



NICOR GAS 2019-2021 EVALUATION PLANS

PRESENTATION TO THE ILLINOIS SAG

December 4, 2018

NAVIGANT

OBJECTIVES FOR TODAY'S PRESENTATION

Nicor Gas Multi-Year Evaluation Plans for 2019-2021

1. Overview of Programs Being Evaluated

- Multi-year evaluation plans for 2019 through 2021

2. Overview of Research Activities

- Results expected for which version of the IL-TRM?

3. Evaluation Methods

- Overview of approaches
- Coordination with other programs and utilities
- Use of Randomized Control Trial (RCT) Quasi-Experimental Design (QED)
- Advanced Metering Infrastructure (AMI)

4. Budget Overview

- General approach for prioritizing resources
- Budget for responding to TRM requests?

5. Q&A and Stakeholder Feedback

COORDINATION ACROSS UTILITIES

- **Navigant coordinates with the other utilities and their evaluation teams on an ongoing basis - this includes Ameren, ComEd, and Peoples Gas and North Shore Gas**
- **Coordination beyond specific programs occurs as follows:**
 - SAG meetings on specific topics and issue management
 - Via e-mail on Illinois-wide key issues or issues that are program specific and may impact multiple utility programs
 - Illinois NTG Framework and Protocol Working Group
 - Illinois TRM Technical Advisory Committee
 - Coordination calls (monthly)
- **Gas/Electric Joint Program Evaluations (with ComEd evaluation team)**
 - Some evaluations are being done jointly (BNC, RCx, RNC, Income Qualified, etc.)
 - Joint programs can be evaluated separately in some cases
- **Support Coordination on Research Studies**
 - Steam traps (business); Advanced thermostat billing analysis (residential)
 - TRM measure research considered on a case-by-case basis

EVALUATION METHODS

Gross Impact Evaluation Overview

- Estimate verified gross impacts annually on every program
- Four main gross impact methodologies:
 1. TRM-based measure verification
 2. Custom project engineering review and on-site M&V
 3. Billing usage regression analysis
 - RCT can be considered if the program or pilot was set up as a randomized control trial
 - QED can be considered for research studies to update TRM impacts (for example, 2018 Air Sealing and Insulation Study)
 4. Calibrated simulation (calibrated to billing usage)

Advanced Metering Infrastructure

- Nicor Gas is deploying residential AMI 2018 through 2021
- Use of data will be addressed with the next plan cycle (2022-2025)

GROSS IMPACT METHODOLOGIES

Program Offering	TRM	Custom M&V	RCT / QED	Other
RESIDENTIAL				
Home Energy Efficiency Rebates	✓			
Home Energy Savings - Direct Install	✓			
Home Energy Savings - Weatherization	✓			TRM savings from QED impact regression analysis
Residential Advanced Thermostats	✓			TRM savings from QED impact regression analysis
Residential New Construction				Calibrated simulation models
Energy Savings Kits	✓			
Elementary Energy Education	✓			
Multi-Family Direct Install and Retrofits	✓	✓		
Income Qualified				
Single Family Retrofits	✓			
Multi-Family and Public Housing	✓	✓		
Affordable New Construction	✓	✓		
Business and Public Sector				
BEER (Prescriptive Rebates)	✓			
Custom Incentives		✓		
Combined Heat and Power		✓		
Retro-Commissioning		✓		
Strategic Energy Management		✓		
Business New Construction		✓		
Small Business Direct Install and Retrofits	✓	✓		
Behavioral and Emerging Tech Pilots	✓	✓	✓	Approach determined on a case-by case basis

EVALUATION METHODS

Net-to-Gross Research

- **Conduct research once per four-year planning cycle**
 - Mature programs, stable markets, large samples
- **Conduct annual or biannually**
 - Small annual population of custom projects
 - Market or program is changing
- **Follow the TRM NTG protocols**
 - Billing regression may provide net savings
 - Conduct free ridership and spillover research, although research may be done separately

2019-2021 – INCOME QUALIFIED PROGRAMS

Evaluation Research Activities by Year

Offering	Process Researched Year(s)	NTG Researched Year(s)	NTG Results Delivered	Other Research / Notes	
				Year	Activity
SF Weatherization & Retrofits					
Audit / DI Weatherization	2018	NA	NA	2020	TRM: Calibrated simulation of comprehensive retrofits (Under Consideration)
MF Weatherization & Retrofits					
Audit / DI Weatherization	2018	NA	NA		
Public Housing Authorities (PHA)					
Audit / DI	2018	NA	NA		
Retrofit Projects	2018	NA	NA		
Affordable Housing New Construction (AHNC)					
AHNC	2018 and 2020	NA	NA		

2019-2021 – RESIDENTIAL PROGRAMS

Evaluation Research Activities by Year

Offering	Process Researched Year(s)	NTG Researched Year(s)	NTG Results Delivered	Other Research / Notes	
				Year	Activity
Home Energy Efficiency Rebate (HEER)					
Equipment Rebates	2019-20	2019-20	2020	2019	Research Quality Installation and Quality Maintenance gross and net impacts.
Advanced Tstat	TBD	None	NA	2020-21	TRM: Conduct billing analysis (QED)
Home Energy Savings (HES)					
Audit/DI/ Wx Rebates	2017-18	2017-18	2018	2017-18	Updated TRM v7 using billing analysis of air sealing & insulation
Advanced Tstat	TBD	None	NA	2020-21	TRM: Conduct billing analysis (QED)
Deep Retrofit	2020	2020	2021	2020	Calibrated simulation (Under Consideration)
Residential New Construction (RNC)					
RNC	2020	2020	2021	2018 and 2020	Calibrated simulation conducted for impact evaluation

2019-2021 – RESIDENTIAL PROGRAMS

Evaluation Research Activities by Year

Offering	Process Researched Year(s)	NTG Researched Year(s)	NTG Results Delivered	Other Research / Notes	
				Year	Activity
Education and Outreach Track					
Behavioral Energy Savings	TBD	NA	NA	2019-21	Net impacts through billing analysis (RCT or QED)
EEE	2020	None	NA	2018-19	TRM: Investigate water heating fuel split
Energy Savings Kits	2020	2020 (Spillover)	NA	2019-20	TRM: Billing analysis of water saving measures (Under Consideration)
Multi-Family					
Audit / DI	2018	2018	2019	NA	NTG research excludes showerheads and aerators
Retrofit Projects	2018	2018	2019	2020	TRM: Equivalent Full Load Heating Hour billing analysis (Under Consideration)

2019-2021 – BUSINESS PROGRAMS

Evaluation Research Activities by Year

Offering	Process Researched Year(s)	NTG Researched Year(s)	NTG Results Delivered	Other Research / Notes	
				Year	Activity
Business Energy Efficiency Rebate (BEER) (includes Public Sector)					
Equipment Rebates	2018	2018	2019	2018-19 2020	>TRM: Pipe Insulation secondary research >TRM: Non-Res. EFLH Hours through billing analysis (Under Consideration)
Steam Traps	2018	2018	2019	2018-19 2018-19 2019	>Steam Trap Process/Market Study >TRM: Steam Trap impact study feasibility assessment >TRM: Steam trap billing analysis (Under Consideration)
Assessment/DI	2018	2018	2019		
Custom Incentives (includes Public Sector)					
Custom	2020	2020	2021		
RCx	2019	2019	2020		
CHP	Combine with NTG	Project Specific	Project Specific		

2019-2021 – BUSINESS PROGRAMS

Evaluation Research Activities by Year

Offering	Process Researched Year(s)	NTG Researched Year(s)	NTG Results Delivered	Other Research / Notes	
				Year	Activity
Small Business					
Audit / DI	2019	2019	2020		
Retrofit Projects	2019	2019	2020	2018-19 2020-21	>TRM: Programmable thermostats - secondary research on savings >TRM: Advanced thermostat billing analysis (Under Consideration)
Strategic Energy Management (SEM)					
SEM Cohorts	2018-21	2020	2021	2018-21	Gross impacts estimated through billing analysis
Joint Business New Construction (BNC)					
BNC	Combine with NTG	Every Year	Every Year		

2019-2021 – OVERVIEW OF RESEARCH ACTIVITIES

Activity	Status	TRM Affected	2018	2019	2020	2021
Residential Insulation and Air Sealing Billing Analysis and TRM Workpapers	Completed	TRM v7 (2019)	1Q-3Q			
Residential Advanced Thermostat Billing Analysis for 2020-21 heating season	Planned	V10 (2022) V11 (2023)			3Q-4Q	1Q-3Q
Steam Traps – Process/Market Research Study	Active	NA	2Q-4Q	1Q		
Steam Traps – Background Research on Viability of Impact Study	Active	NA	2Q-4Q			
Steam Traps – Impact Study with Usage Billing Data	Under Consideration	V9 (2021)		1Q-3Q		
Non-Residential Pipe Insulation – Thermal Regain Factors and Primary Research Opportunities	Active	V8 (2020)	2Q-4Q	1Q		
Small Business Thermostats – Savings Benchmarking	Active	V8 (2020)	2Q-4Q	1Q		
Small Bus. Advanced Thermostats – Billing Analysis	Under Consideration	V10 (2022)			1Q-4Q	
Emerging Tech Program: Connected Savings RCT Pilot Impact Evaluation	Active	V8 or V9	1Q-4Q	1Q		
RNC - Update Calibrated Simulation Models	Active	NA	3Q-4Q	1Q	3Q-4Q	1Q
Whole House “Deep Retrofits Calibrated Simulations	Under Consideration	V10 (2022)			1Q-4Q	
Water Saving Measures Billing Analysis	Under Consideration	V9 (2021)		1Q-4Q		
Residential Furnace Quality Installation Impacts and Upstream Program Delivery Secondary Research	Under Consideration	V9 (2021)		1Q-3Q		
Non-Residential Heating System EFLH	Under Consideration	V10 (2022) V11 (2023)			1Q-4Q	
Non-Energy Benefits (NEBs) Participate in Primary and Secondary Research	Under Consideration	Conducted on a case-by-case basis as opportunities for coordination with ComEd arise				

2019-2021 – BUDGET PRIORITIES

Prioritizing Resources

- Meet Requirements for Savings Verification and Reporting
- Program Contribution to Portfolio Net Savings
- Program Spending within Portfolio
- Program Maturity
- Program/Implementer Needs and Effectiveness
- SAG Input and ICC Orders
- High Impact Measures
- Savings Uncertainty

Budget for TRM Requests and Additional Research

- We participate in TRM TAC & workpaper review
- We conduct secondary research and engineering analysis for TRM
- Primary TRM measure research will be considered, but funding is limited
- Can we leverage joint studies?

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