Guidehouse

Opinion Dynamics

Illinois Evaluation and COVID-19

What to do when COVID-19 will affect the energy efficiency savings we measure?

Agenda

1. Introduction
2. Program changes that affect evaluation
3. Difficulty performing usual evaluation activities
4. Calculating first year savings and CPAS given unusual conditions

Introduction

COVID-19 has several impacts on energy efficiency evaluations in Illinois

1. Program changes that affect evaluation
2. Difficulty performing usual evaluation activities
3. Calculating first year savings and CPAS given unusual conditions

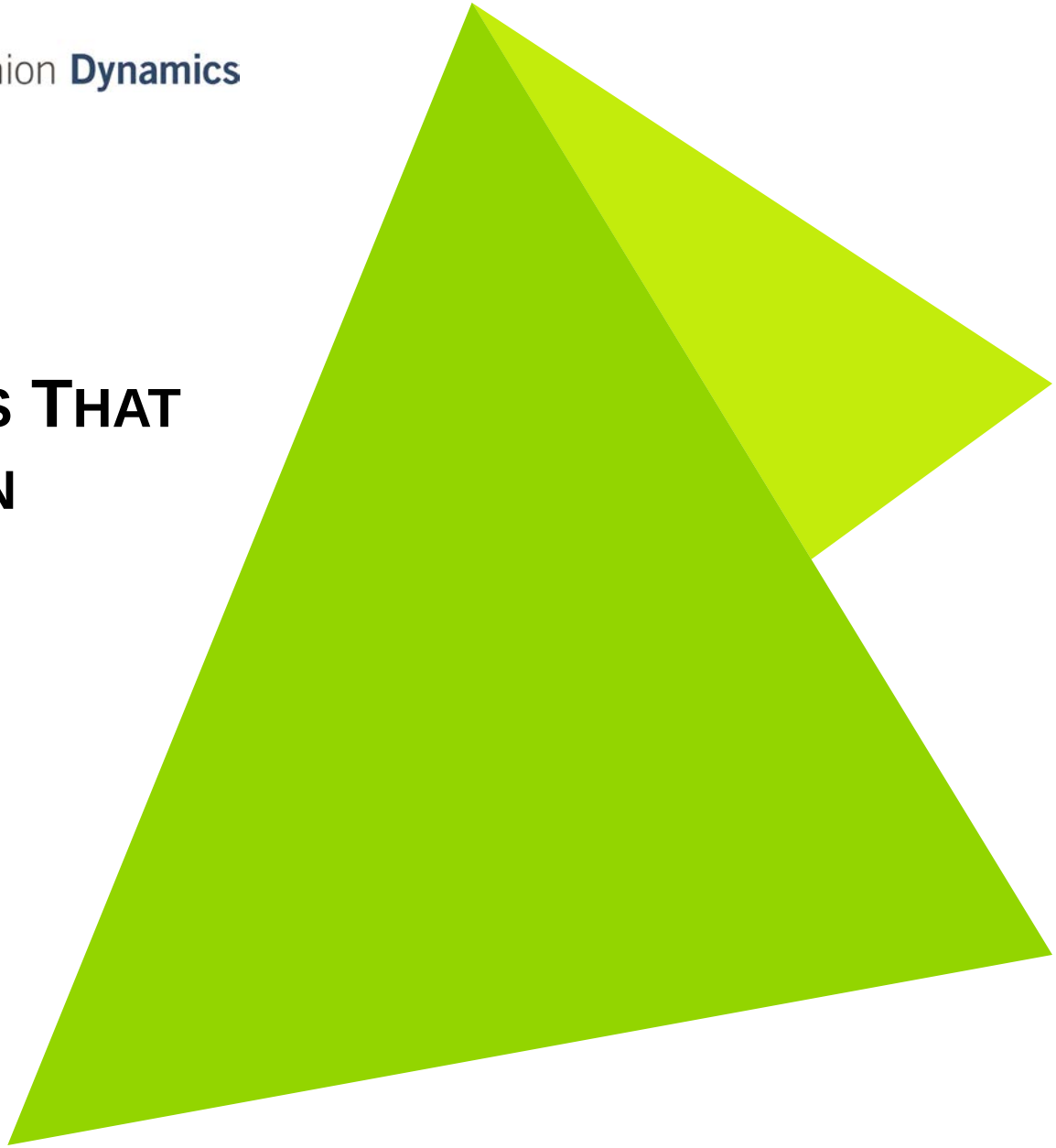
We will present a quick overview of the first two issues but the bottom line there is that the evaluation will adjust as needed. We do not believe there are policy implications at hand.

We want SAG feedback on the third issue.

Guidehouse

Opinion Dynamics

Program Changes That Affect Evaluation



Program Changes that Affect Evaluation

Changes in documentation

- Program QC on-sites are reduced or eliminated. The programs are innovating in replacing that documentation. The evaluation will adapt as needed.
  - E.g., Participants may be asked to submit photos of nameplates, receipts, equipment, etc.
- The evaluation may review revised documentation and may add phone verification.

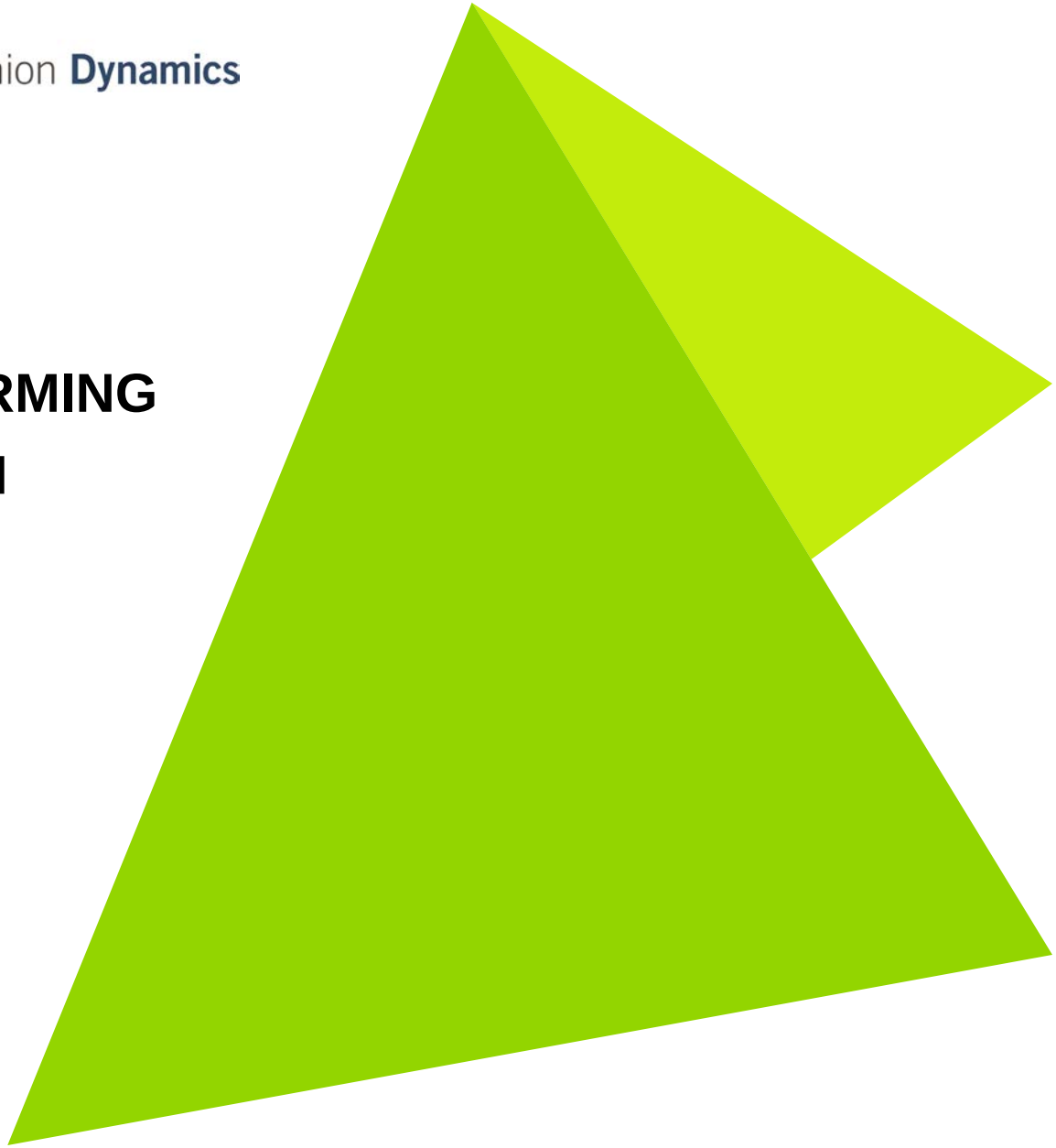
Changes in level of program activity

- As presented by utilities on 4/14:
  - Some programs will have significantly reduced activity.
  - Some programs will be re-designed to adjust.
- The evaluation will be scaled and adjusted as needed.

Guidehouse

Opinion Dynamics

Difficulty Performing Usual Evaluation Activities



Difficulty performing usual evaluation activities

Surveys

- Most surveys are continuing. We will monitor the programs and situation in case other surveys should be delayed.
  - Nicor Gas Small Business participant and trade ally free ridership and spillover surveys is on-hold.

Onsite data collection

- All onsite data collection is currently halted. Much of it can be performed later in the year with no significant adjustment to the evaluation plan.
  - In some cases this may result in slightly less rigorous custom M&V (e.g., shorter metering periods)
- If conditions mean we can do NO onsite data collection, we will substitute phone, or other remote, verification in most instances.
  - In some cases this may result in slightly less rigorous custom M&V (e.g., estimation rather than direct measurement of a parameter)

Guidehouse

Opinion Dynamics

Calculating first year savings and CPAS given unusual conditions

Calculating first year savings and CPAS given unusual conditions

Given the large changes in customer operations and behavior because of COVID-19, there is uncertainty in whether it is appropriate to measure savings for CY2020 or normalize savings to a "typical" year.

There are two issues with measuring savings in CY2020:

1. Deemed vs custom impacts
2. First year vs lifetime savings

Deemed vs. Custom Impacts

TRM-Based Deemed Impacts

- The TRM calculations grant a “typical” year of savings for each measure

Custom Calculations/Inputs

- Many custom calculations take into account variables that may be affected by the unusual COVID-19 situation – e.g., hours of operation, production, actual customer usage.
- In our annual evaluations, we do some normalizing as our standard operating procedure. For example, TMY3 weather data is used rather than actual. However, COVID-19 is unusual enough, we felt discussion was warranted.

If actual conditions during the pandemic were used for custom calculations, the savings may be smaller (or in some cases larger) than in a “typical” year. **This would result in custom savings being affected by COVID-19 while deemed savings are not.**

Examples of Custom Inputs/Calculations Affected

- Evaluation of Home Energy Reports (done via a randomized controlled trial) will result in an unbiased estimate of the savings that occurred in CY2020, but those savings may be higher or lower than the savings that would have occurred in the absence of COVID-19 and that might be expected in 2021 and beyond.
- For variable speed drives, evaluation gathers hours of operation for the motors, but hours of operations may be higher or lower than they would have been in the absence of COVID-19, affecting estimated savings. The TRM does have a default value to fall back on.
- Many custom projects are driven by occupancy or production levels which may be different in CY2020 than in a “typical” year.
- A business permanently closes before we conduct evaluation verification.

First Year Savings and CPAS

Under normal conditions, the evaluation would:

- Calculate first year savings and
- Extend them out for the measure life in the CPAS calculation (for electric).

If actual conditions during the pandemic were used for custom calculations, **first year savings are likely not representative of expected future savings.**

Normalization Options

Given these issues, the evaluation has three choices:

- Normalize savings for all years of EUL (recommended)
- Do not normalize savings in CY2020; normalize other years of EUL
- Do not normalize savings in any year of EUL

Normalization Options

The evaluation teams propose three options (and recommend option 1)

	Description	Pros	Cons
1	Normalize savings for all years of EUL	• Does not reward or penalize the utilities for higher or lower CY2020 or lifetime savings than expected due to the pandemic • Measures deemed in TRM will effectively be normalized and this option avoids inconsistency	• May over or understate actual CY2020 savings
2	Do not normalize savings in CY2020; normalize other years of EUL	• Captures savings that actually occur in CY2020 while not affecting savings for the rest of the EUL	• Rewards or penalizes the utilities for higher or lower CY2020 savings than expected due to the pandemic, affects gas and electric differently • Inconsistent with measures in the TRM which will effectively be normalized
3	Do not normalize savings in any year of EUL	• Captures savings that actually occur in CY2020	• Likely misstates lifetime savings assuming CY2020 savings are not an accurate reflection of savings for the rest of the EUL • Rewards or penalizes the utilities for higher or lower lifetime savings than expected due to the pandemic • Inconsistent with measures in the TRM which will effectively be normalized

CALCULATING FIRST YEAR SAVINGS AND CPAS GIVEN UNUSUAL CONDITIONS

Programs Affected Appendix

Programs and Research Affected

ComEd

Program/Research	Items that may be affected by COVID-19
Home Energy Reports	Estimated savings from consumption data analysis
Public Sector in Distressed Communities	
Virtual Commissioning (pathway within RCx)	
Voltage Optimization	Estimated voltage reduction and energy baseline based on SCADA data
Standard	EMS - Estimated savings from consumption data analysis VSD and Networked Lighting M&V – Trend data used for analysis
RCx	Trend data used for analysis. Building tune-up and RCx adjustments may be temporary for COVID. Site assessments and M&V have important role.
Custom	Savings are based on "typical" operation for the year. Need to determine how to define typical operation in an atypical year.
Industrial Systems	

Programs and Research Affected

Ameren Illinois

Program/Research	Items that may be affected by COVID-19
Custom	Savings are based on "typical" operation for the year. Need to determine how to define typical operation in a typical year
RCx	
Voltage Optimization	Estimated voltage reduction based on SCADA/AMI data
Virtual Commissioning Pilot	Estimated savings from consumption data analysis
Business Behavioral Pilot	
Residential Behavioral Persistence Study	

Programs and Research Affected

Nicor Gas, Peoples Gas, and North Shore Gas

Program/Research	Items that may be affected by COVID-19
Home Energy Reports	Estimated savings from consumption data analysis
All Custom projects, Strategic Energy Management, RCx	Savings from facility energy bill analysis, scaling by occupancy/production levels, "typical" operation for a year; also affects $/therm incentives Electric/gas space heating interactive effect is different from non-COVID, also confounds gas billing impacts
Retro-Commissioning	Trend data used for analysis. Building tune-up and RCx adjustments may be temporary for COVID. Site assessments and M&V have important role
SEM	Estimated savings from consumption data analysis. Short-term COVID adjustment versus longer term actions
Thermostat & EMS research	Estimated savings from consumption data analysis

Contact

Randy Gunn
Randy.Gunn@Guidehouse.com

Kevin Grabner
Kevin.Grabner@Guidehouse.com

Jeff Erickson
Jeff.Erickson@Guidehouse.com

Charles Ampong
Charles.Ampong@Guidehouse.com

Carly Olig
Carly.Olig@Guidehouse.com

Guidehouse

Opinion **Dynamics**

Hannah Howard
hhoward@opiniondynamics.com

Catherine Izard
cizard@opiniondynamics.com

Zach Ross
zross@opiniondynamics.com

Kessie Avseikova
kavseikova@opiniondynamics.com

Arlis Reynolds
areynolds@opiniondynamics.com