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AMEREN ILLINOIS 2021 ENERGY EFFICIENCY EVALUATION PLAN

Presentation to the Illinois SAG

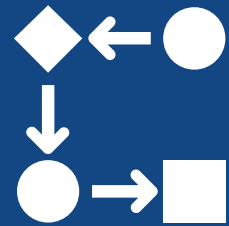


December 9, 2020



Agenda

- Overview of 2021 evaluation approach
- Program-specific evaluation activities
- Portfolio-level evaluation activities
- Evaluation budget overview



OVERVIEW OF 2021 EVALUATION APPROACH

Key Evaluation Objectives

Impact

- Estimate verified first-year and cumulative persisting annual savings
- Utilize phased data collection and analysis where feasible and appropriate
- Leverage AMI data to inform impact estimation where appropriate
- Update net-to-gross ratios (NTGR) for each initiative at least once per plan period

Process & Market Research

- Explore key initiative-specific issues including:
 - How well educational information, energy savings opportunities, and the implementation process are understood
 - Reasons behind the success or inability of initiatives to penetrate the market
 - Opportunities for improvement
- Market research activities are conducted on an as-needed basis to support AIC in key areas at key times

Key Evaluation Objectives, cont.

Non-Energy Impacts & Employment Impacts

- Research, characterize, quantify, and monetize benefits produced by the AIC portfolio that go beyond energy and water savings
- Estimate the economic and employment impacts due to AIC's portfolio

Verified Cost-Effectiveness

- Conduct cost-effectiveness analysis using the Illinois TRC to ensure AIC meets its statutory requirement of operating a cost-effective portfolio
- Interpret results of analysis and assist AIC in using findings to improve its portfolio

TRM Research

- Support the Illinois TRM update process through ongoing participation in the TAC and TRM working groups
- Conduct distinct research studies to support TRM updates of importance to AIC's portfolio

Anticipated 2021 NTG Updates

- Standard Initiative
 - Core (fielding complete, analysis ongoing, draft results expected in Q1 2021)
 - SBDI (fielding complete, analysis complete, draft results available shortly)
 - Instant Incentives (fielding, analysis, results expected in Q1 2021)
- Custom Initiative
 - Survey ongoing; supplemental sample required, draft results expected in Q1 2021
- Retail Products Initiative
 - Potential updates to appliance NTGRs pending discussion with AIC on effects of COVID-19 on the Initiative
- Virtual Commissioning
 - Exploratory research underway; more specific research to be pursued in 2021, *may* yield an update for 2021 process

Evaluation Collaboration



- Ongoing collaboration occurs between the Illinois evaluation teams:
 - Monthly evaluation coordination meetings keep the teams connected and up to date
 - SAG meetings and Working Groups provide a framework for formal methodological collaboration:
 - Illinois TRM Technical Advisory Committee (TAC)
 - Illinois NTG Working Group
 - Illinois Non-Energy Impacts Working Group
 - Ad-hoc collaboration also occurs on key statewide issues; recent examples include:
 - COVID-19's effects on CPAS
 - Business closures
 - Negative savings



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PROGRAM-SPECIFIC EVALUATION ACTIVITIES

2021 Programs

Residential

- Retail Products
- Income Qualified
- One Stop Shop – Multifamily Initiatives*
- Direct Distribution
- Appliance Recycling
- Midstream HVAC*
- Home Efficiency*

Business

- Standard*
- Custom
- Retro-Commissioning
- Streetlighting

Voltage Optimization

*Significant program design changes or new program in 2021

- Three core programs composed of 11 key initiatives
- Notable program design changes including advancement of the one-stop-shop model for Multifamily and addition of midstream offerings for residential and commercial HVAC



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Residential Program

2021 Residential Program

Retail
Products

Income
Qualified

One-Stop
Shop

Direct
Distribution

Appliance
Recycling

Midstream

Home
Efficiency –
Market Rate

Key Annual Evaluation Activities for Residential Initiatives

- The evaluation team conducts the following activities for all Initiatives:
 - Program staff interviews
 - Program material review
 - Database review
 - TRM-based impact evaluation
- In addition, we develop targeted evaluation activities in key areas within the Residential Program

2021 Residential Program Evaluation Summary

Initiative	Process	Impact	NTG
Retail Products	<ul style="list-style-type: none"> Market actor interviews and participant surveys 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> Yes, pending discussion with AIC around COVID-19 impacts
Income Qualified	<ul style="list-style-type: none"> Deep dive into several components of program 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> No
Midstream	<ul style="list-style-type: none"> Detailed evaluation to assess transition to new model 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> No
One-Stop Shop	<ul style="list-style-type: none"> Basic 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> No
Home Efficiency	<ul style="list-style-type: none"> Participant research in conjunction with IQ 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> No
Direct Distribution	<ul style="list-style-type: none"> Basic 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> No
Appliance Recycling	<ul style="list-style-type: none"> Basic 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> No

2021 Evaluation Focus Activities – Retail Products

Evaluation Context

- This Initiative is a major component of AIC’s portfolio, delivering lighting, appliance, and advanced thermostat rebates
- After 2020 elections, potential changes to federal lighting standards impacting EISA are possible

2021 Evaluation Focus Activities

Process

Participant Survey

Market Actor Interviews

Key Research Objectives

- Determine NTGRs and ISRs for measures newly or recently added to the Initiative
- Understand expected lighting market dynamics in light of potential changes to federal standards

Evaluation Focus Activities

- Participant survey focused on estimating NTG and ISR for new measures
- Market actor interviews—discussions with corporate manufacturer and retailer contacts to gain insight into industry interpretations and expectations for the lighting market in 2021+

2021 Evaluation Focus Activities - Income Qualified

Evaluation Context

- This Initiative is a major component of AIC’s portfolio and a key channel through which AIC serves its most vulnerable customers
- The Initiative is continually evolving and innovating to meet the needs of IQ customers through a range of components and channels

Key Research Objectives

- Assess successes and challenges related to key Initiative design changes in 2020 and 2021
- Examine how OBF is impacting IQ customers
- Examine the Smart Savers participation process

Evaluation Approach

- Surveys with Single Family, CAA, and SAVE Kit channel participants
- “Ride-along” observations of Single Family channel audits
- Targeted Smart Savers process evaluation including process model development and interviews with participating customers

2021 Evaluation Focus Activities	
Process	
	Participant surveys
	Participant in-depth interviews
	Smart Savers process model
	Audit “ride-along” observations
Market	
	Low Income Needs Assessment

2021 Evaluation Focus Activity – Low Income Needs Assessment

Key Research Objectives

- Determine how AIC can improve the reach of and optimize IQ services. Areas of exploration include:
 - What are the unique conditions and needs of IQ customers?
 - What level of energy burden and insecurity do AIC’s customers experience?
 - What barriers do IQ customers experience that limit their involvement in AIC IQ programs?
 - What program design approaches are most appealing to IQ customers and landlords?

2021 Evaluation Focus Activities

Market

Gen Pop Residential Survey

Qualitative Research with IQ Landlords

Research Approach

- General population surveys with residential customers (including IQ oversample) featuring discrete choice survey exercise to explore incentive models and program offerings
- In-depth Interviews with landlords to learn more about their awareness and acceptance vs. resistance to IQ offerings

2021 Evaluation Focus Activities - Midstream Initiative

Research Context

- In 2021, AIC's prior HVAC Initiative will transition from a downstream model to the Midstream Initiative with a focus on HVAC and heat pump water heaters
- Within this context, there is interest in exploring broader market effects due to this Initiative

Key Research Objectives

- The evaluation is designed to understand the impact of this program design change on equipment sales, program participation and program satisfaction
- We will also explore barriers to participation in the Initiative among distributors and contractors, potential program improvements, and potential market effects due to the Initiative

Evaluation Approach

- In-depth interviews with participating distributors
- Exploratory in-depth interviews with participating contractors, as well as a survey of participating contractors
- Additional research as needed to assess market effects

2021 Evaluation Focus Activities

Process/Market

Program Ally Coordinator Interviews

Distributor Interviews

Contractor Interviews and Survey

2021 Evaluation Activities – Home Efficiency – Market Rate

Program Design/Implementation

- Promotes completion of building envelope projects among market rate customers through partnership with Program Allies
- Targeted marketing, education around OBF, and process improvements will be used to drive increased participation

Evaluation Approach

- Surveys with participating customers
- Holistic analysis of delivery channel effectiveness across Home Efficiency offerings (IQ and Market Rate)
- Engineering analysis-based impact evaluation approach

2021 Activities
Process
Staff Interviews / Material Review
Participant survey
Delivery channel analysis (all tiers)
Impact
Engineering Analysis



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Business Program

2021 Business Program

Standard

Custom

Retro-
Commissioning

Streetlighting

BOC

Key Annual Evaluation Activities for Business Initiatives

- The evaluation team conducts the following activities for all Initiatives:
 - Program staff interviews
 - Program material review
 - Database review
 - Impact evaluation
 - TRM-based impact evaluation (Standard, Streetlighting)
 - Custom/statistical impact evaluation (Custom, RCx)
 - Learning-based impact evaluation (BOC)
- In addition, we develop targeted evaluation activities in key areas within the Business Program

2021 Business Program Evaluation Summary

Initiative	Process	Impact	NTG
Standard	<ul style="list-style-type: none"> Basic 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> No
Custom	<ul style="list-style-type: none"> Basic 	<ul style="list-style-type: none"> Custom M&V 	<ul style="list-style-type: none"> No
Retro-Commissioning	<ul style="list-style-type: none"> Participant research for VCx 	<ul style="list-style-type: none"> Custom M&V for traditional RCx, statistical impacts for VCx 	<ul style="list-style-type: none"> Research for virtual commissioning
Streetlighting	<ul style="list-style-type: none"> Basic 	<ul style="list-style-type: none"> Verification of TRM application 	<ul style="list-style-type: none"> No
Building Operator Certification	<ul style="list-style-type: none"> Ongoing integrated approach 		

2021 Evaluation Focus Activities – Business Cross-Cutting

Evaluation Context

- Business Program is the largest piece of AIC’s portfolio and a necessary driver of portfolio savings
- Program has had great success with SBDI offering; needs to explore new channels and to continue delivering savings through projects with large customers

2021 Evaluation Focus Activities
Process/Market
Key Account Manager Interviews
Disadvantaged Communities Research
Nonresidential NEI Research

Key Research Objectives

- Examine relationship of large customers with AIC and participation in EE programs
- Identify opportunities for the Business Program to target and serve businesses/non-profits that provide key social services
- Conduct research on impacts of customer participation in AIC’s EE programs beyond energy savings (productivity increases, O&M savings, etc.) that can be used to refine marketing and drive participation

Evaluation Approach

- Interviews with AIC Key Account Managers
- Disadvantaged Communities research
- Nonresidential NEI research

2021 Evaluation Focus Activity - Disadvantaged Communities (DAC) Research

Key Research Objectives

- Identify opportunities for the Business Program to target and serve businesses/non-profits that provide key social services by:
 - Determining the historical reach of the Business Program across AIC's territory
 - Identifying target DACs that have been historically underserved by the Business Program
 - Understanding energy-related needs of small businesses and community-serving institutions (e.g., libraries, clinics, community centers)
 - Developing community stakeholder-driven outreach and implementation strategies within target DACs

2021 Evaluation Focus Activity

Geographic analysis of historical Business Program participation

Qualitative research with community stakeholders

Surveys with non-participant small businesses and community-serving institutions

Research Approach

- Map historical Business Program participation overlaid with census data on income, as well as key indicators of DACs, such as environmental/pollution data, unemployment rate, high school graduation rate, and building vacancy rate to identify high priority DAC targets
- In-depth interviews or focus groups with DAC stakeholders (e.g., MDI partners, community organizations, small business leaders, chambers of commerce) to discuss needs and strategies for engaging with DACs
- Non-participant surveys with small businesses and community-serving institutions regarding needs, interest, and barriers to Business Program participation

2021 Business Non-Energy Impacts Research

Evaluation Context

- NEI research began in 2018 at stakeholder request and continues through 2018-2021 cycle
- Business NEI research to date has been limited (screening only)
- AIC faces significant challenges in continuing to increase savings from large business customers

Key Research Objectives

- Assess NEIs that accrue to nonresidential customers through their participation in energy efficiency programs
- Help AIC communicate NEIs in a manner that increases participation and customer satisfaction
- Consider role of nonresidential NEIs in portfolio cost-effectiveness

Evaluation Approach

- Engineering life-cycle cost analysis to estimate O&M cost savings
- Business customer interviews to estimate non-O&M NEIs (health, safety, downtime, productivity, revenue, etc.) and produce case studies

2021 Evaluation Activities

Interviews with Business Customers

O&M Cost Estimation Using
Lifecycle/Engineering Analysis

Case Studies

2021 Evaluation Activities – Building Operator Certification

Evaluation Context

- BOC training yields energy savings after “lag time”
- Critical to understand whether learning is occurring in evaluating effectiveness
- Use Kirkpatrick’s model (adult learning framework) to assess learning

Key Research Objectives

- Assess whether the BOC Training satisfies all four levels of Kirkpatrick’s Model: (1) Reaction, (2) Learning, (3) Behavior, and (4) Results
- Estimate energy savings resulting from actions taken by participants as a result of learning

Evaluation Approach

- Baseline surveys to collect information on participant facilities, operations, energy-using equipment, and energy efficiency practices prior to the training
- Reaction interviews to understand participant satisfaction with course and any plans for future projects
- Review course materials to assess student performance on assignments
- Post-course savings interviews to understand energy-related projects or operations adjustments implemented by participants following the training
- IL-TRM based engineering analysis and impact evaluation

2021 Evaluation Activities

Baseline O&M Practices and Energy Efficient Equipment Survey
Participant Reaction Interviews
Review Course Materials
Post-Course Savings Interviews
Engineering Analysis

2021 Evaluation Activities – Virtual Commissioning

AMI Data



Evaluation Context

- Virtual Commissioning is a new delivery model and offering for AIC based on leveraging the AMI data of small and medium businesses to identify opportunities for energy savings improvements
- Offering was piloted in 2020 and will continue in 2021
- Implementation team has indicated that they believe substantial outside spillover results from the offering

2021 Evaluation Focus Activities

Process

Participant interviews

Impact

Model-based impact evaluation

Key Research Objectives

- Gather early process insights to support AIC's continued success with this offering
- Explore program attribution including free-ridership and spillover
- Determine which modeling approaches are most appropriate in evaluating offering

Evaluation Approach

- Participant in-depth interviews to support process research and attribution research
- Model-based impact evaluation to estimate savings and to explore most appropriate evaluation approach for future years



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Pilots

2021 Evaluation Activities - Retail Products Platform

Key Research Objectives

- Describe how the RPP Program is expected to affect the market for ENERGY STAR certified products in the AIC service territory
- Define and measure key program performance indicators/metrics to assess program progress over the short-, mid-, and long-term
- Develop program baselines to measure change in efficient product share over time
- Identify barriers to participation
- Identify possible program improvements and/or opportunities

Evaluation Approach

- Logic Model Development – develop a LM specific to AIC’s implementation of the program to help define metrics and outcomes to track over time to assess performance
- Baseline Development – develop efficient sales share baselines to assess program lift over time
- Sales Data Analysis – explore the full year’s sales data to determine if first-year program impacts are detectable.

2021 Evaluation Activities	
Process	
	Logic Model Development
	Staff Interviews/Program Material Review
	Retailer/Manufacturer Interviews *
Impact	
	Baseline development
	Sales data analysis

* Note that the individual evaluators do not conduct retailer/manufacturer interviews. Instead, so as to not overwhelm retailers, retailer and manufacturer interviews are conducted under the ESRPP efforts and each of the evaluation team are able to provide input into the questions asked.



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Voltage Optimization

2021 Evaluation Activities – Voltage Optimization

AMI Data



Program Design

- AIC is deploying approximately 170 VO circuits in 2020, which will start operating on January 1, 2021
- The 2021 evaluation will calculate the impacts from these 170 circuits based on the IL-TRM V9.0

2021 Evaluation Activities

Process

Data Requests and Material Reviews

Impact

Verification of VO Deployment to Date

IL-TRM V9.0 Application

Evaluation Approach

- Review of pre-period and post-period AMI data
- Verification that VO circuits deployed in previous years are still operational
- IL-TRM based impact evaluation approach



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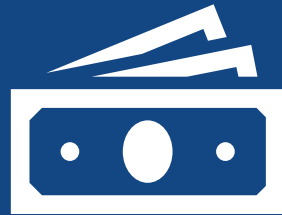
TRM RESEARCH



- Specific research items currently being scoped for 2021+
 - Revised statewide Compressed Air EUL research plan
 - Lighting updates (Opinion Dynamics leading cost updates; Guidehouse leading wattage updates)
 - NLC/LLLC (savings verification, lifetime, costs)
 - Provisional measure updates
 - Energy Efficient Hydraulic Oils & Lubricants
 - Smart Sockets



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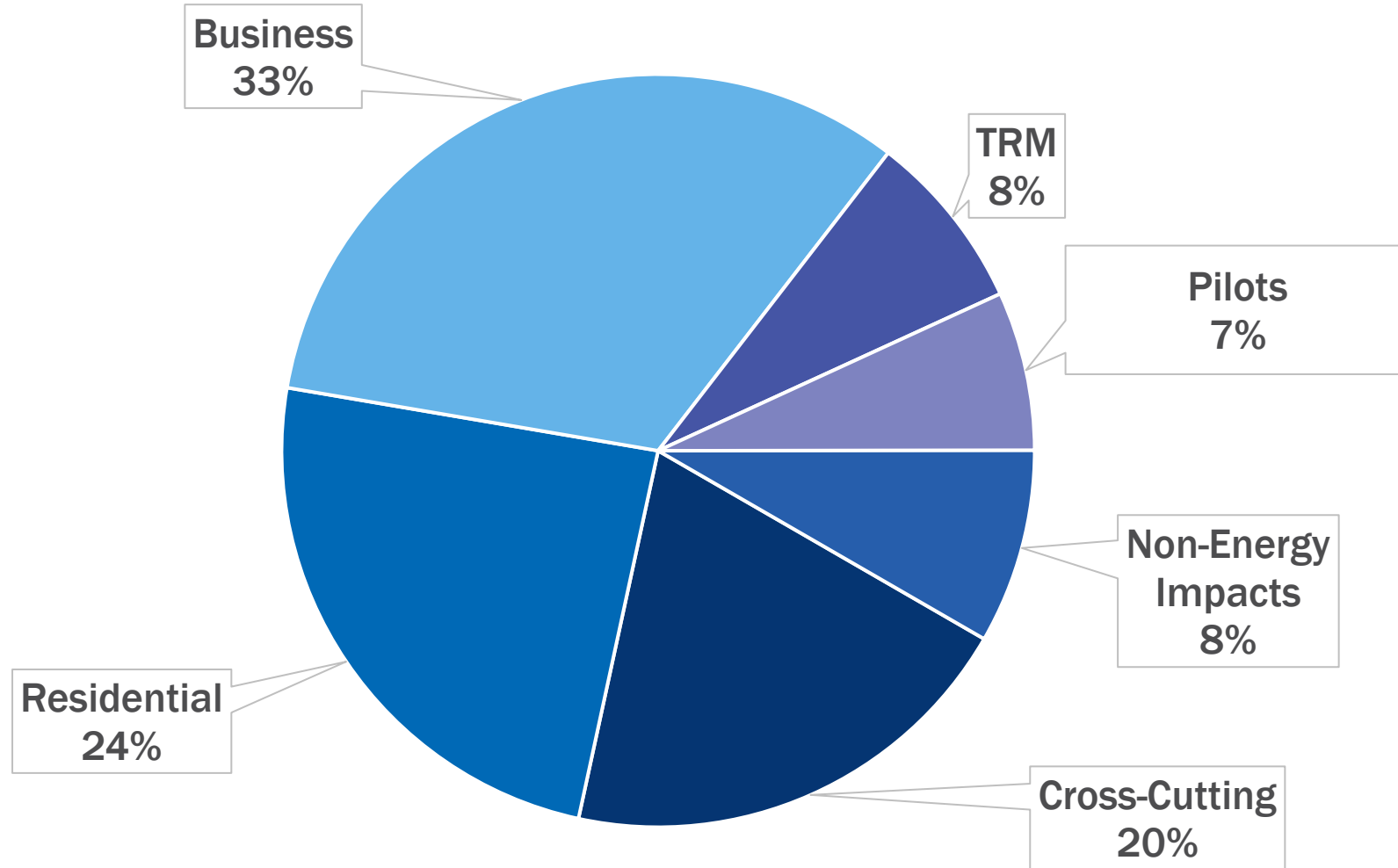


BUDGET OVERVIEW

2021 Evaluation Budget Overview

- 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 as items emerge from AIC/ICC/SAG discussion

2021 Draft Evaluation Budget Breakdown





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Contact Information

Hannah Howard

Vice President

hhoward@opiniondynamics.com

(510) 214-0183

Zach Ross

Director

zross@opiniondynamics.com

(617) 301-4663





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APPENDIX

Additional Initiative Specific Evaluation Plans

Effects of COVID-19 on 2021 Evaluation Activities

- Majority of 2021 evaluation activities should be unaffected by COVID-19
- Limited effects related to on-site research (e.g. Custom, RCx)
 - Ability to complete core evaluation activities will not be affected, but continue to more heavily leverage desk reviews, “remote on-sites,” etc. in lieu of on-site M&V
- Limited effects related to participant research
 - NTG research – applicability of results
 - Timing of key survey activities (e.g. IQ Participant NEI research) needs to align with program status



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Residential Program

2021 Residential Non-Energy Impacts Research

Evaluation Context

- NEI research began in 2018 at stakeholder request and continues through 2018-2021 cycle
- Residential participant NEI research is in progress and previous phases have been included in past AIC evaluation plans; pre-participation survey is part of 2020 evaluation

Key Research Objectives

- Estimate NEIs (health and safety, etc.) experienced by participants in AIC’s Income Qualified Initiative

Evaluation Approach

- Post-Participation Participant NEI Survey Assessment of Participant NEIs – Complete post-participation surveys with participants in AIC’s IQ Initiative and a comparison group
- Analysis of NEIs – Compare post-participation surveys with pre-participation surveys to estimate NEIs

2021 Evaluation Activities

Statewide Coordination

SAG NEI Working Group Meetings

Cross-Utility Evaluation Coordination

Participant NEIs

Post IQ Participation Surveys

Analysis of IQ Participant NEIs

2021 Evaluation Focus Activities – One Stop Shop

Research Context

- The Multifamily Initiative adopted a “one-stop shop” approach to program delivery in 2020 to provide a more comprehensive participation pathway to multifamily customers
- Evaluation efforts will similarly take a holistic look across AIC’s offerings for these customers through the Market-Rate, Public Housing, and Income Qualified Multifamily Initiatives

Key Research Objectives

- Assess the effectiveness of the one-stop shop model in overcoming barriers to participation among this customer segment and determine how AIC can continue to refine the model to ensure maximum effectiveness

Evaluation Approach

- In-depth interviews with participating property managers/owners

2021 Evaluation Focus Activities

Process

Property manager/owner interviews

2021 Evaluation Activities - Efficient Choice Tool (ECT)

Key Research Objectives

- Estimate the impacts that the ECT is having on the sales of efficient products
- Estimate the impact of various marketing and promotional campaign efforts throughout the year
- Estimate net impacts associated with the ECT

Evaluation Approach

- Staff Interviews – assess experiences to-date, expectations, goals, operations, etc.
- Program Material Review – review materials supporting the program (e.g., program theory and logic, marketing and promotional plans, etc.)
- Customer Surveys – estimate efficient purchases, probe customer experiences with the site, assess NTG

2021 Evaluation Activities
Process
Staff Interviews / Material Review
Customer Surveys
Impact
Estimate Unit Sales Associated with ECT
IL-TRM V9.0 Application
Net impact analyses

2021 Evaluation Activities – Appliance Recycling

Program Design/Implementation

- Promotes the retirement and recycling of inefficient refrigerators and freezers
- Energy efficient kits are also provided to participating customers

Evaluation Approach

- Engineering analysis-based impact evaluation approach

2021 Activities
Process
Staff Interviews / Material Review
Impact
Engineering Analysis

2021 Evaluation Activities – Direct Distribution

Program Design/Implementation

- Designed to generate interest in and action related to energy efficiency among students attending schools in underserved areas
- Targeted schools have 30% or more of students receiving free or reduced lunch

Evaluation Approach

- Engineering analysis-based impact evaluation approach

2021 Activities
Process
Staff Interviews / Material Review
Impact
Engineering Analysis



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Business Program

2021 Evaluation Activities – Standard Initiative

Program Design/Implementation

- Primarily delivers prescriptive measures with savings assessed via IL-TRM algorithms
- Includes significant SBDI, Instant Incentives and Online Store offerings
- Expected to be a large contributor to portfolio savings (electric and gas) in 2020; Small Business component accounts for a large share of electric savings

Evaluation Approach

- Program staff interviews and material review
- IL-TRM engineering analysis

2021 Activities
Process
Staff Interviews / Material Review
Impact
Engineering Analysis

2021 Evaluation Activities – Custom Initiative

Program Design/Implementation

- Delivers custom measures
- Contains several “incubator” offerings
 - Staffing Grant, Metering and Monitoring, Strategic Energy Management, etc.
- Expected to be a major contributor to portfolio savings; notable that maintaining high levels of savings from this initiative has been extremely challenging for AIC

Evaluation Approach

- Program staff interviews and material review
- Custom engineering analysis using site visits and desk reviews for a sample of projects

2021 Activities
Process
Staff Interviews / Material Review
Impact
Engineering Analysis

2021 Evaluation Activities – Retro-Commissioning Initiative

Program Design/Implementation

- Retro-commissioning of industrial as well as more traditional RCx (HVAC, scheduling, etc.) of other commercial facilities
 - Compressed Air not being targeted in 2021 due to low measure life
- Smaller contributor to portfolio savings as compared to Standard and Custom Initiatives
- Includes Virtual Commissioning offering, discussed separately

Evaluation Approach

- Program staff interviews and material review
- Custom engineering analysis using site visits and desk reviews for a sample of projects

2021 Activities
Process
Staff Interviews / Material Review
Impact
Engineering Analysis

2021 Evaluation Activities – Streetlighting Initiative

Program Design/Implementation

- Provides incentives to municipalities for upgrades to energy efficient street lighting and works to encourage early LED upgrades of utility-owned streetlighting

Evaluation Approach

- Program staff interviews and material review
- IL-TRM V9.0 based engineering analysis

2021 Activities
Process
Staff Interviews / Material Review
Impact
Engineering Analysis

2021 Evaluation Focus Activity – Custom Initiative AM&V Pilot

AMI Data



Evaluation Context

- Custom Initiative impact evaluation costs are typically one of the single largest evaluation line-item costs
- With AIC’s electric AMI rollout now complete, interval data should be increasingly available to support nonresidential impact evaluation

2021 Evaluation Focus Activities

- | |
|---------------------------------------|
| Build AM&V Platform with AIC AMI data |
| Custom Initiative AM&V Pilot |

Key Research Objectives

- Determine degree to which advanced M&V methods leveraging interval data can supplement existing impact evaluation methods
- Assess whether impact evaluation costs can be decreased by replacing traditional engineering analysis with advanced M&V methods in some or all segments and enduses
- Consider whether rigor and accuracy of impact evaluation can be improved for certain enduses (e.g. HVAC controls) using advanced M&V methods

Evaluation Approach

- Identify population of available projects (2021 and earlier) for which sufficient pre- and post- period interval data is available for research
- Apply advanced M&V approach, assess results, and iterate techniques based on observed results
- Report results with an eye to more comprehensive use for 2022 plan period