

# Applying a Framework for Addressing Cost-Effectiveness and Distributional Equity in Distributed Energy Resource Investment Decisions

## Illinois Work Group Second Meeting

**May 10, 2024**

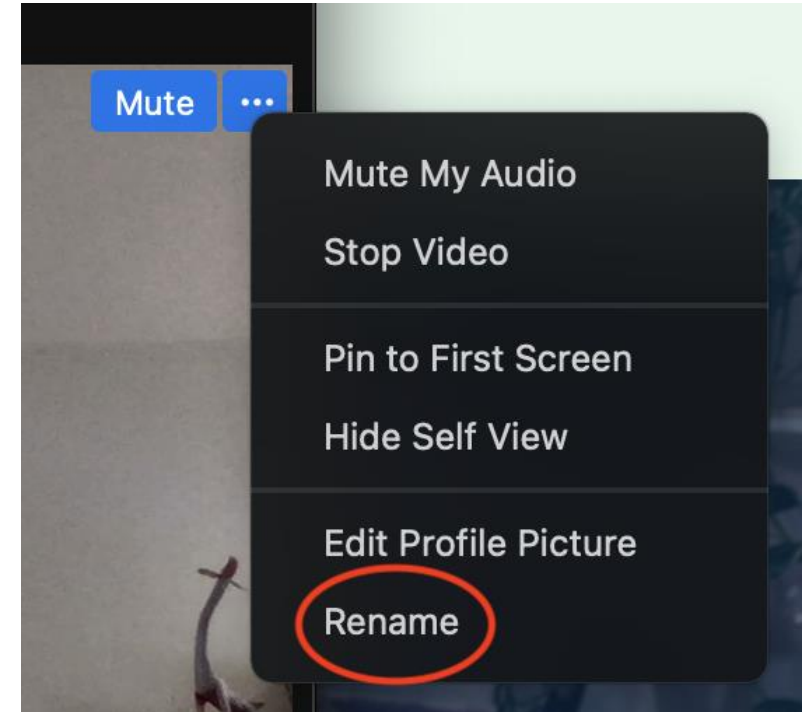
Julie Michals, E4TheFuture

Alice Napoleon and Tim Woolf, Synapse Energy Economics

Greg Ehrendreich and Natalie Newman, Midwest Energy Efficiency Alliance

# Housekeeping

- Please add your affiliations and pronouns to your Zoom name – let's get to know each other!
- Please mute yourself when you are not speaking.
- If you have a comment or question, please raise your hand or use the chat.
- We will be recording the session to share with DEA Work Group members that could not attend this call.



# Agenda

1. Introductions
2. Recap: project goals, the role of the DEA Work Group, and DEA
3. Stage 2 of DEA: Identify the Context for DEA Case Studies
  - DER type: energy efficiency plan, beneficial electrification plan
  - DER application: programs or portfolio
  - DEA timeframe: retrospective or prospective
  - DEA geographic scope
  - Discuss straw proposal from project team
4. Project schedule and next steps

# Project Team

## Midwest Energy Efficiency Alliance

Liaison and facilitation



Gregory Ehrendreich  
Sr. Analyst



Natalie Newman  
Sr. Policy Associate

## E4TheFuture

Project management



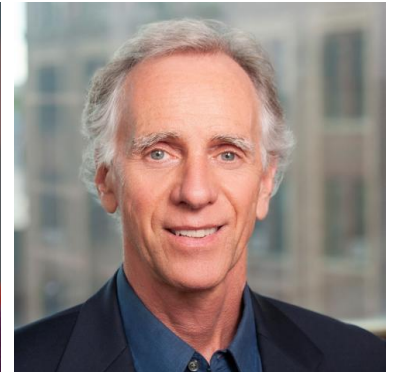
Julie Michals  
Director

## Synapse Energy Economics

Research and analysis



Alice Napoleon  
Principal Associate



Tim Woolf  
Senior VP



# DEA Work Group – Going Into Meeting 2

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Agnes Mrozowski	Ameren Illinois
Brice Sheriff	Ameren Illinois
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Andrew Weuve	Champaign County Regional Planning Commission
Mary Ellen Guest	Chicago Historic Bungalow Association
Sarah Moskowitz	Citizens Utility Board
Kyle Danko	ComEd
Jim Fay	ComEd
Molly Lunn	ComEd
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Curt Stokes	Environmental Defense Fund
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Karen Lusson	National Consumer Law Center
Kari Ross	Natural Resources Defense Council
Mike King	NiCor Gas

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Susan Satter	Office of the Illinois Attorney General
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Keely Hughes	The JPI Group
Michael Cabrera	The Will Group
Stephen Taylor	The Will Group
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Darnell Johnson	Urban Efficiency Group
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Will Kenworthy	Vote Solar
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Erika Dominick	Walker-Miller Energy Services
Carla Walker-Miller	Walker-Miller Energy Services

# Project Background, Goals and Objectives

**Project Funding:** DEA Case Studies: Co-funded by Joyce Foundation and E4TheFuture

**Overarching Goal:** to demonstrate the use of a decision framework for assessing the distributional equity impacts of electric and gas resource investment decisions on disadvantaged communities and inform decision-making going forward.

## Case Study Objectives:

1. Build stakeholder **understanding of the different dimensions of energy equity** and scope/role of DEA.
2. Demonstrate and practice working with **diversely represented stakeholder groups** throughout the DEA process.
3. Assess **available DEA metric data, identify gaps and limitations** and options to address gaps going forward.
4. Develop stakeholder understanding on **how to use map-based resources and spatial tools** to visualize DEA metrics for priority populations.
5. Using analysis results, **demonstrate the use of DEA, alongside BCA, to guide decision-making** on DER resource investments that accounts for impacts on priority populations.

# Foundational Resources for BCA and DEA

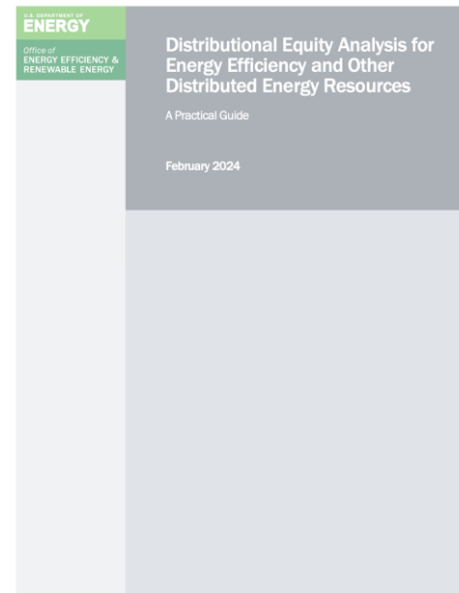
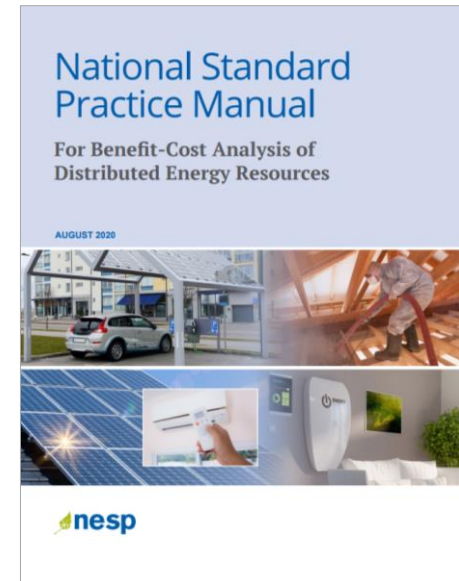
This project will be guided by two central resources.

## 1. National Standard Practice Manual (NSPM) for DERs

- Benefit Cost Analysis (BCA) guidance increasingly being used by states across the country
- With state focus on equity, key questions raised about how BCA addresses equity (or not...)

## 2. Distributional Equity Analysis for Energy Efficiency and Other Distributed Energy Resources *(to be released May, 2024)*

- Companion document to the NSPM
- Project jointly funded by US Dept. of Energy and E4TheFuture
- Project team: Lawrence Berkeley National Laboratory, E4TheFuture, Synapse Energy Economics
- Guided by an advisory committee *(including organizations here today: Elevate, IL CUB, MEEA, NCLC, Opinion Dynamics )*



# Work Group Role and Meeting Guidelines

- Work Group Role
  - Participate in Work Group meetings – input is critical to project and is encouraged (via chat box, verbal input, follow-up emails, and/or subgroup phone calls)
  - Provide comments on DEA key methodologies, inputs, and assumptions
  - Review and comment on DEA and BCA results and draft/final case studies report
- Agendas and meeting materials will be sent in advance of meetings
- Meeting notes will be shared with Work Group
- Chatham House rule will apply
  - i.e., input shared in our meetings will not be assigned to or associated with any Work Group member or representative outside of the Work Group meetings

All Materials Posted to DEA Case Study Project Website:

[DEACaseStudy.org](http://DEACaseStudy.org)



## Community Participation Compensation

- MEEA has some funding available to compensate community members for their participation in this Work Group.
- Compensation will be on a sliding scale based on number of meetings attended, up to \$1,000 per individual/organization.
- The Compensation Agreement form will be available to download from the [DEACaseStudy.org](http://DEACaseStudy.org) website.
- Compensation will be reported to the IRS; you will need to fill out a W-9.
- Questions can be addressed to Greg Ehrendreich at MEEA – [gehrendreich@mwalliance.org](mailto:gehrendreich@mwalliance.org)

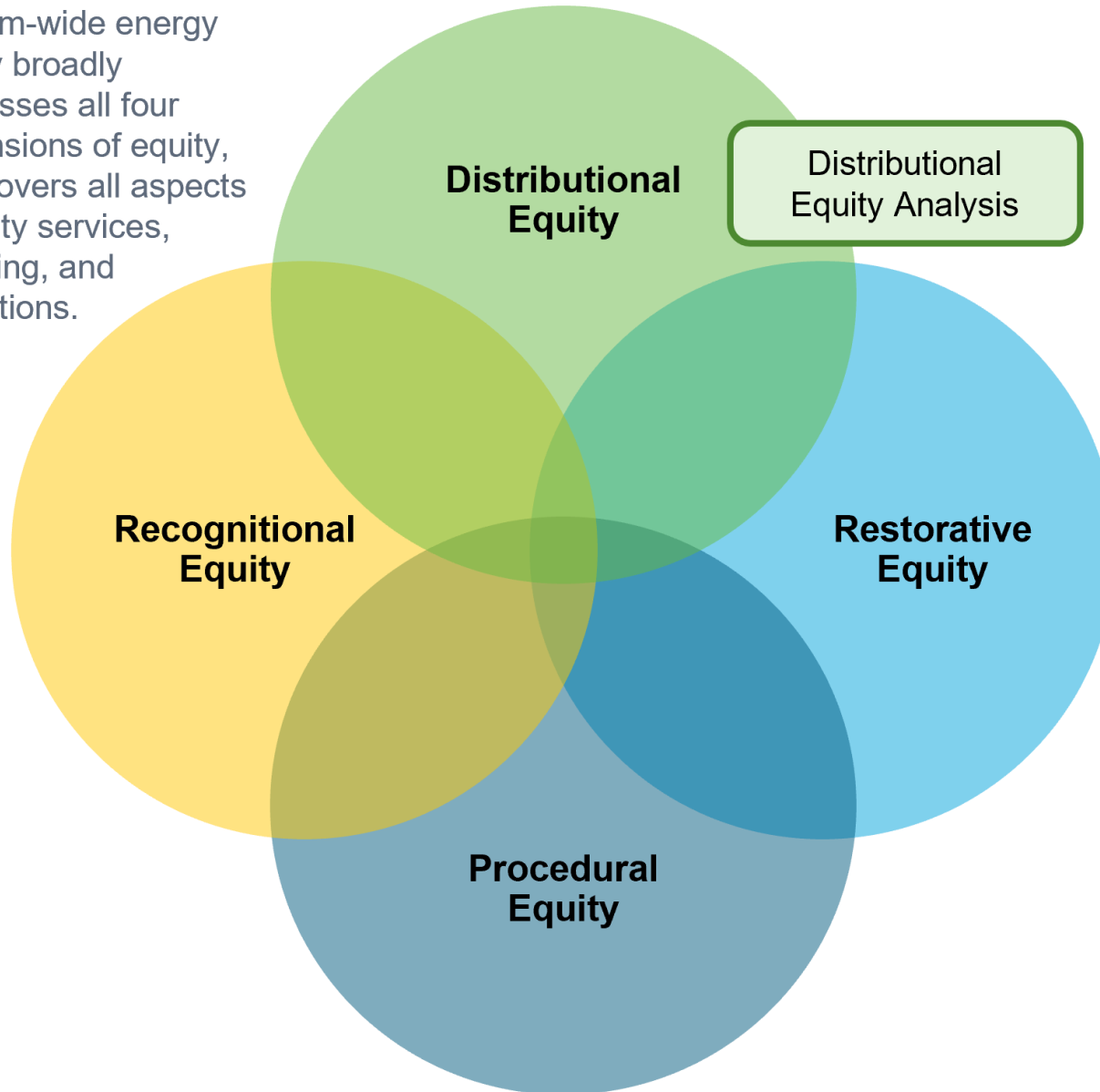
## Case Studies will be Informed by Illinois Policies

We will draw upon Illinois policy, publicly available data, and tools to inform the case studies.

- Climate and Equitable Jobs Act
  - Existing definition for *Environmental Justice Community* under the Power Agency Act and the IPA's procurement plans
  - Definition of *Equity Investment Eligible Communities* (EIECs) as "R3 Areas" (Restore, Reinvest, Renew) under the tax code and EJ communities
  - Definition of *Equity Focused Populations* to include residents of EIECs, low-income, BIPOC, formerly convicted, child welfare, displaced energy workers, LBGTQ+, and persons with disabilities
  
- Future Energy Jobs Act
  - Broad support for EE and DER resources, electrification
  - Minimum of 25% of electrification savings from low-income customers
  - Requirements in statute for cost-effective investment in “nontraditional resources” including renewables and DERs, as well as demand side management

# Overview of Distributional Equity Analysis

System-wide energy equity broadly addresses all four dimensions of equity, and covers all aspects of utility services, planning, and operations.



Distributional  
Equity Analysis

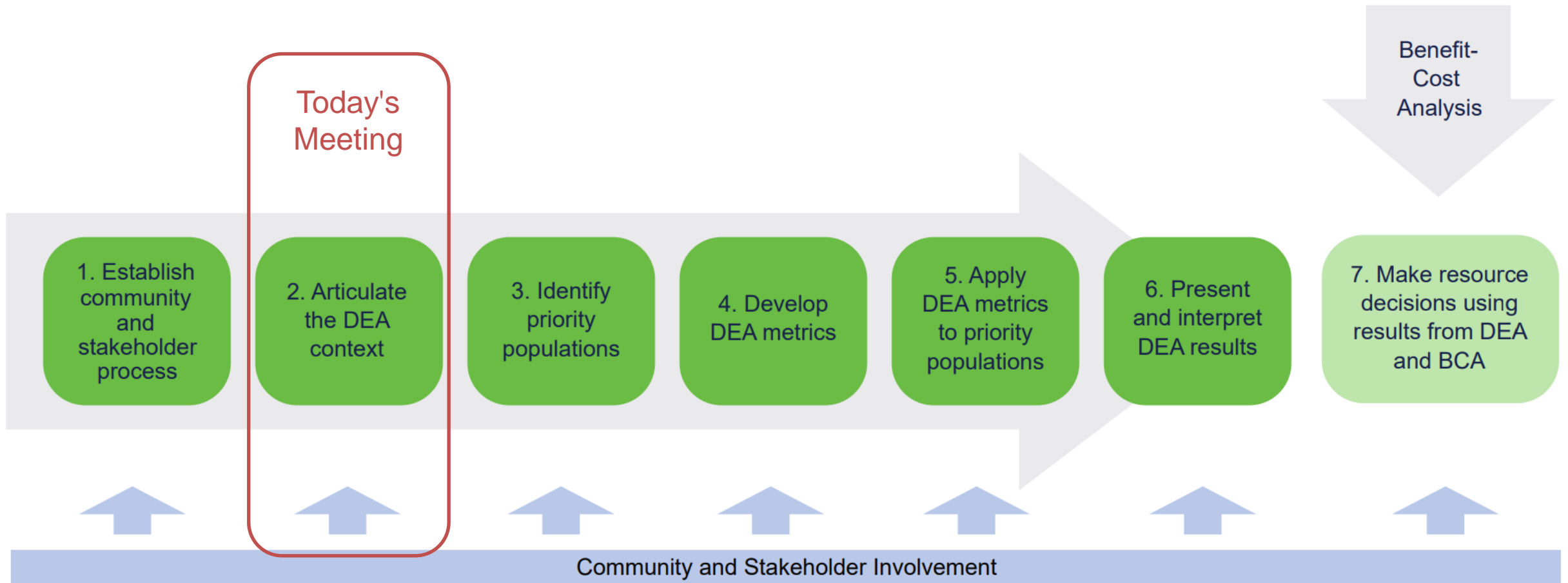
+

Benefit Cost  
Analysis

DEA and BCA  
address one aspect of  
distributional equity:

**What are the  
distributional equity  
impacts of utility  
resource  
investments?**

# DEA Stages - Overview



## Stage 2. Articulate the DEA Context

The DEA “context” refers to the project scope, which should align with an existing or planned BCA scope.

1. Identify the **DER type(s)**: energy efficiency, demand response, distributed solar, distributed storage, building or transportation electrification
2. Identify the **DEA application(s)**: a single energy program or investment, multiple programs (a portfolio), or a comparison of programs
3. Identify the **DEA timeframe**: a planned program/portfolio or one for which results are not yet available (prospective), or a previously implemented program/portfolio with actual results (retrospective)
4. Identify the **Geographic Scope**: the entire utility service territory or a different region of interest, e.g., urban, suburban, or rural

## Discussion

**Please share questions/comments in chat box**

*Are there any of these areas that you still have questions about?*

- 1) What types of distributed energy resources can be examined with DEA?*
- 2) What is meant by the DEA Application?*
- 3) How retrospective and prospective analysis differs?*
- 4) What is meant by geographic scope?*

## Background for the DEA Context



# Multi-Year Grid Plans

- Summary of process
  - Required to allocate 40% of the Grid Plan benefits to low-income and EJ communities
  - ICC rejected plans in Dec. 2023, citing insufficient equity allocations and transparency of the calculation of benefits
  - Both utilities refiled revised Grid Plans in April 2024; ICC will rule on these Plans in Dec 2024
  - Next Grid Plans due in 2026
- ComEd refiled plans
  - Provides % investment in EIEC and LI and non-customers by program; bill impacts, energy burden, and outages for all customers
  - Data are mostly calculated (estimated)
- Ameren refiled plans
  - Closely follows the Equity Reporting Framework Strawman Proposal
  - Provides \$ and % investment, DER units installed, number of shutoffs, DER capacity, and outages for EIEC and LI and non-EIEC customers; energy burden data for all customers
  - Data are a mix of actual, reported and calculated (estimated)
- Relevance to the DEA case studies
  - Grid Plans provide useful foundation for DEA: allocation of benefits, priority populations, metrics, and ICC guidance
  - However, they are too broad to be good candidates for a potential DEA

# Context for DEA Case Study – Options Considered by Project Team

Utility	DER	Application	Geographic	Timeframe	Study	Detail
ComEd	EE	Portfolio, program, or both	Urban v. rural	Prospective	2022-2025 EE Plan	Full or streamlined
				Retrospective	2023 EE Report	Full or streamlined
	BE	Portfolio, program, or both	Urban v. rural	Prospective	2023-2025 BE Plan	Full or streamlined
				Retrospective	2023 BE Report	Full or streamlined
Ameren	EE	Portfolio, program, or both	Urban v. rural	Prospective	2022-2025 EE Plan	Full or streamlined
				Retrospective	2023 EE Report	Full or streamlined
	BE	Portfolio, program, or both	Urban v. rural	Prospective	2023-2025 BE Plan	Full or streamlined
				Retrospective	2023 BE Report	Full or streamlined

## Energy Efficiency - Background

- Legislative requirements: 20 ILCS 5/8-101 (Illinois Public Utilities Act), Sections 8-103B and 8-104
- Reports available
  - Four-year Energy Efficiency Plans for 2022-2025
    - Ameren – plan modified 4/2022 (originally filed 3/1/2021)
    - ComEd – plan submitted 3/2022
  - Annual cost-effectiveness summary reports for 2020, 2021, and 2022
  - Quarterly summary reports – up to Q4 2023
- Equity considerations in EE Plans
  - Focused on low-income programs – incentives and rebates
  - Do not consider other customers that might be considered priority populations
  - Do not consider equity implications of EE programs that are not targeted to low-income customers
  - Do not consider equity metrics (except for participation in low-income programs)

## Energy Efficiency – Considerations for Case Studies

- Both utilities' EE plans:
  - Are generally more vetted and comprehensive with longer history relative to BE plans
  - Have more available data than BE plans
  - Have useful and more specific data on customer participation
  - Cover a mix of rural and urban customers
  - Do not account for distributional equity impacts
- ComEd EE Plan seems to be a good candidate for a DEA case study
  - Larger utility with more data to work with
  - Company is prepared to work with project team on an EE DEA

## Beneficial Electrification - Background

- Legislative requirements – 20 ILCS 627 (the Electric Vehicle Act)
- BE workshops held between in 2021 and 2022 to solicit stakeholder feedback
- Initial plans filed July 2022 (ComEd) and November 2022 (Ameren)
  - Ameren filed an update in July 2023; Plans were approved March 2023; BE plan updates due July 2024
- Summary of equity considerations
  - ComEd – presents average residential customer bill impacts; does not provide quantitative estimates of the benefits experienced by EIEC & LI customers relative to other customers
  - ComEd – offers rebates and incentives to EJ & low-income populations with a focus on electric vehicles, charging, and make-ready investments (includes some home BE, like heat pumps)
  - Ameren – considers rate impacts (in terms of RIM test); estimates portion of portfolio infrastructure support for EIEC & LI communities; estimates portion of PM, NOx, and CO2 emissions reduced for EIEC & LI communities
  - Ameren – commits to remove participation caps and increase line extension allowances, especially for EJ & low-income communities

## Beneficial Electrification - Considerations for Case Studies

- Both utilities
  - BE Plans are new, relative to EE Plans
  - BE Plans are required to demonstrate that benefits are experienced by EIEC & LI customers
  - BE Plan updates are due July 2024, which will give the project team recent and more data to work with
- Ameren BE Plan seems to be a good candidate for a DEA case study
  - Ameren BE plan already accounts for some costs and benefits to EIEC & LI customers, suggesting that we can review and expand upon this analysis
  - Company is prepared to work with project team on a streamlined BE DEA

# Comprehensive vs Streamlined DEA

#	Stage	Comprehensive	Streamlined
1	Establish a robust stakeholder process	All DEAs should utilize robust stakeholder input through every stage	Same stakeholder process as the comprehensive case study
2	Articulate the DEA context	DER: Type X or Y Application: portfolio and program Timeframe: prospective	DER: Type X or Y Application: just portfolio Timeframe: prospective
3	Identify priority population	Based on work group input	Based on existing definitions, e.g., some combination of EIEC, EJ, R3, and low-income customers
4	Develop DEA metrics	3-6 metrics	2-3 metrics
5	Apply DEA metrics to priority populations	Develop new mapping tools if needed	Use existing mapping tools
6	Present and interpret DEA results	Simple results plus benchmark results	Simple results only
7	Make decisions using BCA & DEA results	Define DEA pass/fail criteria with stakeholder input	Use existing DEA pass/fail criteria from legislation

# DEA Application – Portfolio vs Program

## Portfolio

- Reviews the aggregate impacts of all EE programs combined
- Allows for consideration of equity impacts across programs
  - For example, some EE programs might have negative equity impacts that are offset by others that have positive equity impacts

## Programs

- Reviews individual EE programs: e.g. low-income, residential retrofit, small C&I, and large C&I program
- Allows for consideration of equity impacts of each program, which might help with improving its specific equity impacts
- Allows for comparison of equity impacts of one EE program versus another
- Allows for focused assessment of programs designed to serve priority populations



## DEA Timeframe – Prospective vs Retrospective

- Retrospective
  - Applied to an annual report that presents past experiences
  - Uses actual data and experiences from historical implementation
  - Similar to evaluation, measurement, and verification studies for EE
  - Results can be used to improve designs for future DER programs
- Prospective
  - Applied to a DER plan for a program/portfolio that has yet to be implemented or for which results are not yet available
  - Uses projections of costs, benefits, and other impacts
  - Results can be used to improve the DER programs before they are implemented

## Geographic region: Urban Versus Rural

- One of the funders for this work, the Joyce Foundation, wants to investigate the question of different equity impacts for urban versus rural customers
- Will include three cases:
  1. Entire service territory
  2. Urban customers only
  3. Rural customers only
- Each case will present findings for priority population and other customers in that setting
- Comparison across cases will indicate equity implications for urban versus rural customers

## DEA Context for Illinois Case Studies - Straw Proposal

Proposal	Utility	DER	Detail	Application	Geographic	Timeframe
Case Study #1	ComEd	EE Plan	Full DEA	Portfolio and programs	Urban v. rural	Prospective (2022-2025)
Case Study #2	Ameren	BE Plan	Streamlined DEA	Portfolio	Entire system	Prospective (2022-2025)

## Case Study #1

- Primary objectives/lessons to be learned
  1. Identify the opportunities and challenges with conducting a comprehensive DEA drawing on multiple data sources and applying them to several metrics.
  2. Assess available DEA metric data, identify gaps and limitations and options to address gaps going forward.
  3. Using simple results and benchmarks, demonstrate the use of DEA, alongside BCA, to guide decision-making on DER resource investments
  4. Expand on or develop map-based resources and spatial tools to visualize DEA metrics for priority populations.
  5. Consider the contribution of individual programs to distributional equity of the whole portfolio.
  6. How DEAs can inform program design (and vice versa)
  7. Identify impacts on urban populations (priority population and other) relative to rural ones.

Feedback? Questions?

## Case Study #2

- Primary objectives/lessons to be learned
  1. Identify the challenges and opportunities for conducting a streamlined DEA, drawing on few data sources and applying them for 2-3 several metrics.
  2. Assess available DEA metric data, identify gaps and limitations and options to address gaps going forward.
  3. Use existing map-based resources and spatial tools to visualize DEA metrics for priority populations.
  4. Using simple results and benchmarks, demonstrate the use of DEA, alongside BCA, to guide decision-making on DER resource investments.
  5. Identify lessons from only assessing the portfolio as a whole.
  6. How DEAs can inform program design (and vice versa)

Feedback? Questions?

# Project Schedule and Next Steps

# Estimated Project Schedule and Work Group Meetings

Work Group Meeting	Approximate Date
#1 - Introduction to process and relevant policies	March 6, 2024
#2 – Proposed Case Studies & DEA Context	May 10, 2024
#3 – Priority Populations and Analysis	June/July 2024
#4 – DEA Metrics and Analysis	
#5 – DEA Results – part I	Q4 2024
#6 – DEA Results – part II	
#7 – Review Final Results & Draft Report	Q1 2025
#8 - Final Report & Decision-making	Q2 2025

## Next Steps

- Questions to address regarding priority populations
  - Should we develop a single definition for priority population?
- Questions to address regarding DEA metrics
  - Which potential metrics are relevant for the DEA context chosen today?
- Please reach out to team with any questions/comments following this meeting (see next slide)
  - Project Coordination: Julie Michals at [jmichals@e4thefuture.org](mailto:jmichals@e4thefuture.org)
  - Lead Work Group contact: Greg Ehrendreich at [gehrendreich@mwalliance.org](mailto:gehrendreich@mwalliance.org)



# Thank you!

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