

Energy Codes & Building Performance Standards

Presentation to the IL Stakeholder Advisory Group – Market Transformation Working Group

March 17, 2021



Agenda

- Overview and partners
- Phase 1 results
 - Savings opportunity
 - Engagement summary
- Phase 2 next steps
- Key considerations for discussion



Overview and Partners

Project Goal: to support utilities to advance utility programs that support baseline building energy code, stretch code development and building performance codes

Project team: Slipstream and MEEA

Utility supporters: ComEd, Nicor Gas, Peoples Gas, Ameren



Definitions

Stretch code or reach code: locally mandated code or alternative compliance path that defines a higher level of energy efficiency than the adopted base code.

Building Performance Standard ordinances: a municipal tool to equitably reduce energy savings and costs in existing buildings while creating jobs in the efficient and clean energy economy.



Phase 1 Overview

- Objective: to investigate and initiate utility energy efficiency program support for energy stretch codes and building performance standards
- Previously presented to SAG: July 2020

Engage stakeholders:
municipalities,
MMC, utilities

Develop technical
potential for stretch
codes and BPS

Monitor statewide
building code
amendment and
adoption process



Stretch codes – national examples

- **Massachusetts** – 20% savings over base code, performance based
- **New York** – In 2018, 10-15% savings over IECC 2015
- **Seattle, WA** – EUI target by building type, measured performance
- **Boulder, CO** – Net zero codes by 2030



Building Performance Standards (BPS)

Cambridge, MA – 20% reduction every 5 yrs; 80% reduction by 2040 and carbon neutral by 2030

Colorado – 20% GHG reduction by 2030; 90% reduction by 2050

New York, NY – 20% reduction by 2029, 75% reduction by 2034

D.C. – 20% reduction to increase EnergyStar score above median

St. Louis, MO - 100% emission reduction by 2050.



Phase 1 - Municipal Engagement

Evanston

- Interested in utility support for adoption, implementation and compliance
- Beginning commercial **stretch code** public engagement process
- **Strategic importance: first mover in the region**

Chicago

- New mayor, chief sustainability officer and commissioner just beginning sustainability agenda.
- Bloomberg ACCC (NRDC) leading climate action framework now.
- “Do things *with* communities, not *to* communities”

Metropolitan Mayors Caucus

- Represents 131 Illinois communities encompassing 6 million residents
- Collaborative for sustainability programs and regional climate action plan
- **Strategic importance:** Path to regional scale

Urbana/Champaign

- Both have sustainability planning efforts underway
- Examples of past program promotion collaboration with Ameren; very open to renewed collaboration if done deliberately.
- A number of challenges, including budget and lack of community motivation



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Phase 1 – Savings estimations

- Stretch code method
 - Literature review of stretch code policies
 - Identified 5 common building types
 - Presented 2 options:
 - Accelerating ASHRAE Code (7% reduction)
 - Standard Reduction (15% reduction)
- Building Performance Standard methods
 - Chicago benchmarked data
 - BPS to worst performing buildings (65 percentile or above)
 - 15% energy improvement goal per cycle (4-6 years)

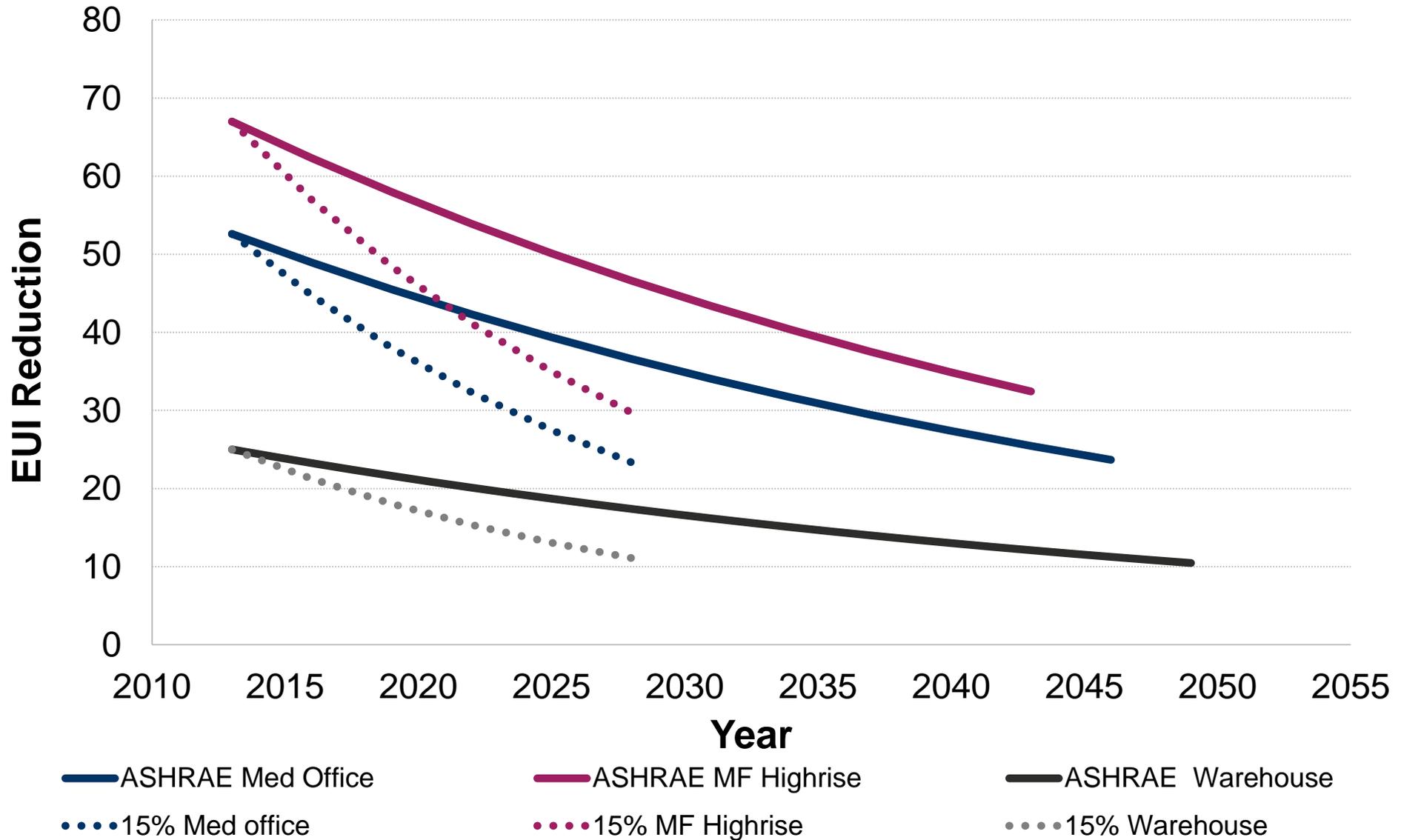


Stretch codes – Net-zero enabled targets

Building Type	Site EUI target (kBtu/sf/yr)
Primary school	28
Low-rise apartment	24
Medium office	24
Small office	18
Secondary school	25
Public assembly	30
Standalone retail	26
Mid-rise apartment	26
Strip mall	39
High-rise apartment	33
Warehouse	11
Small hotel	38
Fire station	33

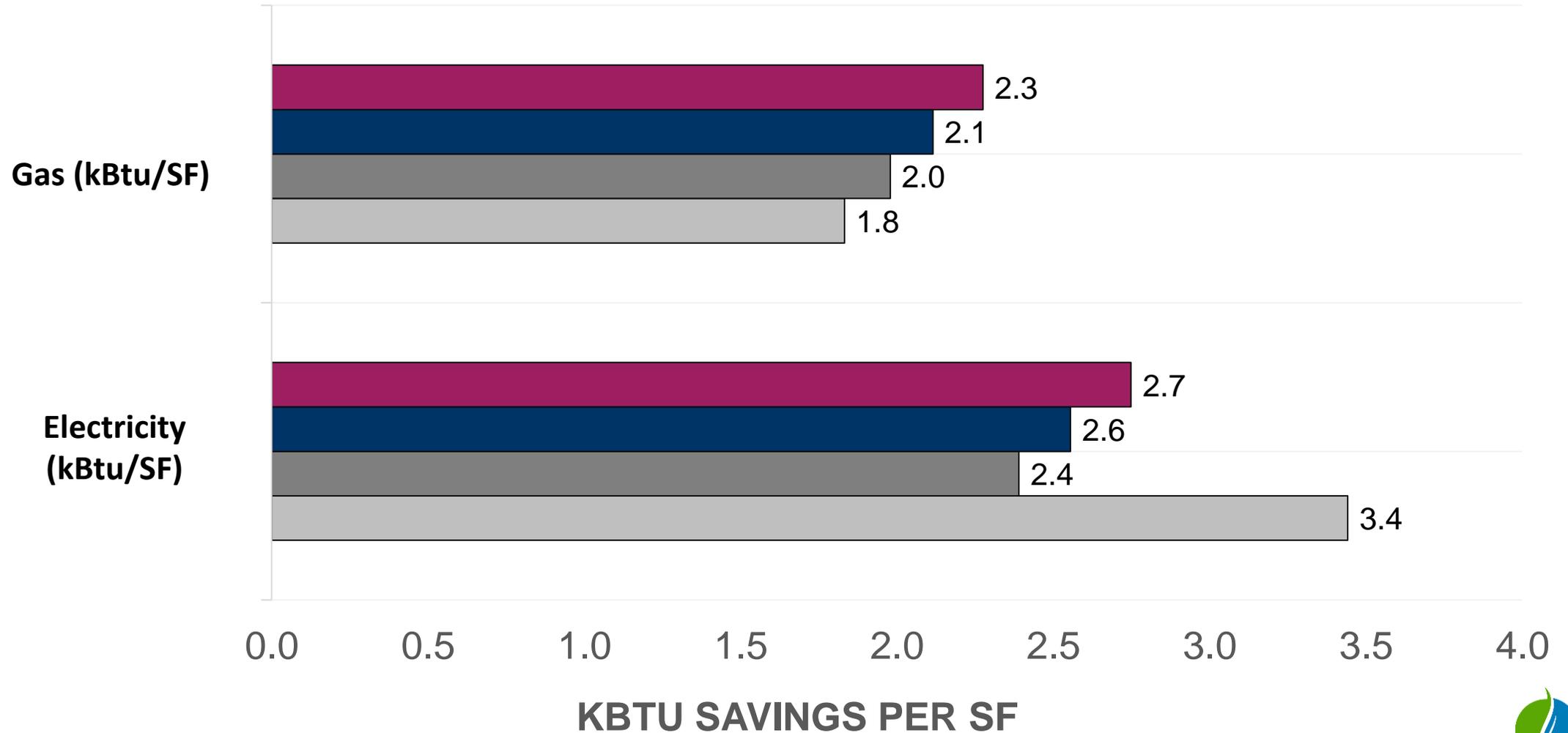


Savings potential – stretch code pathways



Savings – stretch code pathways

■ SC- 15% reduction ■ SC - ASHRAE cycle ■ IECC 2021 ■ IECC 2018



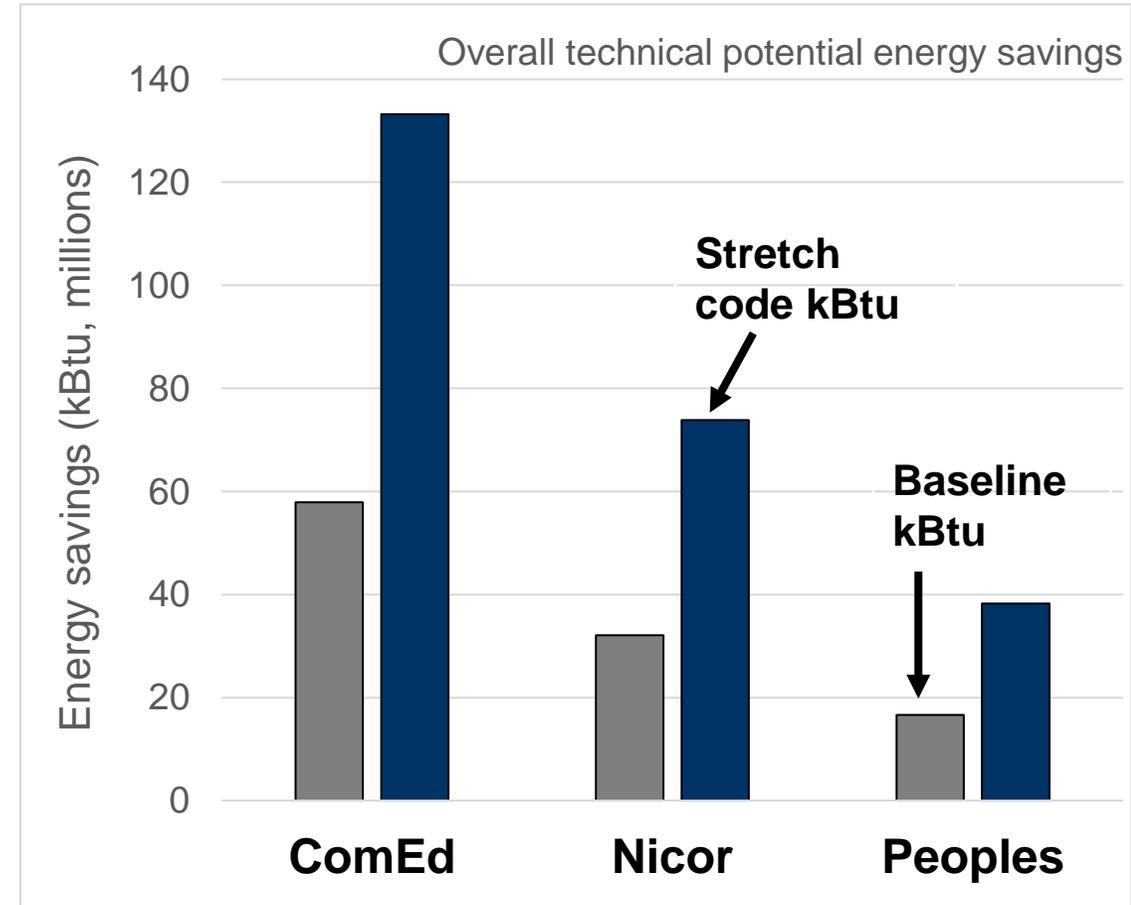
Illinois Technical Potential Savings: stretch code pathways

	IECC 2021 Baseline (Current RAP savings)	Stretch codes - Accelerated Code (MT savings)	Stretch codes - 15% target (MT savings)
Total New Construction Area	53,711,200	53,711,200	53,711,200
Assumed EE participation	60%	100%	100%
Electric savings (gross kWh/sf)	0.7	0.75	0.81
Gas savings (gross therms/sf)	0.0198	0.0212	0.0228
Statewide electric savings (gross kWh)	22,571,912	40,215,622	43,262,830
Statewide gas savings (gross therms)	638,149	1,136,969	1,223,120
Increase in savings from IECC 2021 baseline (%)		78%	92%



Utility Technical Potential Savings – Stretch Code Pathways

	Baseline (Current RAP savings)	Code pathway (MT Savings)	15% target (MT Savings)
ComEd (gross kWh)	16,975,906	36,294,487	39,044,584
Ameren elec (gross kWh)	<i>n/a</i>	4,132,843	4,445,996
Ameren gas (gross therms)	<i>n/a</i>	99,790	107,351
Nicor (gross therms)	321,504	687,376	739,459
Peoples (gross therms)	166,412	355,789	382,748



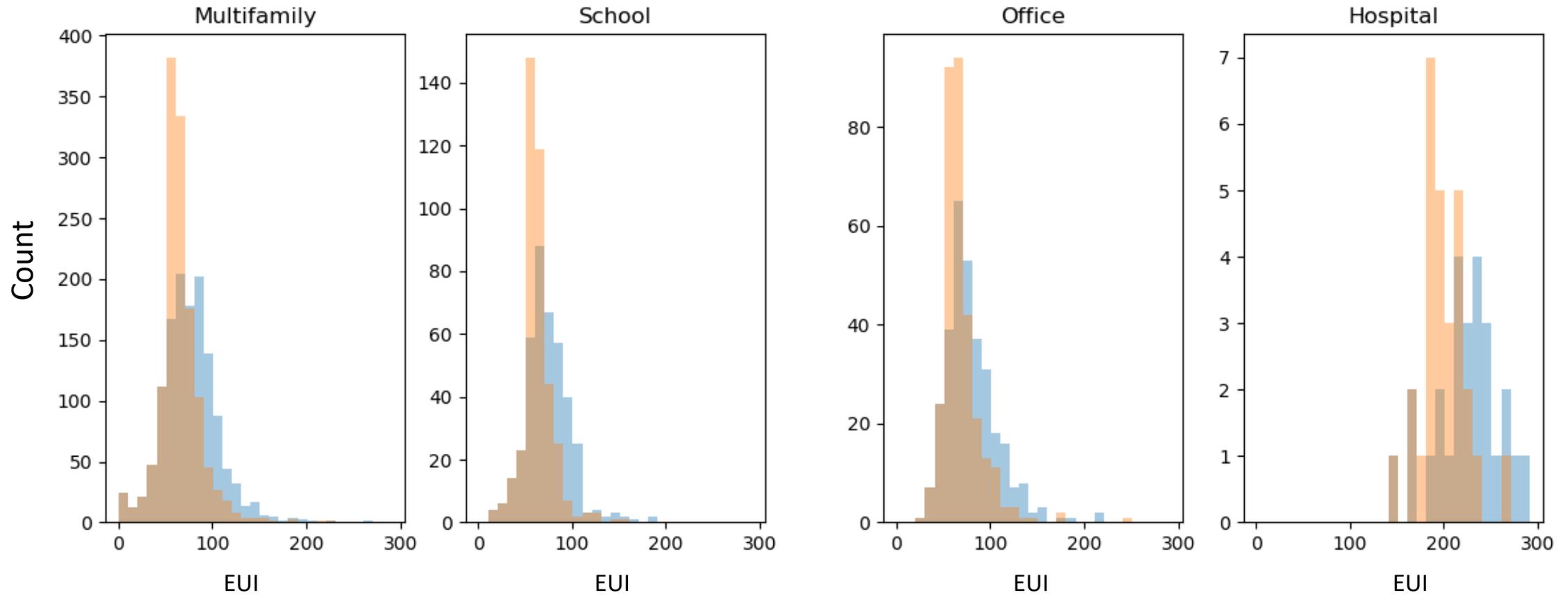
Building Performance Standards (BPS) – Energy Savings

	Office	Hotel	Multifamily	School	Hospital	Other
Electric savings (%)	9.4	11.4	9.9	10.9	10.6	7.9
Gas savings (%)	13	13	12.3	11.6	10.8	10.2

	Gross Savings per BPS cycle	Savings (%)
Electric savings (MWh)	660,465	10%
Gas Savings (Therms)	30,519,555	12%



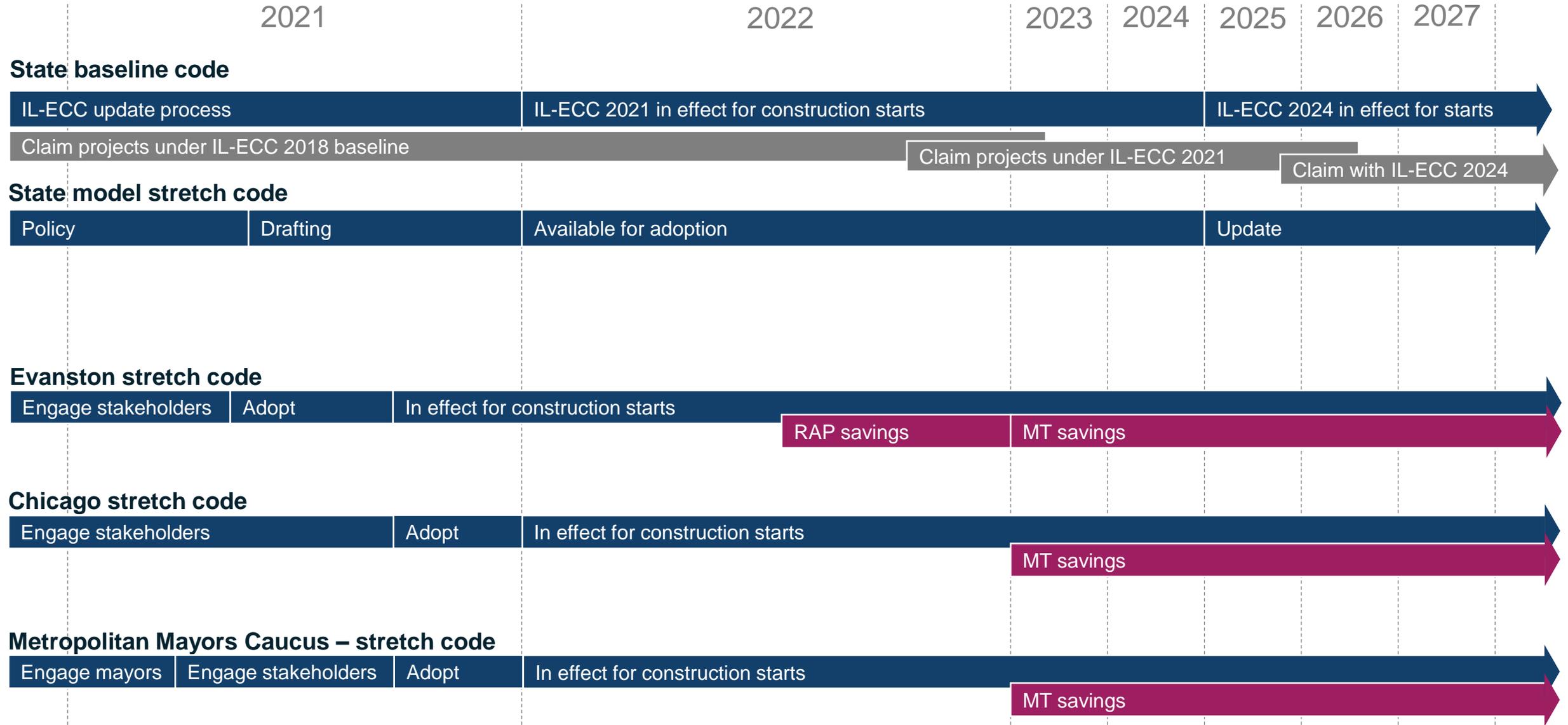
Building Performance Standards (BPS) – EUI shift



EUI shift in existing building stock from adopting BPS



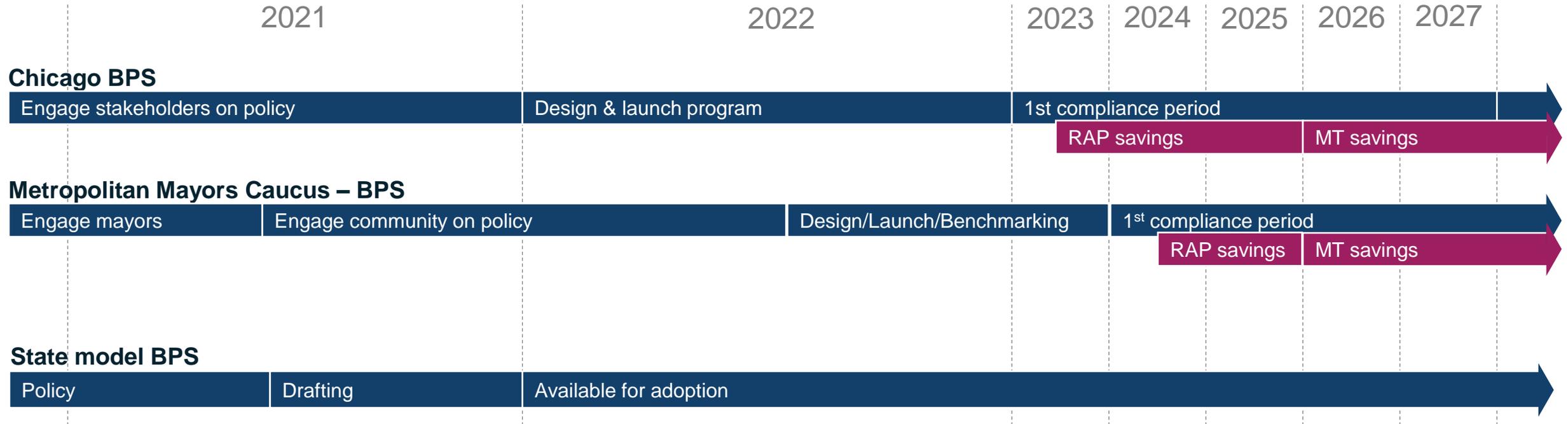
IL Codes Program Timeline (Illustrative)



Note: Timelines are for discussion purposes only. To-date all programs are proposed only.



IL BPS Program Timeline (Illustrative)



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Phase 2: Looking ahead

- Continue conversations with key stakeholders
 - IL SAG
 - Evanston
 - Chicago
 - MMC and other communities
 - IL Capital Development Board
- Based on feedback: Work with communities, not to communities
- Focus is on long-term savings opportunity
- Understanding equity implications and potential resolutions



Identifying pathways to claim savings

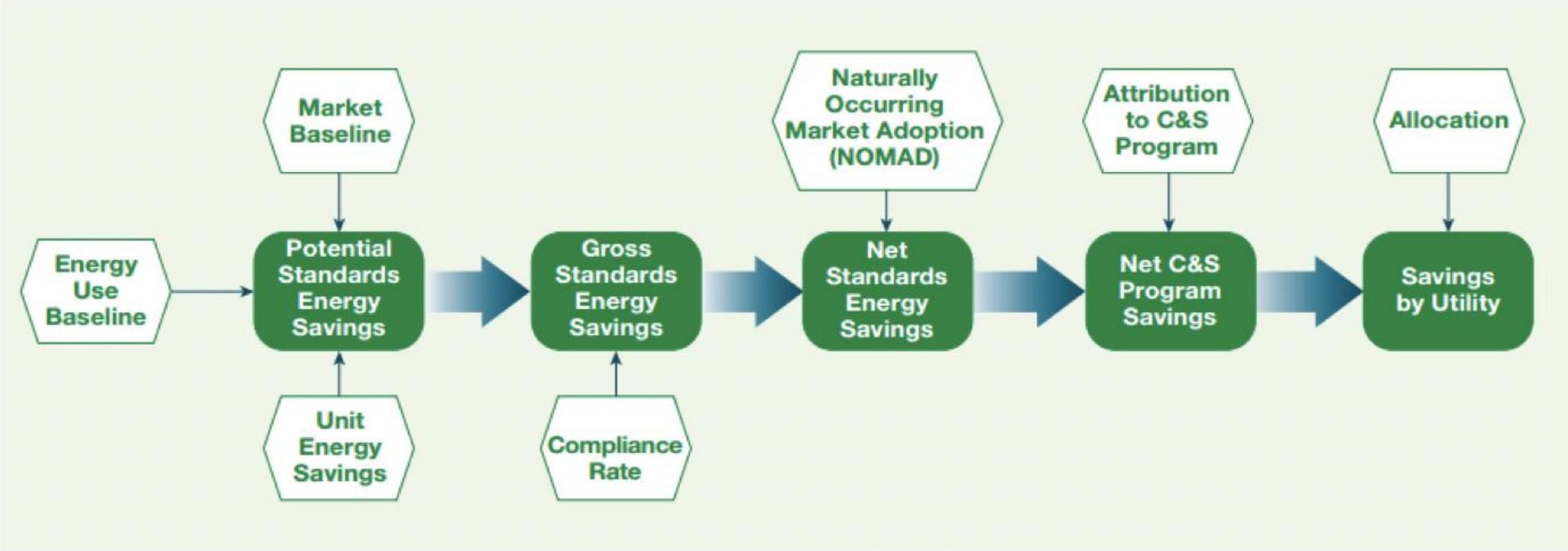
Resource acquisition program

- Leverage current structures of RAP to drive increase participation within the current portfolio of utility programs

Market Transformation

- A market transformation approach would require the development of procedures for market characterization and participation in programs

Codes and Standards Program Evaluation Model



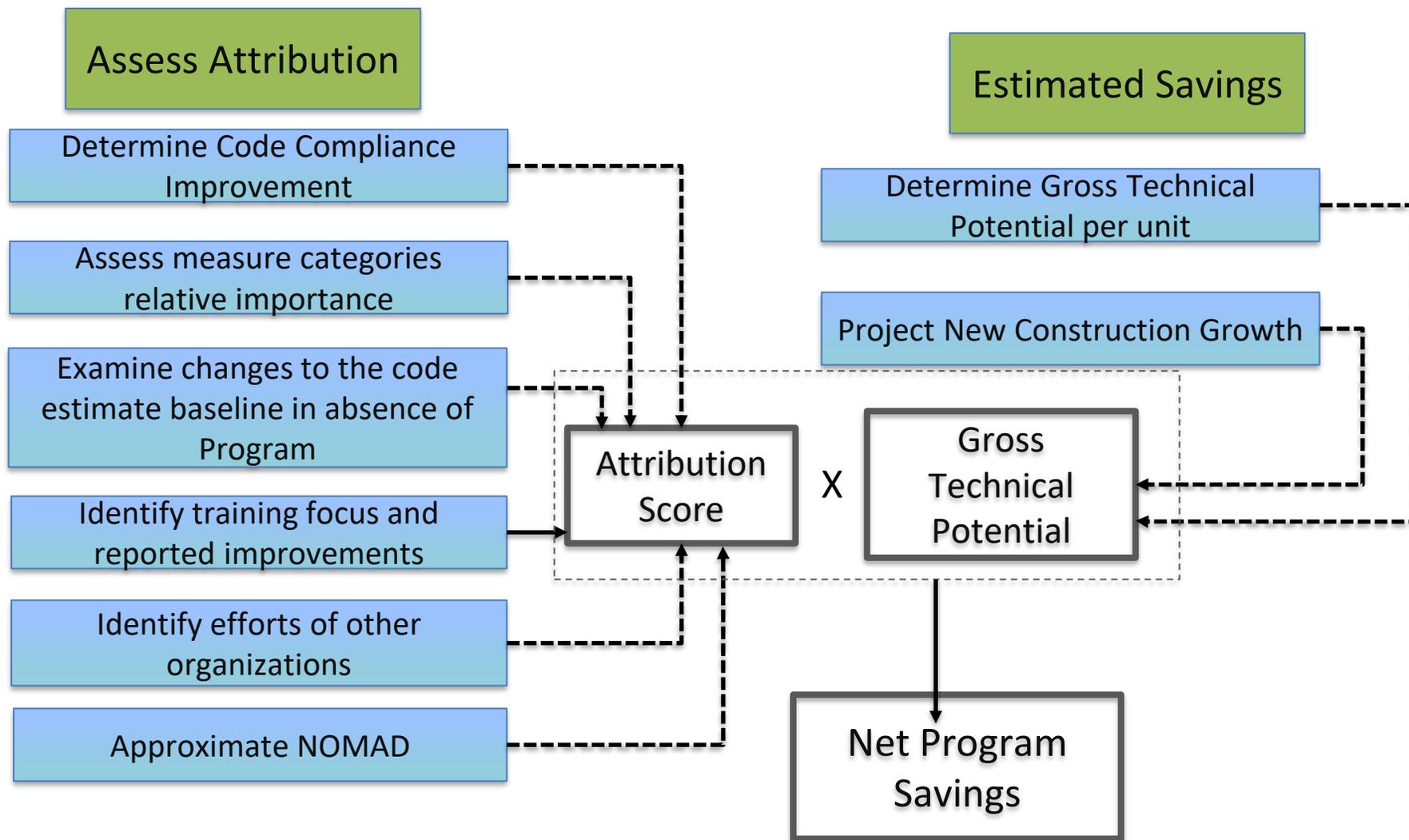
Attribution models

Key assumption: utilities influenced the implementation of the statutory municipal codes or standards programs themselves

- Requires documentation of utility engagement and influence on the programs
 - Engagement with policy process
 - Training or technical assistance
- Approaches may include negotiated attribution or Delphi panels



Attribution and Savings Model



Phase 2 Deliverables

- Development of engagement and utility support plans specific to:
 - Municipalities
 - IL code officials
- Program logic model and administrative framework that incorporates potential savings and cost-effectiveness of the approach
- Advance savings and attribution discussions with IL SAG to establish protocols
- Coordinate with program evaluators around savings models
- Final report summarizing Phase 2 activities and key findings



Questions?

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