A Win-Win Strategy: Municipality and Utility Partnership on Advanced Building Policy Market Transformation

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ABSTRACT

As municipalities recognize the value of building decarbonization in meeting their climate goals, they are increasingly turning to energy codes and building performance standards (BPS) as a policy lever. However, cities face many barriers when adopting and implementing these policies, including municipal staff capacity, added costs for residents and businesses, and a lack of technical understanding of these policies among key stakeholders. Utilities, with their energy efficiency programs and funding, are in a unique position to address these concerns through technical assistance and incentives.

Slipstream and the Midwest Energy Efficiency Alliance (MEEA), in partnership with ComEd, are creating an innovative market transformation program model in Illinois that will allow utilities to claim credit toward their energy efficiency goals by advancing public policies that achieve significant energy savings over time. The program is providing educational resources and technical support to interested municipalities to encourage and facilitate adoption and eventual compliance support of stretch codes and BPS. Some examples of that support are provision of model ordinance language, educational sessions for municipal leaders and community members, and outreach to educate building owners on utility incentives.

This partnership provides needed support for municipalities and a pathway for utilities to claim savings as policies are adopted. While the program described herein advances adoption and implementation of both stretch codes and BPS policies, the paper focuses on the application of the market transformation strategy in the context of stretch codes, and discusses how combining community-led discussions with utility support can accelerate code adoption. It also provides a framework for estimating potential savings from stretch energy codes under a market transformation structure.

Introduction

Scaling up the decarbonization of buildings is more important than ever, but the process of achieving climate goals is difficult, costly, and confusing. Municipalities across the United States are increasingly recognizing advanced building policies, such as stretch codes, benchmarking, and building performance standards, as key levers to meeting carbon reduction and energy goals. With buildings accounting for a substantial portion of total carbon emissions, these policies are an emerging priority for municipalities.

However, municipalities often encounter a range of barriers when adopting and implementing these policies, such as limited municipal staff capacity, lack of technical knowledge to develop and implement policies, and concerns about added costs for the community. A number of these barriers can be addressed through community and stakeholder engagement, analysis of the impact of codes and standards, and implementation support such as financial incentives and technical assistance.

Utilities are well positioned to help move the market for advanced building policies by providing research and development on policy impacts, training for building professionals and officials, and incentives to bring down first costs of more stringent policies. Utilities can play a role in two distinct ways: first, by supporting state and municipal efforts to advance and adopt policies through technical guidance and policy development, and second, by providing compliance support through programs that provide technical assistance, incentives, and training for municipalities, contractors, and building owners.

This type of support program can provide a pathway for utilities to claim energy savings under a market transformation framework for influencing the adoption and successful implementation of these policies. The energy savings can help utilities meet existing goals and comply with state efficiency standards.

This paper discusses a joint effort in Illinois between Slipstream, MEEA, and ComEd to create a market transformation framework that will enable ComEd to claim savings from its efforts to advance building policies and support municipalities through technical assistance and implementation support. We start with background information on the project and ways in which the team is supporting municipalities in Illinois, as well as an overview of the general framework developed for evaluating market transformation programs in Illinois. We then discuss how that framework is being applied in the context of efforts to advance codes and standards, and present results from surveys and the evaluation process.

Background

Market Transformation Framework in Illinois

In Illinois, traditional energy efficiency programs, or Resource Acquisition Programs (RAP), are typically designed to advance a specific technology (e.g. LED lighting) or an individual building sector (e.g. new construction design assistance). To drive energy efficiency in new construction projects historically, Illinois utilities have implemented RAPs to generate energy savings; owners and developers are provided with incentives to construct buildings that perform at a more efficient level than that required by existing energy code requirements. If a municipality were to adopt a stricter energy code such as a stretch code, that updated code would become the baseline against which utilities could claim savings if its new construction programs were to be evaluated as a traditional RAP, therefore significantly reducing the opportunity for the utility to claim RAP savings in these areas.

A market transformation (MT) approach can enable utilities to claim additional savings that they would have missed out on under a RAP framework, and accelerate energy efficiency in a manner that RAP programs cannot address. The Northwest Energy Efficiency Alliance (NEEA) is a leader in the field of market transformation research and defines MT as the strategic process of intervening in a market to create lasting change that results in the accelerated adoption of energy efficient products, services, and practices (NEEA, 2024). The first documented MT framework in the U.S. was developed by the NEEA over 25 years ago and is a proven approach for tracking and reporting market influence and energy savings over the long term. The framework is increasingly being adopted by others, including the state of Illinois. In the context of advanced building policies, savings from an MT program can be defined by comparing what would have happened if the utility did not intervene in the market (the advanced code would not have been adopted as quickly) and the accelerated impact. Attribution of savings can be demonstrated through examination of the various strategies employed by the utility to support municipalities and building owners in stretch code adoption and compliance.

MT programs require methods of evaluation that are substantially different from those used for traditional resource acquisition programs. Under Illinois regulations, a utility must develop protocols for each MT initiative that include a logic model that describes the initiative's activities and expected impacts, an evaluation plan, and a natural market baseline (NMB), which is a forecast of what would have happened in the absence of utility-funded intervention. The NMB is subtracted from program savings during evaluation to ensure that the utility does not claim savings generated by the impact of market forces which would have occurred without their involvement.

In preparation for future MT efforts, in 2019 a workgroup including NEEA, MEEA, and other MT thought leaders was convened to develop an initial utility framework for capturing market transformation savings in Illinois (Davis et. al, 2019). In 2023, this framework was updated by a small market transformation advisory group to the state commission overseeing utility energy efficiency programs (IL TRM, 2023). This framework serves as a way for utilities to provide support for advanced building policies, and subsequently claim savings for their energy efficiency portfolio.

Stretch Code Market Transformation Initiative (MTI) Description

Starting in 2020, Slipstream and MEEA, with initial funding from electric and gas utilities in the Chicago metropolitan area and statewide, and primary and current support from the ComEd Energy Efficiency Program, have been providing technical assistance on advanced building policies to municipalities while also developing a framework for calculating savings from stretch energy code and building performance standard support under a market transformation program model. The team started its work with a market research study to understand the potential impact of building codes and strategies on municipalities that adopt advanced building policies. Additional initial work was conducted by MEEA as support to their member community.

In September 2021, the state of Illinois passed Illinois Public Act 102-0662 (the Climate and Equitable Jobs Act, or CEJA). Among other topics, CEJA clarified that utilities have authority to claim savings for code-related programs. For existing buildings, CEJA enabled utilities to claim savings by offering or supporting BPS programs. In addition, CEJA directed the Illinois Capital Development Board (CDB) to create model residential and commercial stretch energy codes for voluntary adoption by individual municipalities. These model stretch codes, which will likely be available for municipal adoption in the fall of 2024, offer a simple pathway for municipalities to require higher energy performance than would be required by Illinois' base energy code, and will be designed to meet specific increased efficiency targets each code cycle. While the legislation does not require that a municipality adopt the stretch code and enforce its compliance, each municipality has that option. This offers a clear opportunity for ComEd to provide support to encourage local stretch code adoption and also to provide compliance support.

Following the passage of CEJA, the team recognized that these features of the legislation could enable ComEd to use energy program funds to increase its support for advanced building code policies and therefore focused efforts on providing direct support to municipalities to help advance both stretch codes and policies for existing buildings. Initial feedback from municipalities stressed that the availability of post-adoption support was a critical factor in decision-making about whether or not to adopt advanced codes and standards. Based on this feedback, the team expanded the Stretch Code MTI to include developing strategies to support compliance and implementation after municipalities adopt the policies.

To jumpstart municipal engagement and technical support, the team worked with the Metropolitan Mayors Caucus (MMC), which recruited members of its Environment and Energy Committee, as well as participants in its Greenest Region Compact to develop a cohort of municipalities interested in advanced building policies. This group, called the Advanced Building Energy Efficiency Policy (ABEEP) workgroup, meets regularly and provides an opportunity for Slipstream and MEEA to highlight the resources and technical support funded by ComEd.. The group meetings also serve as a way for municipalities to learn from each others' experiences and identify potential opportunities to collaborate on policies in the future.

With feedback from the various ABEEP participants, the team also developed multiple technical resources for municipalities, such as flow charts illustrating the steps for developing stretch code and/or BPS policies, fact sheets focused on specific policy components or steps, template policy language, and base code versus stretch code comparison documents. These technical resources often responded to specific requests from municipalities and served as education for internal staff and in some cases resources to share with the larger community.

In 2022, the team expanded its support efforts to provide one-on-one support for municipalities interested in direct support on any of the building policies. The one-on-one support supplemented the quarterly ABEEP meetings, and allowed for more specific support for stakeholder education, community engagement, data analysis, and codes/standards policy development. Examples of this support included:

- Reviewing policy language and providing edits
- Developing technical presentations for stakeholders such as elected officials and municipal staff
- Developing cost estimates for developers or property owners
- Providing subject matter expertise at public events such as Town Halls, Open Houses, Sustainability Commissions, or targeted stakeholder engagement meetings
- Conducting data analysis to help with understanding benchmarking results and potential next steps for creating a BPS
- Developing technical guides to understand code differences and requirements for code officials
- Helping determine public engagement strategies
- Conducting background research to share for specific policy questions

Planned strategies for implementation and compliance support include trainings and resource development for the building industry and building code officials on how to comply with or enforce the policies, technical assistance for building code plan review, incentives for building owners and residents, and potential software support to reduce administrative burden.

This work, supported by the utility, has greatly raised awareness and helped municipalities understand the impacts of building policies and the ways in which policies can help meet carbon reduction goals and provide additional community benefits.

Many municipalities have embraced the existing support strategies. Over 50 municipal representatives joined the May 2, 2024 ABEEP meeting and the team has provided or is providing one-on-one support to nine municipalities. This advising, along with fact sheets, community engagement support, and other as-needed assistance has helped the municipalities address capacity constraints, gain technical knowledge, and better understand the range of technical assistance that is available. While the stretch code has yet to be approved through the Illinois regulatory process, the project team meets with municipalities to provide resources and support needed to lay the groundwork for robust consideration of the stretch code once it is available to adopt. The project team continues to assess the resources for value to municipalities and is developing future resource such as guidelines and checklists for building code officials, and targeted trainings to prepare developers and building professionals for stretch code compliance.

Methodology to Measuring MT Savings from Stretch Codes

The Illinois framework for MT savings sets the development of a logic model as a foundational step to outline ways that utilities can affect market changes. Program theory and the associated logic model illustrate how utility activities can drive market transformation in response to the opportunity identified above. The logic model and associated documentation identifies:

- barriers to adoption
- utility activities designed to leverage policy-based energy saving opportunities
- utility interventions to address the barriers and constraints
- outputs that directly measure results of the activities
- expected/desired short, medium-term, and long-term outcomes
- related market progress indicators to evaluate progress towards outcomes

Another significant component of the market transformation evaluation framework is establishing the natural market baseline, or estimation of what would happen in the market absent any utility intervention. Under a market transformation framework, the natural market baseline (NMB) serves as the method for removing any free ridership and determining a net savings value for utility intervention. The NMB is estimated by defining and quantifying total market units, and then determining what percent of the market units are considered to be under the natural market baseline curve. For stretch energy codes, the market is defined in terms of square feet of annual new construction and the natural market baseline is determined by ascertaining the likelihood that municipalities would adopt the stretch code absent any utility support.

After establishing the logic model and natural market baseline, the Illinois MT framework outlines the next step for developing final MT energy savings, which is defined through the following equations.

$$\textbf{MT Energy Savings of Stretch Code Adoption} = \text{Number of MT Units } \times \text{ Unit Energy Savings of Adoption}$$

$$\textbf{MT Energy Savings of Stretch Code Compliance} = \text{Number of MT Units } \times \text{ Unit Energy Savings of Compliance}$$

Where:

- **Number of MT Units** = Annual Square Feet of new construction and major renovation covered by stretch code policy *minus* NMB Square Feet covered by stretch code policy
- **Energy Use Intensity (EUI) =** Total building energy use per square foot
- **Unit Energy Savings of Adoption** = EUI of base code *minus* EUI of stretch code, using historic compliance rate for both values
- **Unit Energy Savings of Compliance =** EUI of stretch code with historic compliance rate *minus* EUI of stretch code with improved compliance rate

The final step of the process is to remove any overlap with existing resource acquisition programs and document the process for evaluation moving forward in any evaluation plan. In some cases, attribution (final savings) may be adjusted to account for external market factors that may affect adoption or compliance but were not included in the NMB.

In the following sections, we discuss how we determine NMB for stretch energy codes and the final MT energy savings.

Natural Market Baseline Determination

Total Market Units

We define the market for stretch code as sectoral (residential or commercial) new construction square feet built annually. The development of a natural market baseline is a forward-looking exercise and requires a forecast of trends into the future. To do that, the project team gathered historical new construction square footage data at the municipal level and calculated the amount of new construction during each of the ten years prior to 2022.

Through analysis of historical new construction data over a ten-year period, we found that the amount fluctuates from year to year. We did not see consistent increases or decreases in the amount of new construction over time, so we applied the average annual new construction square feet into future years rather than assuming a gradual increase over time. For example, it is estimated that the average amount of commercial new construction per year in ComEd's territory will be 32 million square feet each year between 2024 and 2030, even though the amount of new construction would fluctuate above and below that number each year.

We used several sources of data to determine growth trends. The commercial data is from (1) the Midwest Building Inventory with data through 2019 (Day et. al 2020), and (2) CoStar after 2019, and includes the following nine building types: office, warehouse, retail, multifamily, lodging, healthcare, education, quick service, and full restaurants (CoStar). These building types cover 75% to 85% of the total new construction market.

The residential data is from the US Census Building Permit Survey, which provides the number of new single-family and low-rise multifamily units that received building permits from 2010 to 2021 (US Census Bureau). The historical data on building permits is used to calculate the average number of new units each year that applied for a permit. To calculate the total square feet of new construction each year, the team used US Census construction data which provides average square feet per unit by year, housing type, and region (US Census Data). The average square feet per unit was multiplied by number of units of new construction in a year to get total residential square feet of new construction in a year.

Determining Likelihood of Adoption Without Utility Support

The NMB for stretch codes is measured as the square feet of new construction in municipalities that would adopt stretch codes without any utility support. A municipality's decision to adopt a stretch code is assumed to be affected by both utility intervention and other factors such as city climate goals, federal funding, and other technical support influence. We used surveys and interviews of a sample of municipalities to estimate the portion of effect from utility influence.

The stretch codes program team conducted surveys and interviews with municipalities in northern Illinois to understand current plans for adoption of stretch codes and the likelihood of adoption without utility support. Survey outreach conducted in 2023 included an email sent to 150 contacts from the Metropolitan Mayors Caucus' Environmental Committee. The team received responses from 30 separate municipalities through the survey or interviews. The surveys asked a series of questions around timeline for adoption, factors influencing adoption, and existing barriers.

Error! Reference source not found. illustrates the responses of municipalities when asked the timeline for adoption of stretch codes. The survey results indicated that a small percentage of municipalities are currently considering adoption of stretch codes in the next 1 to 3 years or 4 to 6 years, while a large percentage are unsure of plans for adoption or not considering adoption.

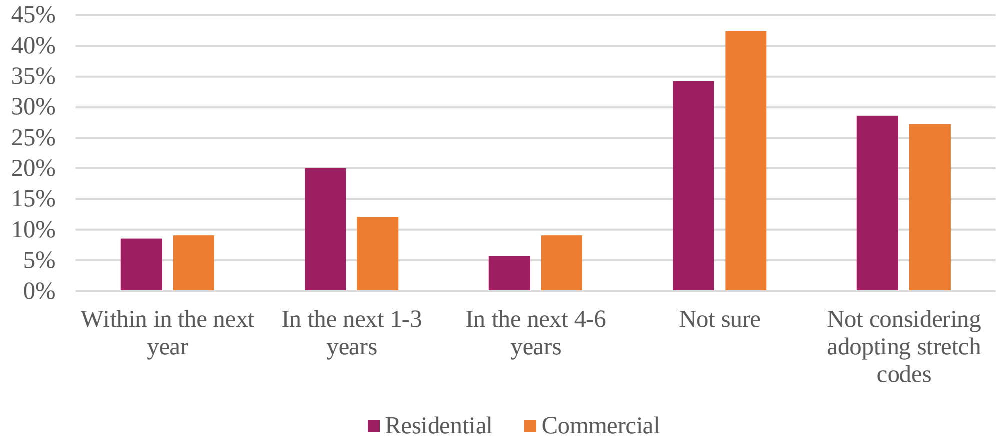

Figure 1. Responses to question "If your municipality is considering adoption, what is the estimated timeline for adoption?"

To determine what factors impact adoption, the survey also asked municipalities to rank the influence of different factors of adoption from 1 to 10. **Error! Reference source not found.** illustrates the average ranking across all respondents for both commercial and residential stretch codes. The responses illustrate that municipalities have several factors influencing their decision on whether to adopt stretch codes, with technical support, federal funding, and targeted stretch code support programs showing slightly more positive responses than others.

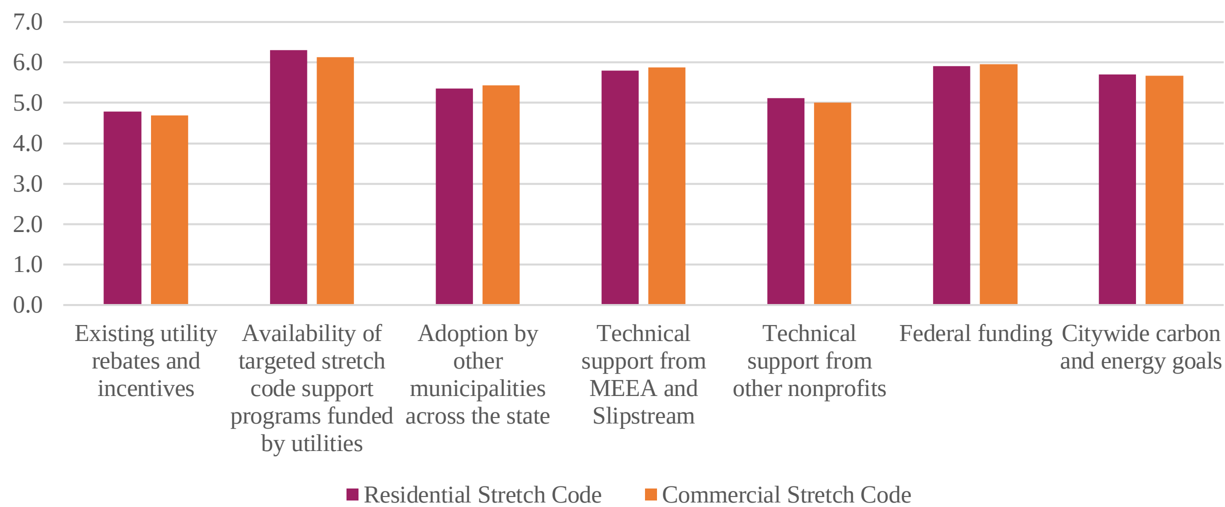

Figure 2. Responses to question "Rate the influence of the following on your municipality's decision to adopt an advanced building policy (0 to 10)"

After the original survey was distributed, the project team recognized that the responses in Figure 2 may have considered factors beyond the role of utilities that would affect decision making. To probe further, we sent a follow-up email on the likelihood of adoption. This email was sent to the seven survey respondents that indicated they were open to follow-up questions.

Five municipalities responded to the follow-up questions. In the email, we asked respondents to estimate the likelihood of policy adoption without utility support within the next 1 to 3 years or 4 to 6 years.

Using results of the survey and discussions with municipalities, we estimated the likelihood of stretch code adoption in each municipality in the absence of utility support and then used historical data on new construction starts in the territory to determine the percent of total square feet of new construction in the NMB. We assumed that the square footage of the approximately 30% of municipalities that are not considering adoption would not be included in the NMB. This assumption is based on their indication that their likelihood of adoption without utility intervention is zero percent; in other words, we do not expect them to move forward on adoption the stretch code regardless of utility intervention or not. We assumed that Oak Park, Evanston, and Chicago would have different likelihoods of adoption than the other municipalities as they have already adopted or are in the process of adopting other new construction code policies, such as the Chicago Clean and Affordable Buildings Ordinance (CABO) and the Oak Park Electrification Ordinance. As the City of Chicago represents a significant portion of new construction data, we use a range to demonstrate the range for likelihood to adopt without utility support (25-75%). The lower number represents a larger opportunity for the MT program to have an impact, since it indicates the city was less likely to adopt without utility support, while the higher number represents a lesser opportunity. Evanston and Oak Park are assumed to have a 30% likelihood of adoption without utility support, which reflects their interest in the stretch code, but the significant level of technical assistance, educational, and financial support that may be necessary to enable their passage and implementation of the stretch code.

MT Energy Savings

The MT units are multiplied by expected unit energy savings to estimate MT energy savings. The energy savings represent the total technical potential savings that a utility could claim through its efforts to advance code. For stretch code, the unit energy savings are defined as energy use intensity (kbtu/square foot). The difference between energy use intensity under a stretch code and energy use intensity under a base code represents the unit energy savings for adoption.

Stretch Code EUI

Stretch code EUI reflects performance targets over time as set by the Illinois CEJA (Table 1). The performance targets are defined using a Site Energy Index, a ratio of how efficient the adopted code is compared to the ASHRAE 90.1 -2004/2006 IECC code as modeled by the Pacific Northwest National Laboratory (PNNL) for various building types and climate zones (Hart 2013). The stretch code Site Energy Indices can only be met through conservation measures, assisting in their applicability to calculating MT savings. Those values are applied (see Table 2) to each building type to calculate actual energy use intensity. **Error! Reference source not found.** includes the established stretch code energy indices for 2024 and onward.

Table 1. Site energy index of stretch codes as directed by CEJA – 2024 through 2032

Stretch Code Version	Residential Site Energy Index	Commercial Site Energy Index
2024	0.50	0.60
2026	0.40	0.50
2029	0.33	0.44
2032	0.25	0.39

Table 2. 2004-ASHRAE/2006 IECC energy use intensity by building type as modeled by PNNL

Building type	EUI
Warehouse	32.8
Office	53.6
Single-Family	62.3
Multifamily (>5 units)	62.9
2 to 4 Unit Multifamily	66.6
Schools	66.9
Retail Store	88.2
Strip Mall	98.9
Hotel	106.3
Clinic	158.2
Hospital	175.1
Restaurant	525.9
Fast Food	740.8

Base Code EUI

Base code EUI is a forecast of energy use per square foot over time, taking into account the effective dates of future versions of the base energy code. The base code EUI is expected to decline over time as the base energy code includes further measures that reduce overall building energy consumption. PNNL has modeled site energy index over time for each state, including strengthening or weakening amendments that are added to a state's building energy code. Using this data, the percent decline in site energy index is calculated over the past three 3-year code cycles (effectively, the past nine years) and applied to each future code cycle.

The estimated site energy index is then applied to the ASHRAE 90.1-2004 EUI as estimated by PNNL for each building type for both residential and commercial. Table 3 provides the residential and commercial site index for base code in each of the following projected code update cycles for Illinois.

Table 3. Site energy index for base code – 2024 and forward

Base Code Version	Residential Site Energy Index	Commercial Site Energy Index
2024	0.64	0.61
2027	0.60	0.59

2030	0.56	0.57
2033	0.52	0.55

Accounting for Double Counting Between Market Transformation and Resource Acquisition

Through traditional resource acquisition programs, ComEd offers several programs that address new construction directly, including the Commercial/Industrial New Construction, Affordable Housing New Construction, and Electric New Homes Construction programs. These programs claim savings for energy conservation measures installed or implemented that result in more efficient building performance than is required by the base code as defined in Illinois. However, the programs do not currently incentivize based on stretch code or expected stretch requirements.

The proposed approach to avoid double counting from a stretch code market transformation program is for the resource acquisition program to count savings for energy conservation measures that are installed or implemented that are *more efficient* than the stretch code for municipalities that adopt the code. This method allows the existing RAP to continue to count savings above the adopted code and allows MT to capture all savings between base and stretch code for municipalities that adopt.

Error! Reference source not found. illustrates the approach across a municipality that does not adopt stretch code and a municipality that does adopt stretch code. The figure illustrates that for municipalities that do adopt stretch code everything between stretch code and base code becomes MT savings while everything above stretch code is still RAP savings, and for municipalities that do not adopt the stretch code, everything can remain RAP savings. At the time of this publication, this method is currently being discussed by evaluators and stakeholders in Illinois.

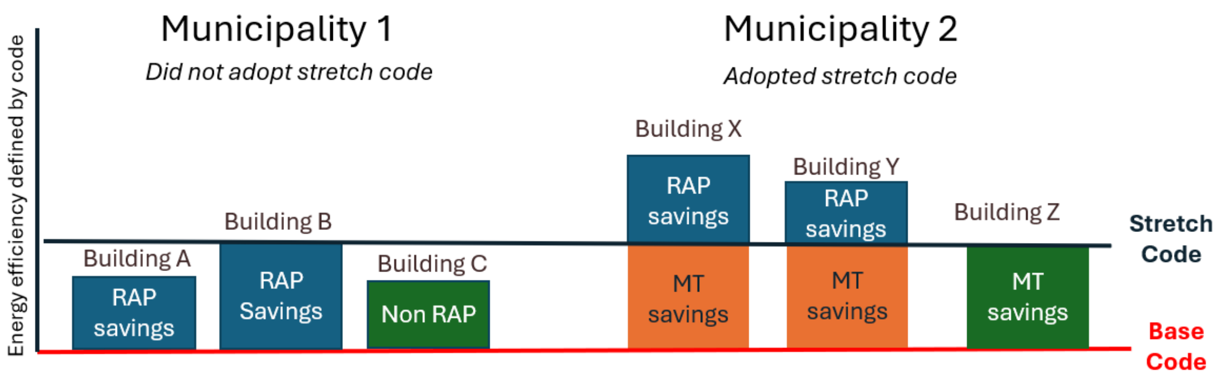

Figure 3. Illustrative example of estimating energy savings between RAP and MTI programs for new construction

Results

The natural market baseline includes relatively low market adoption for the first stretch code cycle (2024) and then increased natural market adoption for the second code cycle (2026).

Figure 4 illustrates the commercial and residential natural market baseline, respectively. The top dark green straight-line shows assumed total new construction each year in the ComEd territory while the natural market baseline curve applies the percent likelihood of adoption of stretch without utility intervention.

The potential utility impact in turquoise is quantified as total potential square feet impacted minus the NMB square feet (square feet that would have been impacted by the stretch code without intervention). The range from the City of Chicago likelihood of adoption is shown here to illustrate the relative sensitivity of that assumption.

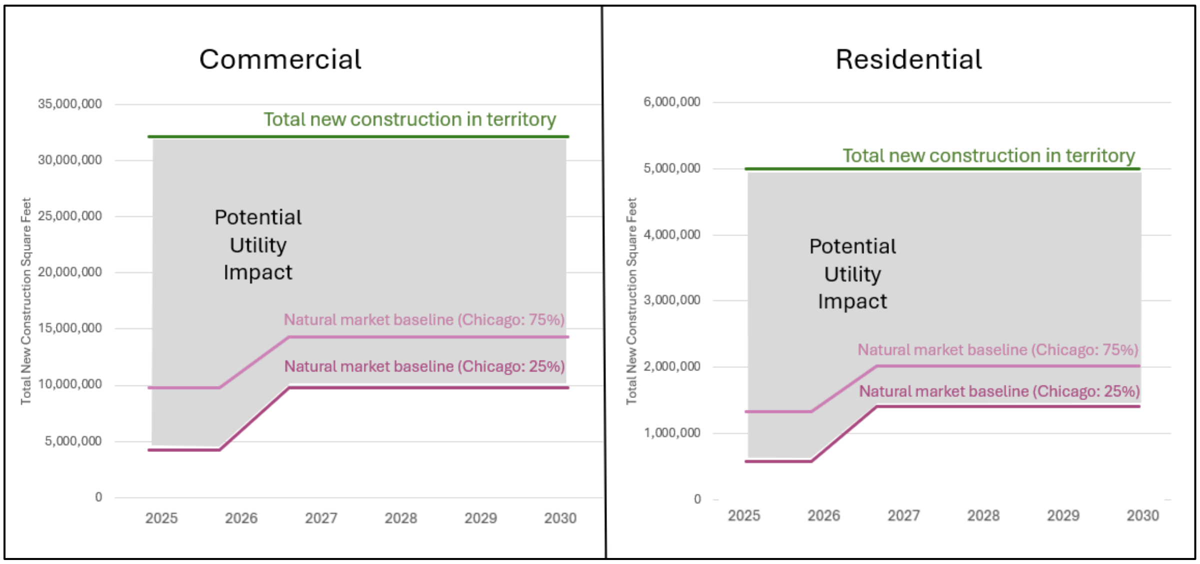

Figure 4. Commercial and residential natural market baseline curve (new construction square feet)

The estimated savings are technical potential savings for stretch code adoption across ComEd territory and are split between adoption and compliance savings for year 1 and lifetime savings based on EUL. Adoption represents savings from municipalities adopting stretch code and compliance savings indicate savings from reaching higher compliance rate of 98% in municipalities that adopt stretch codes compared to the historical rate of 75% compliance with the base energy code. The estimate of 98% assumes that achieving 100% compliance is unlikely.

The savings represent the difference between stretch code and base code energy use intensity in 2025 multiplied by the assumed new construction square feet that does not fall into the NMB. For purposes of comparison, ComEd's gross savings from its Commercial and Industrial New Construction and Public Buildings New Construction program in 2023 were 20,148 MWh and 717,632 therms. It had 2,778 MWh and 52,750 therms gross savings from its Affordable Housing New Construction program in 2023.

Table 4. ComEd technical potential estimated commercial stretch codes electricity savings (MWh)

Year	Year 1 Adoption Savings	Year 1 Compliance Savings	Lifetime Adoption Savings	Lifetime Compliance Savings
2025	1,546-2,078	474-637	26,290-35,334	11,856-15,935
2026	13,227-17,909	4,056-5,492	330,687-447,721	101,411-137,301
2027	10,822-14,653	3,319-4,493	270,562-366,317	82,972-112,337
2028	10,822-14,653	3,319-4,493	270,562-366,317	82,972-112,337
2029	18,037-24,421	5,531-7,489	450,937-610,528	138,287-187,229
2030	15,632-21,165	4,794-6,491	390,812-529,124	119,849-162,265

Table 5. ComEd technical potential estimated residential stretch codes electricity savings (MWh)

Year	Year 1 Adoption Savings	Year 1 Compliance Savings	Lifetime Adoption Savings	Lifetime Compliance Savings
2025	8,435-9,123	2,587-2,798	210,877-228,076	64,669-69,943
2026	12,123-13,028	3,718-3,995	303,073-325,710	92,942-99,884
2027	10,110-10,870	3,100-3,334	252,756-271,759	77,512-83,339
2028	10,110-10,870	3,100-3,334	252,756-271,759	77,512-83,339
2029	13,624-14,633	4,178-4,487	340,605-365,824	104,452-112,186
2030	11,612-12,475	3,561-3,826	290,288-311,872	89,022-95,641

Conclusion

Building energy codes and standards are key policy levers for municipalities to meet carbon emissions goals. Utilities can play a pivotal role in the adoption and implementation of these policies through providing technical and financial assistance for municipalities, building owners, and residents.

In Illinois, development of codes and standards programs offers utilities a pathway to claim energy savings through providing support and technical assistance to municipalities to adopt and implement these policies. Such programs would create opportunities for more municipalities to have the technical and ongoing support to confidently adopt stretch codes, benchmarking, and BPS. Supported adoption of advanced building policies would lead to significant benefits for the municipalities, energy savings for residents and businesses, and carbon emissions savings.

Slipstream and MEEA have worked closely with program evaluators to configure the Stretch Code MTI within an approved market transformation framework to enable utilities to claim energy savings from their support of municipal adoption and implementation of stretch codes. The stretch code market transformation framework for utility savings that is described above can serve as a case study for other states and utilities, and a methodology that can be applied in other locations to create an incentive for utilities to provide technical and financial assistance with policies. The data sources and approach to estimating total market units and a natural market baseline can serve as a guideline or starting point for other utility attribution models for advanced building policies.

Future research includes applying this framework to building performance standards in Illinois, and continued market research to understand the various influences impacting municipalities' decision to adopt advanced building policies. This research can impact the natural market baseline and provide additional information on which support strategies are most important to offer to encourage adoption of advanced building policies. Additional future research may seek to quantify actual MT savings that are attributable to stretch code support.

References

Climate and Equitable Jobs Act, Public Act 102-0662, IL General Assembly, 2021, https://epa.illinois.gov/content/dam/soi/en/web/epa/topics/ceja/documents/102-0662.pdf

CoStar Building Data, https://www.costar.com/

Day, Megan, Ma, Ookie, Oliveira, Ricardo, & Rosenlieb, Evan. City and County Commercial Building Inventories. United States. https://dx.doi.org/10.25984/1788089

Davis, Beth, Jan Harris, and Dan Violette. 2019. EE Market Transformation Summit Report. https://guidehouse.com/-/media/www/site/downloads/energy/2019/market-transformation-summit-report.pdf

Hart, Reid. 2013. End-Use Commercial Tables. Pacific Northwest National Laboratory, http://www.energycodes.gov/sites/default/files/documents/2013EndUseTables.zip

Illinois TRM Version 12.0 Volume 4, 2023, Cross-Cutting Measures and Attachments, p. 126-148.https://www.ilsag.info/wp-content/uploads/IL-TRM_Effective_010124_v12.0_Vol_4_X-Cutting_Measures_and_Attach_09222023_FINAL.pdf

NEEA. 2024. Standard Definitions. https://neea.org/definitions

PNNL, BCEP Status of Energy Code Adoption, Building Energy Codes Program, https://public.tableau.com/app/profile/doebecp/viz/BECPStatusofStateEnergyCodeAdoption/ResidentialStateEnergyIndex_1

United States Census Bureau, Building Permit Data, https://www.census.gov/construction/bps/index.html

Unite Stated Census Bureau, Characteristics of New Housing, https://www.census.gov/construction/chars/current.html