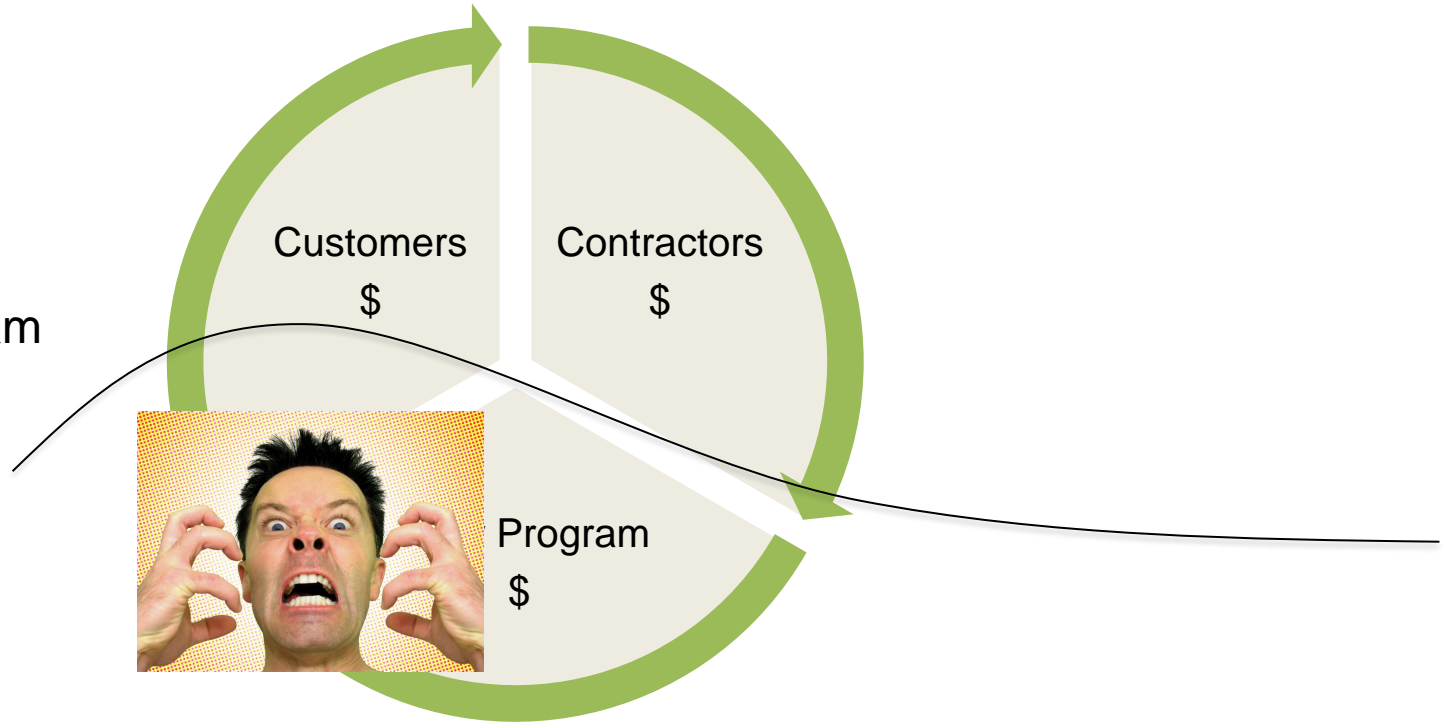
- Existing packaged unit rooftop unit (cannot be new installation)
- Serves single HVAC zone with existing constant volume supply fan
- RTU must have integrated economizer, either functional or resized at time of install
- Existing unit must not be replaced with the new controls
- Existing unit must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



2021 ARC Pilot Program Summary



2021 Pilot Program



Program Measure (2022 and beyond)



- \$200 incentive per ton
- Found on the HVAC Standard Incentive Application

Advanced Rooftop Controls	Eligibility Criteria:					
	<ul style="list-style-type: none"> • 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. DCV <u>must</u> be installed with the new controls • Existing unit must not have fan speed controls. Fan speed controls and VFD <u>must</u> 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 					
	Measure Code	Description	Cooling Capacity (Tons) (A)	Heating Capacity (kBtuh)	Qty Installed (B)	Unit Incentive (C)
	BPC33	Advanced Rooftop Controls	<input type="text"/>	<input type="text"/>	<input type="text"/>	\$200 / ton cooling capacity
Fan Control Type Installed:						
		<input type="checkbox"/> DCV and VFD with 2 Fan Speeds	<input type="checkbox"/> DCV and VFD with 3 Fan Speeds			

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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

Example Project

Example Project – Knox County YMCA

Adam Sampson, CEO Knox Co YMCA

- Advanced Rooftop Controls installed on 85 total tons of cooling
- \$25,500 incentive (\$17,000 base incentive plus \$8,500 Pilot Program install bonus)
- \$6,200* annual bill savings likely
- Under 4 years payback* estimated



****Savings and ROI values are approximate, estimated based on studies that may not reflect impacts observed at this specific site – too early to confirm***

Takeaways

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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

All:

- Advanced Rooftop Controls have become a valuable opportunity to participate in the program, save energy, and qualify for incentives. They're worth checking out!



QUESTIONS?

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