

# AMEREN ILLINOIS COMPANY 2019 ENERGY EFFICIENCY EVALUATION PLAN

Presentation to Illinois SAG

December 3, 2018



# Overview of 2019 Evaluation

# Guiding Principles for Portfolio Evaluation

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- Program-specific evaluation activities during the cycle include:
  - Yearly impact and high-level process evaluation of initiatives
  - Net-to-gross (NTG) research for each initiative conducted at least once
  - Detailed process evaluations as needed
- Other evaluation activities include:
  - Research to support the Illinois TRM
  - Ex post cost-effectiveness analysis
  - Non-energy impacts research
  - Assessment of economic and employment impacts from AIC programs
- Statewide collaboration with other evaluators to ensure consistency in evaluation approaches and to identify opportunities for efficiency
- We use AMI data and randomized control trial/quasi-experimental design evaluation approaches where feasible (identified throughout this presentation)



# Illinois Evaluation Collaboration

SW Collaboration



- Opinion Dynamics collaborates on an ongoing basis with the other Illinois evaluation teams
- The Illinois evaluators currently hold a monthly evaluation coordination call to keep abreast of key issues
- Methodological coordination occurs regularly as part of SAG meetings on specific topics, including:
  - Illinois NTG Working Group
  - Illinois TRM Technical Advisory Committee (TAC)
- Coordination also occurs on an ad-hoc basis on Illinois-wide key issues or program-specific issues that might impact multiple utility programs
- In a number of cases, the Illinois evaluation teams collaborate on statewide research

# 2019 Budget Overview

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- Budgets are split between initiative-specific and other evaluation efforts
  - Initiative size and/or expected savings is a guiding factor taken into account - but not used as a rule - in determining budget allocations
- AIC is a dual-fuel program administrator, and therefore budgets are also split between electric and gas evaluation activities
- Budget is reserved for ad-hoc requests to support the Illinois TRM and to support Illinois stakeholder requests

# Program-Specific Evaluation Plans



# 2019 Ameren Illinois Energy Efficiency Programs

## Residential Program

Retail Products/3<sup>rd</sup> Party

Income Qualified

Public Housing

Res Behavior Modification

HVAC

Appliance Recycling

Multifamily

Direct Distribution

## Business Program

Standard

SBDI

Online Store

Instant Incentives

Custom

BOC

Retro-Commissioning

Streetlighting

Bus. Behavior Modification



# Business Program

## Core Evaluation Activities





# Business Program

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- The AIC Business Program consists of four core initiatives that include a number of discrete subprograms
- The Business Behavior Modification pilot is new in 2019

## Business Program

Standard

SBDI

Online Store

Instant Incentives

Custom

BOC

Retro-Commissioning

Streetlighting

Bus. Behavior Modification



# Standard Initiative – Planned 2019 Evaluation Activities

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- Primarily delivers prescriptive measures with savings assessed via IL-TRM algorithms
- Includes significant Small Business, Instant Incentives and Online Store offerings
- Expected to be the largest contributor to portfolio savings (electric and gas) in 2019; Small Business component accounts for a large share of electric savings

Highlighted 2019 Activities	Details
Online Store Participant Survey	NTG & Process (Census attempt)
Small Business Direct Install Participant Survey	Process (Census attempt)

# Custom Initiative – Planned 2019 Evaluation Activities

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- Delivers custom measures; savings are not calculated with IL-TRM algorithms but are determined by rigorous on-site M&V and desk reviews
- Contains several “incubator” offerings
- Expected to be a major contributor to portfolio savings; notable that maintaining high levels of savings from this initiative has been extremely challenging

Highlighted 2019 Activities	Details
Staffing Grant Interviews	NTG & Process (n = 8)
On-Site M&V	Site Visits (n ~ 60)

# BOC Assessment – Planned 2019 Evaluation Activities

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- Delivers level 1 and level 2 building operator certification training to AIC customers
- Began assessment of the program (process and baseline information) during 2018 classes
- Will be assessing impacts from the 2018 course participants and conducting pre-assessment activities and in-depth interviews with 2019 course participants

Highlighted 2019 Activities	Details
2018 BOC Participant Pre-Assessment Analysis, Savings Survey, and On-Site M&V	Impact & Process (n = 12)
2019 BOC Participant Pre-Assessment, Knowledge Assessments, and Interviews	Impact & Process (Census attempt)

# Retro-Commissioning Initiative – Planned 2019 Evaluation Activities

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- Delivers retro-commissioning; savings are not calculated with IL-TRM algorithms but are determined by rigorous on-site M&V and desk reviews
- Smaller contributor to portfolio savings as compared to Standard and Custom Initiatives

Highlighted 2019 Activities	Details
Participant Interviews	NTG & Process (n ~ 15)
On-Site M&V	Desk Reviews & Site Visits (n ~ Census, 10)

# Street Lighting Initiative – Planned 2019 Evaluation Activities

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- Delivers incentives for upgrades to energy efficient street lighting to municipalities
- Program adoption has been slow and this initiative has been only a minor contributor to savings to date; AIC is looking to drive more participation in 2019

Highlighted 2019 Activities	Details
Participating Municipality Survey	Census attempt
Process Model Development	—

# Business Behavioral Modification Pilot

RCT



- New behavioral pilot treating non-residential customers launching in 2019
- Two forms of treatment: bi-monthly business energy reports by mail and an online engagement portal providing information on energy consumption
- Will be assessing energy savings from BERs **but not** online engagement portal in 2019

Highlighted 2019 Activities	Details
Treatment/Control Randomization and Equivalency Analysis	(n ~ 30,000)
Online Portal Uptake Analysis	Impact & Process

# Residential Program

## Core Evaluation Activities





# Residential Program

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- The AIC Residential Program consists of eight initiatives
- As directed by legislation, a third party will deliver the Retail Products Initiative for three years beginning in 2019

## Residential Program

Retail Products/3<sup>rd</sup> Party

Income Qualified

Public Housing

Res Behavior Modification

HVAC

Appliance Recycling

Multifamily

Direct Distribution



# Retail Products Initiative – Planned 2019 Evaluation Activities

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- Provides discounts for select high efficiency products, including lighting, through multiple channels (online retail, point-of-purchase, mail-in rebates)
- Expected to be a major contributor to portfolio savings (electric and gas)
- In 2019 this initiative will be delivered by a third party

Highlighted 2019 Activities	Details
Participant Survey	Process and NTG for measures or channels introduced in 2019
Process Models	For measures or channels introduced in 2019

# Income Qualified Initiative – Planned 2019 Evaluation Activities

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- Delivers home energy audits and whole-house retrofit upgrades to customers up to 300% of the federal poverty line including multifamily housing through multiple delivery channels
- On-site M&V will be conducted in 2019; will include assessment of installation quality and missed opportunities
- Income Qualified is a major contributor to portfolio gas savings

Highlighted 2019 Activities	Details
CAA Interviews	Process (n = 10)
On-Site M&V	Site Visits & Desk Reviews (n ~ 40)

# Public Housing Initiative – Planned 2019 Evaluation Activities

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- Offers home energy diagnostic services and whole-house retrofits for single- and multi-family properties owned by government entities (i.e., federal, state, and municipal housing authorities)
- Expected to be a relatively small contributor to portfolio savings

# Behavioral Modification – Planned 2019 Evaluation Activities

RCT



- Delivers home energy reports to residential customers via mail, email, and online Home Energy Portal
- Since 2018, initiative also offers High Usage Alerts and energy challenges
- Opinion Dynamics will collaborate with the implementer to randomly assign a newly selected 2019 cohort into treatment/control groups

Highlighted 2019 Activities	Details
Treatment/Control Randomization and Equivalency Analysis	Ensure equivalency across treatment and control groups
Persistence Study	Estimate persistence of savings for customers

# HVAC Initiative – Planned 2019 Evaluation Activities

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- Offers incentives for the purchase of high-efficiency heating and cooling equipment to both single- and multi-family homes
- Expected to be a relatively small contributor to portfolio electric savings and a larger contributor to portfolio gas savings

Highlighted 2019 Activities	Details
Trade Ally Interviews	NTG & Process (Census attempt)
Participant Survey	NTG & Process (Census attempt)

## Appliance Recycling Initiative – Planned 2019 Evaluation Activities

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- Promotes the retirement and recycling of working, but inefficient refrigerators and freezers from the homes of AIC's electric customers by offering a turn-in incentive and free pickup
- Expected to be a small contributor to portfolio savings

# Multifamily Initiative – Planned 2019 Evaluation Activities

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- Offers incentives and services that enable energy savings and lower operating costs in market-rate multifamily housing
- Initiative is expected to be a small contributor to overall portfolio energy savings



## Direct Distribution Initiative – Planned 2019 Evaluation Activities

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- Provides energy savings kits to students in participating 5<sup>th</sup> to 8<sup>th</sup> grade classrooms with a focus on low-income communities that receive both electric and gas service from AIC
- Initiative is expected to be a small contributor to overall portfolio energy savings

Highlighted 2019 Activity	Details
Participant (Parent) Survey	Process & NTG for lighting (Census attempt)

# Voltage Optimization

## Core Evaluation Activities



# Planned 2019 Evaluation Activities

AMI Data



- VO program was launched in 2018
- Implemented at the distribution substation or circuit level that optimizes voltage levels along distribution circuits to reduce electricity usage
- 2019 impacts will be assessed with an algorithmic approach using AIC's previously determined Conservation Voltage Reduction Factor ( $CVR_f$ )
- On/off testing research in 2019 will be used to verify (and if needed, update) the  $CVR_f$  and will support submission of a 2020 IL-TRM workpaper

Highlighted 2019 Activities	Details
Verification of VO Deployment to Date	All available circuits (n ~ 77)
Application of Energy Savings Algorithm	All available circuits (n ~ 77)
Regression Analysis using On/Off Testing	All available circuits (n ~ 77)



# Other Key 2019 Evaluation Research

# Other Key 2019 Evaluation Research Activities

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Non-Energy Impacts  
Research

Advanced Thermostat  
Research

Economic and  
Employment Impacts  
Research

Tier 2 Advanced Power  
Strip Research



# Non-Energy Impacts Research

SW Collaboration



- Results will be used to both inform program marketing/outreach as well as quantify additional impacts of programs for future use
- Ongoing coordination with the NEI Working Group and other Illinois evaluators on methodology and tasks
- Research began in 2018 and will continue throughout 2018-2021 cycle
- Under this umbrella, we are also assessing economic and employment impacts of Illinois energy efficiency programs in coordination with other Illinois evaluators



# Planned 2019 NEI Evaluation Activities

SW Collaboration



- Note that 2019 activities below are our current thoughts about 2019 research; 2018 NEI research is still in progress and final 2019 research activities will be contingent upon outcomes of 2018 research

Highlighted 2019 Activities	Details
Assessment of Utility NEIs	Pre- and post- payment & administrative cost assessment with treatment & comparison groups
Assessment of Participant NEIs from Income Qualified & Public Housing Initiatives	Survey pre-treatment & comparison groups to quantify prioritized health, safety, & comfort NEIs
Develop Whitepaper on Assessing Negative NEIs	Research focusing on potential research methods that could be employed in future years to assess negative NEIs
SAG & Cross-Utility Coordination	Participate in coordination meetings with Illinois evaluators, the SAG NEI Working Group, and the Income Qualified Advisory Committee as appropriate

# Economic & Employment Impacts

SW Collaboration



- Opinion Dynamics and the ComEd evaluation team are collaborating on development of methodology for assessing the economic and employment impacts of Illinois energy efficiency programs
- We plan to use IMPLAN software to estimate impacts using a common methodology that can be replicated in future years
- This methodology will be discussed with interested stakeholders in early 2019 before it is finalized and executed for the first time as part of the 2018 evaluation
- We currently expect to conduct this analysis again in 2019 using the same methodology, but welcome stakeholder feedback once the 2018 analysis is completed and will revise methodology if all parties agree that it is appropriate to do so

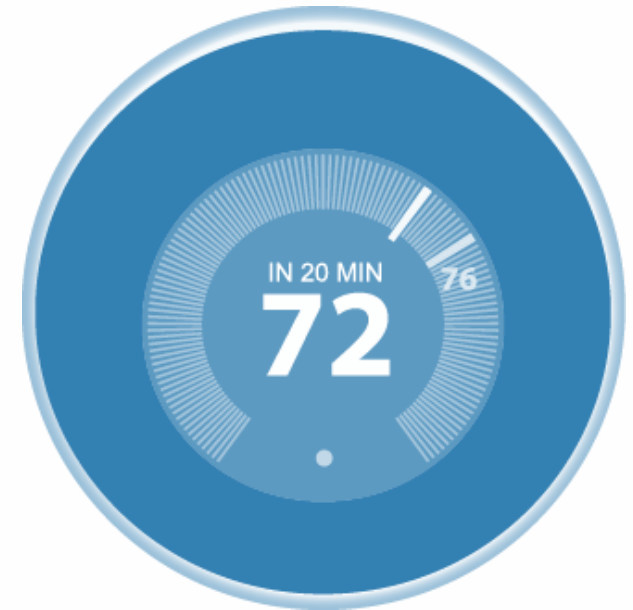


# Advanced Thermostat Research

AMI Data



- AIC's distribution of advanced thermostats is ramping up rapidly
  - Prior to 2018, AIC had delivered fewer than 5,000 advanced thermostats
  - AIC plans to deliver approximately 24,000 advanced thermostats during 2018
- Opinion Dynamics is currently developing a study design to estimate residential cooling impacts from advanced thermostats in AIC service territory
- This study design will be discussed with the Advanced Thermostat Subcommittee for feedback and discussion before we begin; we expect to present our design before the end of 2018



# Tier 2 Advanced Power Strip Pilot Research

RCT



- Opinion Dynamics and AIC are currently finalizing design for a Tier 2 Advanced Power Strip pilot to be implemented in AIC territory during the 2019 program year
- This pilot will be conducted with the explicit goal of updating the IL-TRM measure for Tier 2 Advanced Power Strips for IL-TRM V9.0
- Pilot research design and methods will be made public once they are final



# Other Evaluator Activities

# Other Evaluator Activities

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- SAG Participation and Support
  - TAC and Subcommittees
  - NTG Working Group
  - NEI Working Group
- Annual Evaluation Planning
- AIC Support
  - Coordination & program design
  - Methodological collaboration with other evaluation teams
- ICC Staff Support
  - Ad-hoc requests
- Annual Ex Post Cost-Effectiveness Assessment

# Key Evaluation Contacts

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*Returning from leave in early January*



