



Building Energy Stretch Codes and Building Performance Standards

February 2022

Midwest Energy Solutions

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Innovation





Accelerating climate solutions. For everyone.

We deliver research, technical assistance, financing, education and training, and programs for utilities and their customers.



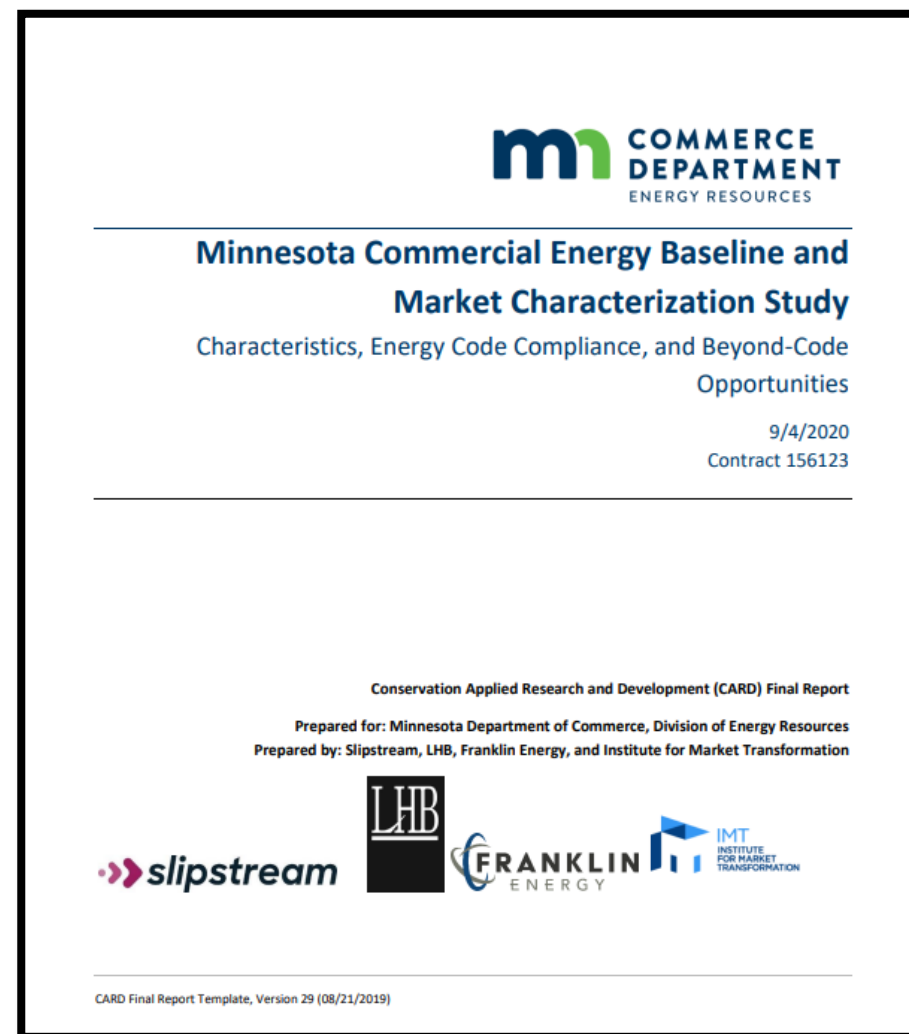
Overview of Today's Talk

- Building Energy Codes Background
- Stretch Codes in Illinois
- Utility Support for Stretch Codes



Recent Projects Around Building Energy Codes

- MN Conservation and Applied Research and Development Studies (CARD)
 - Commercial and Residential Baseline Studies (2020)
 - Codes and Standards Roadmap (2020)
- Department of Energy Studies – Low Rise Multifamily (2020) and Complex Codes (current)
- IL Stretch Codes / Building Performance Standards with MEEA (ongoing)



IL Stretch Codes and Building Performance Standards Project

Phase 0

- Review of energy codes and utility roles across the country

Phase 1

- Outreach to municipalities
- Understand the potential for building policies
- Estimate energy savings

Phase 2...

- Work with IL SAG Market Transformation working group
- Continued discussion with municipalities
- Statewide building energy code updates





Building energy codes & policies: Why they matter

Current Energy Codes and Processes

- Energy Codes are a **set of rules** that govern the energy use of a building through mandated building practices & components
- National Model Codes developed by International Code Council and ASHRAE
- Updated on a 3-year cycle
- States/municipalities adopt and enforce the code



**International Energy
Conservation Code**

STANDARD

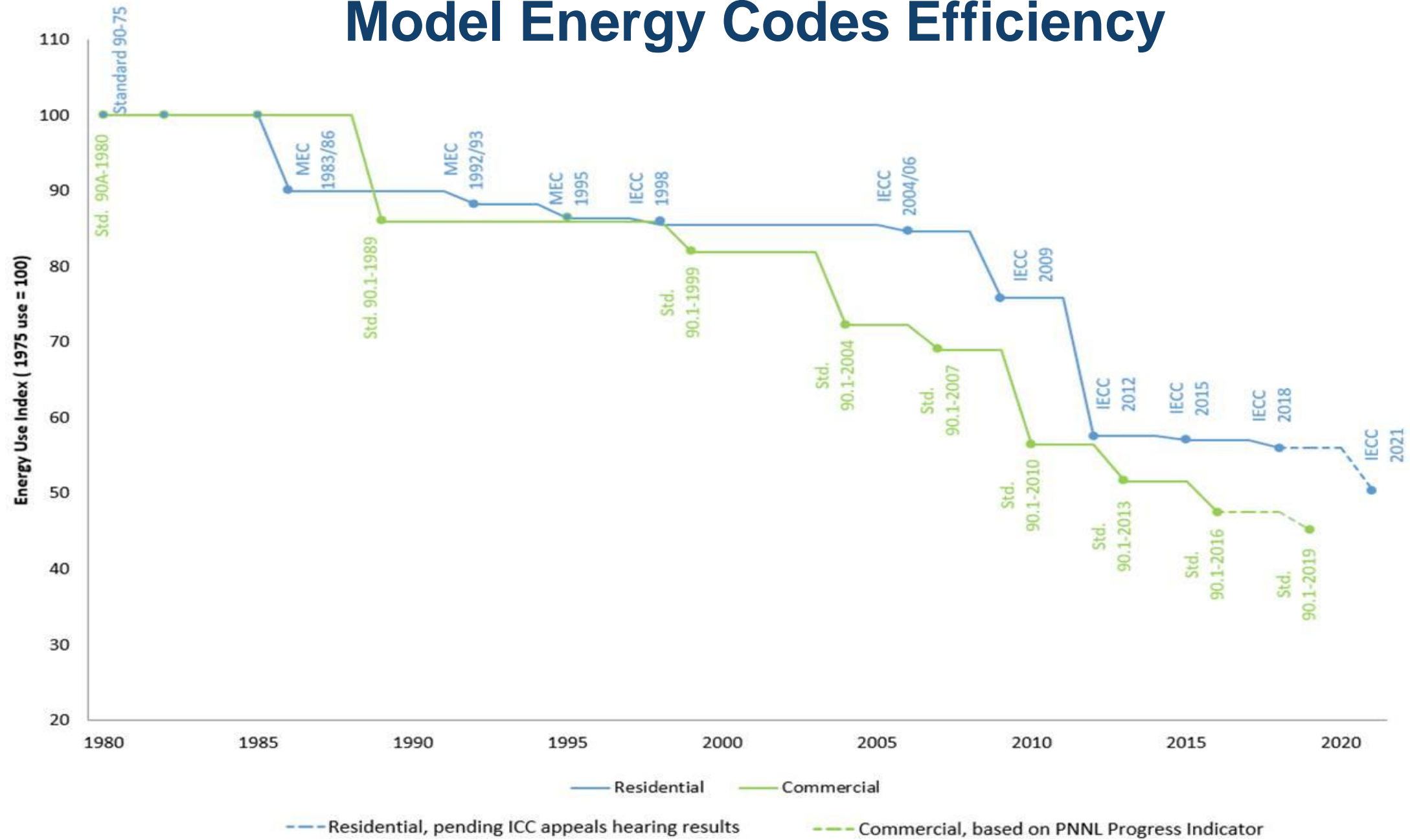
ANSI/ASHRAE/IES Standard 90.1-2019
(Supersedes ANSI/ASHRAE/IES Standard 90.1-2010)
Includes ANSI/ASHRAE/IES addenda listed in Appendix I

**Energy Standard
for Buildings
Except Low-Rise
Residential Buildings**

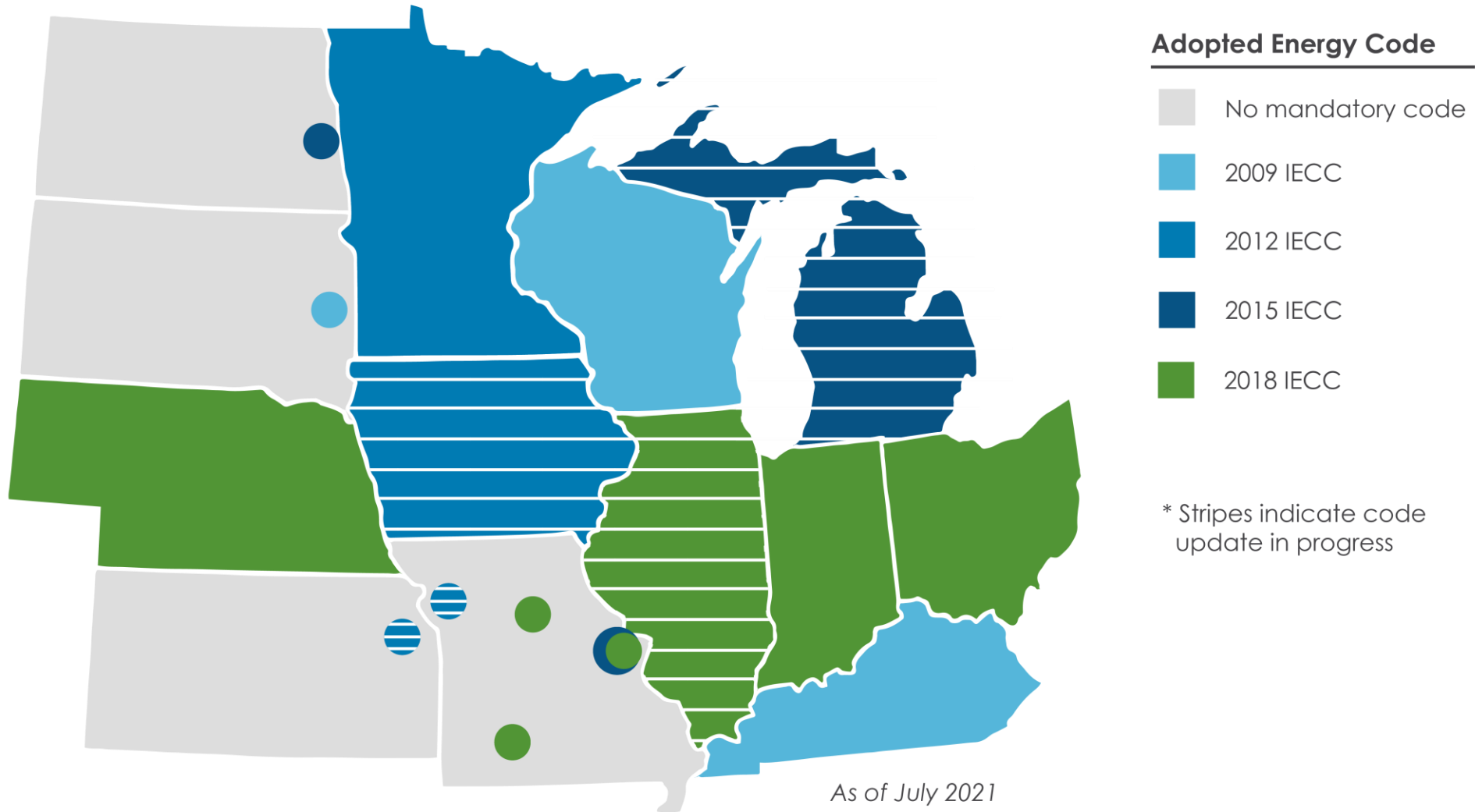
ASHRAE Standard 90.1



Model Energy Codes Efficiency



Adopted Codes in the Midwest - Residential



Adopted Codes in the Midwest - Commercial

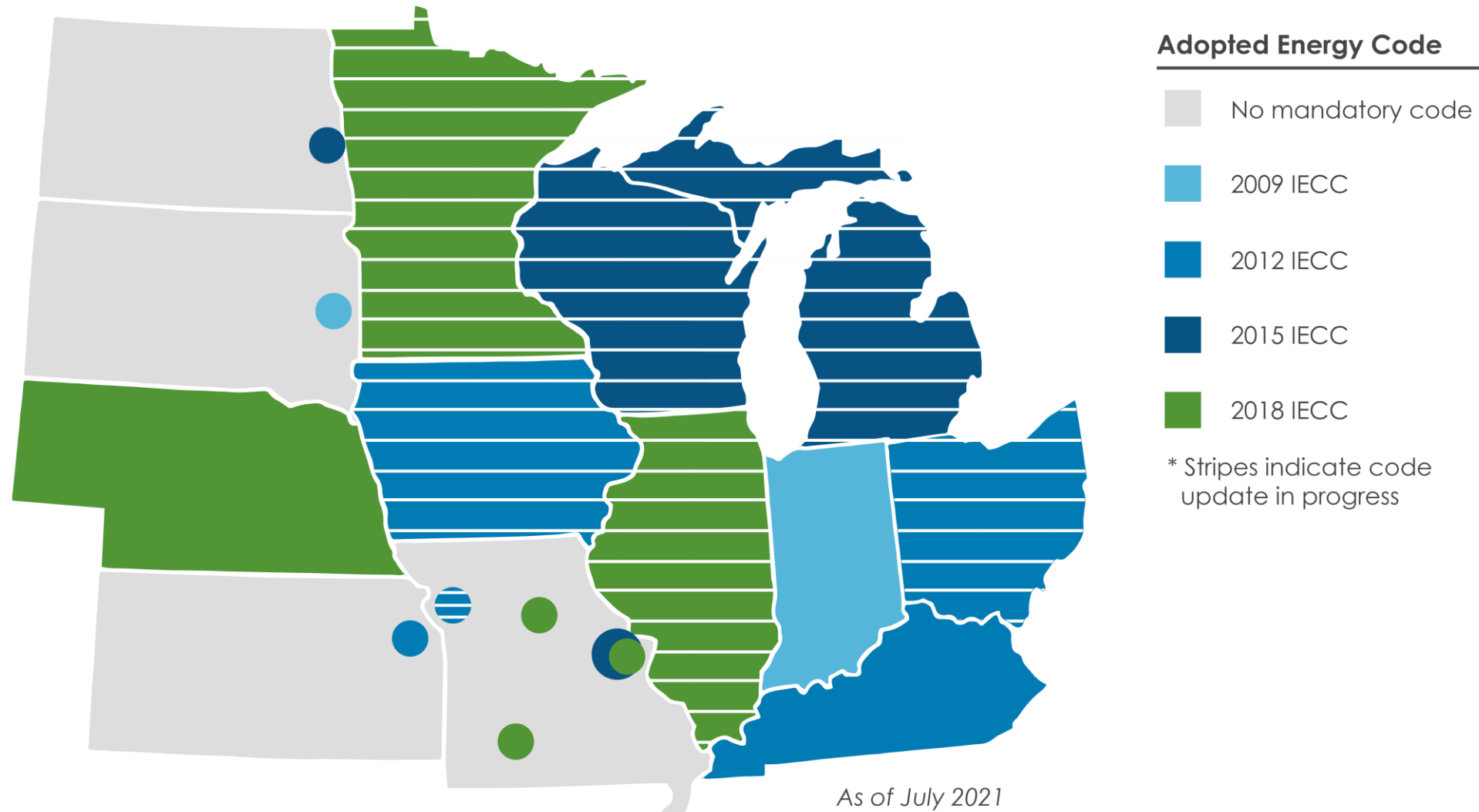


Image credit: Midwest Energy Efficiency Alliance



Typical Energy Code Compliance Challenges

Education and training

- General lack of awareness
- Increasing code complexity
- Steep learning curve of new codes

Resource constraints

- Limited staff time to devote to enforcement
- Limited time/budget to send staff to trainings
- Lower priority of city staff

Workforce constraints

- Retiring / aging workforce



Opportunities for Reaching Full Potential of the Energy Code

Support for...



Code officials in the plan review and inspection process

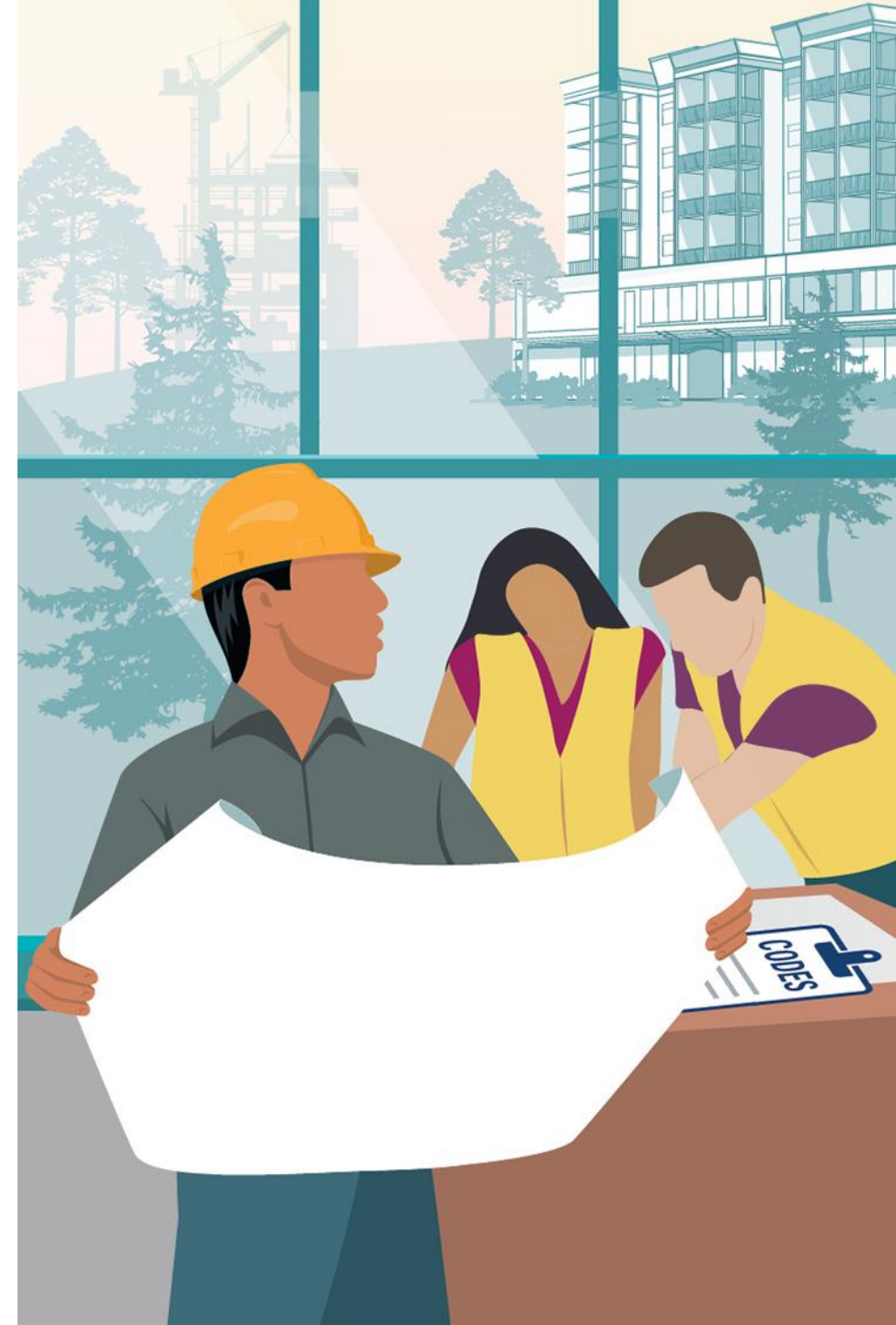
Design teams to improve understanding of code elements and documentation practices.

Controls documentation and commissioning to address low compliance with these measures

Stretch or Reach Codes

Provides **an alternative mandatory compliance path** that promotes energy efficiency beyond the available code options

- Gives municipalities a policy tool to **meet climate or energy goals**
- Help gain **market acceptance** of the adoption of more energy efficient codes in the future



Approaches to Stretch Code Development & Adoption



Legislatively mandated
or through normal
adoption process



Developed uniquely for
municipalities



Developed as part of (or
appendix to) the larger
state energy code



Developed in a
stakeholder process

Stretch Code Examples Across North America

Massachusetts

- First state to adopt an above-code policy through an appendix to state code in 2009
- Utility funded climate program

New York

- NYStretch Energy Code 2020- improves the state energy code efficiency by ~10%.
- Voluntary by local governments, written in enforceable language

Rhode Island

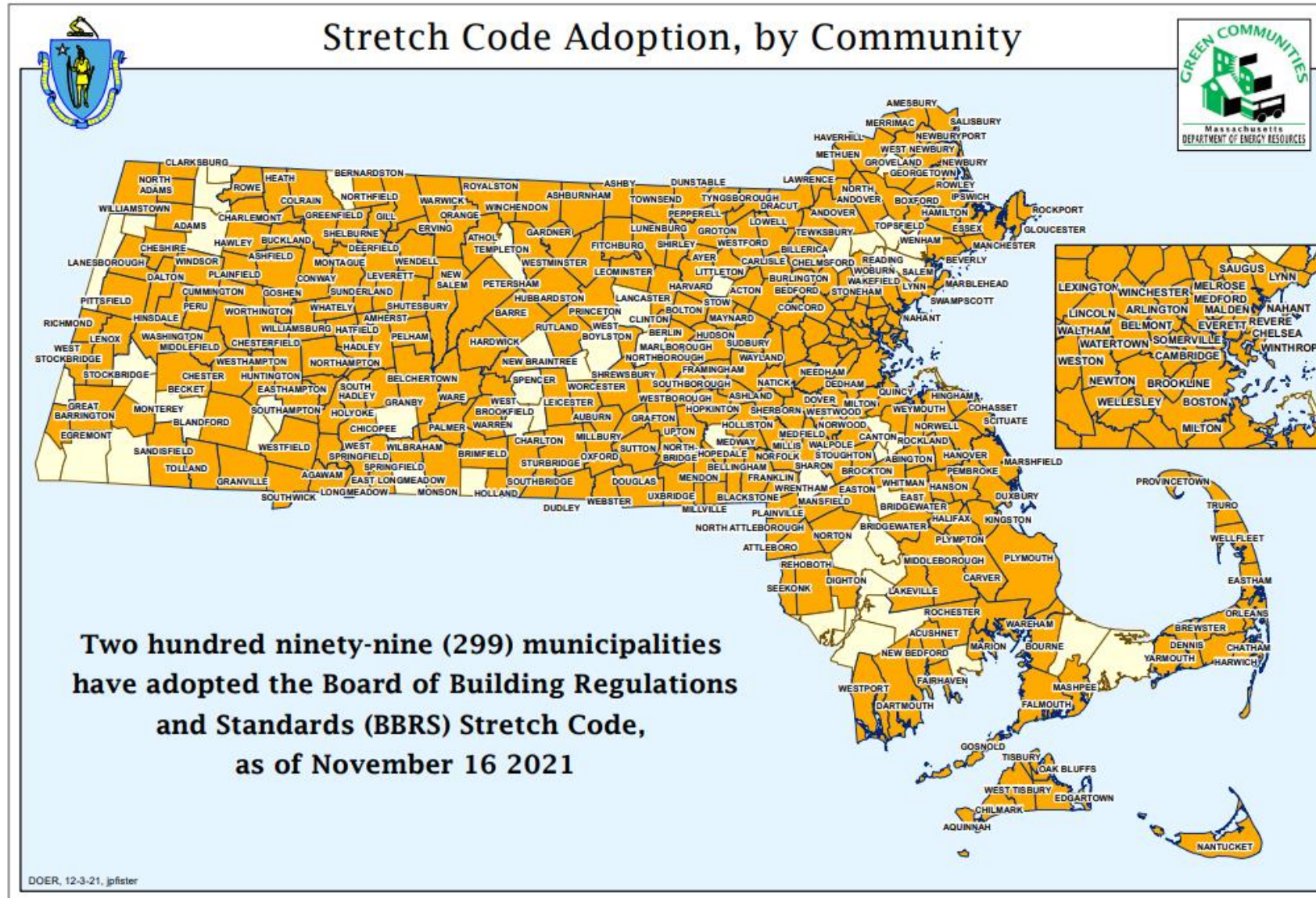
- Released in 2018, the state's first voluntary stretch codes were developed through engagement of subject matter experts.

British Columbia

- Published the BC Energy Step Code which moves new construction to zero energy by 2032



Massachusetts Stretch Codes



The background image shows a multi-story building under construction. The exterior walls are covered in white Tyvek sheathing, with the brand name 'Tyvek' and 'COMMERCE' visible in blue and black text. Several windows are visible, some with white frames and others as dark openings. A red scissor lift is positioned on the left side of the building. A large teal rectangle is overlaid in the center of the image, containing the title text.

Stretch Codes in Illinois

Climate and Equitable Jobs Act (CEJA) and Stretch Codes

- CEJA directs the Illinois Capital Development Board (CDB) to create a **residential and commercial stretch energy code** that can be adopted by individual municipalities.
- Stretch code must meet a set of specific **site energy index performance targets** that include “only conservation measures and excludes net energy credit for any on-site or off-site energy production.”
- More details here: <https://www.mwalliance.org/blog/creation-stretch-code-becomes-law-illinois>



Residential Targets

Single-family and low-rise multifamily buildings

Stretch Code Version	Implementation Date	Site Energy Index	Performance Targets	Code Created By
2024 Residential Stretch Code	December 31, 2023	0.50	At least 50% more efficient than 2006 IECC	Set by CDB by July 31, 2023
2026 Residential Stretch Code	December 31, 2025	0.40-0.42	At least 60% more efficient than 2006 IECC*	Set by CDB in 2025
2029 Residential Stretch Code	December 31, 2028	0.33 - 0.35	At least 67% more efficient than 2006 IECC**	Set by CDB in 2028
2032 Residential Stretch Code	December 31, 2031	0.25	At least 75% more efficient than 2006 IECC	Set by CDB in 2031

*If “unanticipated burdens” are associated with previous stretch code, new code must be at least 58% more efficient than 2006 IECC and at least 5% better than 2024 IECC

** If “unanticipated burdens” are associated with previous stretch code, new code must be at least 65% more efficient than 2006 IECC; and at least 5% better than 2027 IECC



Commercial Targets

Commercial buildings and multifamily buildings higher than 3 stories

Stretch Code Version	Implementation Date	Site Energy Index	Performance Targets	Code Created By
2024 Commercial Stretch Code	December 31, 2023	0.60	At least 40% more efficient than 2006 IECC	Set by CDB by July 31, 2023
2026 Commercial Stretch Code	December 31, 2025	0.50	At least 50% more efficient than 2006 IECC	Set by CDB in 2025
2029 Commercial Stretch Code	December 31, 2028	0.44	At least 56% more efficient than 2006 IECC	Set by CDB in 2028
2032 Commercial Stretch Code	December 31, 2031	0.39	At least 61% more efficient than 2006 IECC	Set by CDB in 2031

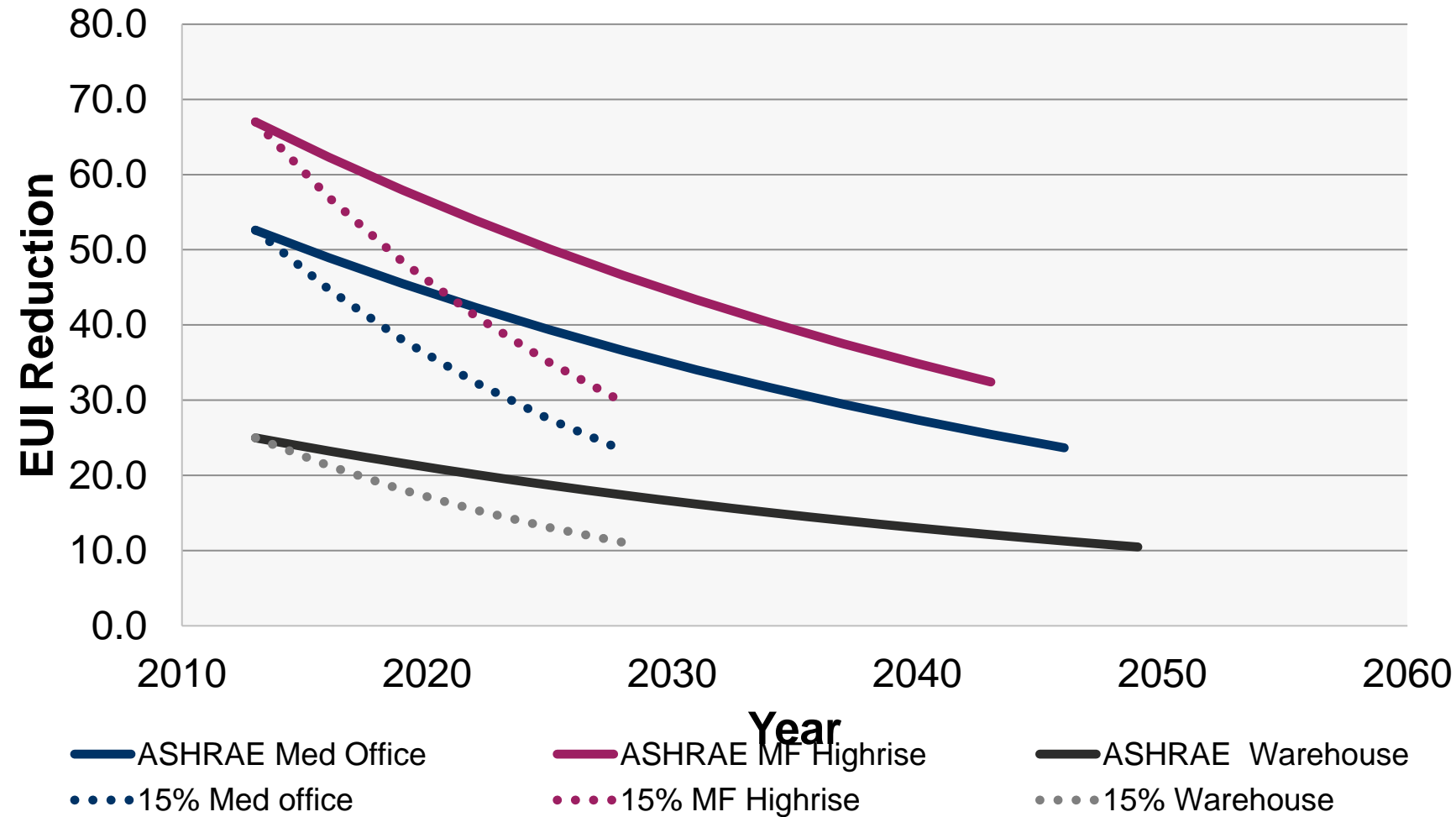


What's next for CEJA and Stretch Codes?

- The CDB must expand the Advisory Committee to include representatives that represent:
 - A group that represents environmental justice
 - A nonprofit that advocates for the environment
 - Technical expertise in single-family residential buildings
 - Technical expertise in commercial buildings
 - Technical expertise in multifamily buildings, such as an affordable housing developer.
- Recommendations for elements and requirements of the stretch code must be completed by **July 31, 2023**, with final language available for adoption by **December 31, 2023**.



Savings potential – stretch code pathways





Programs to support building policies

Utility Involvement in Stretch Codes and Building Policies

1

Support to help **advance building policies** at state or municipal level

2

Support to **increase compliance** for codes (base or stretch)



Who Benefits from Stretch Codes and Utility Support

Municipality / policy maker

- Can access the technical resources, tools, and program implementation to ensure good policy-making

Design/ Construction Industry

- Provides clear guidance on what is expected
- Training opportunities to understand more complex codes

Enforcement / Codes Officials

- Relieves staffing constraints for review of plans
- Provides targeted training

Utilities

- Help meet their energy savings and spending goals
- Potential for positive customer interaction



Potential Utility Program Elements

Building code officials

- Compliance guidance
- Targeted training and education
- Circuit rider to review plans
- Energy code compliance collaborative

Design / construction community

- Design / construction technical guidance
- Targeted training and education
- Incentives for meeting design requirements
- Energy code compliance collaborative

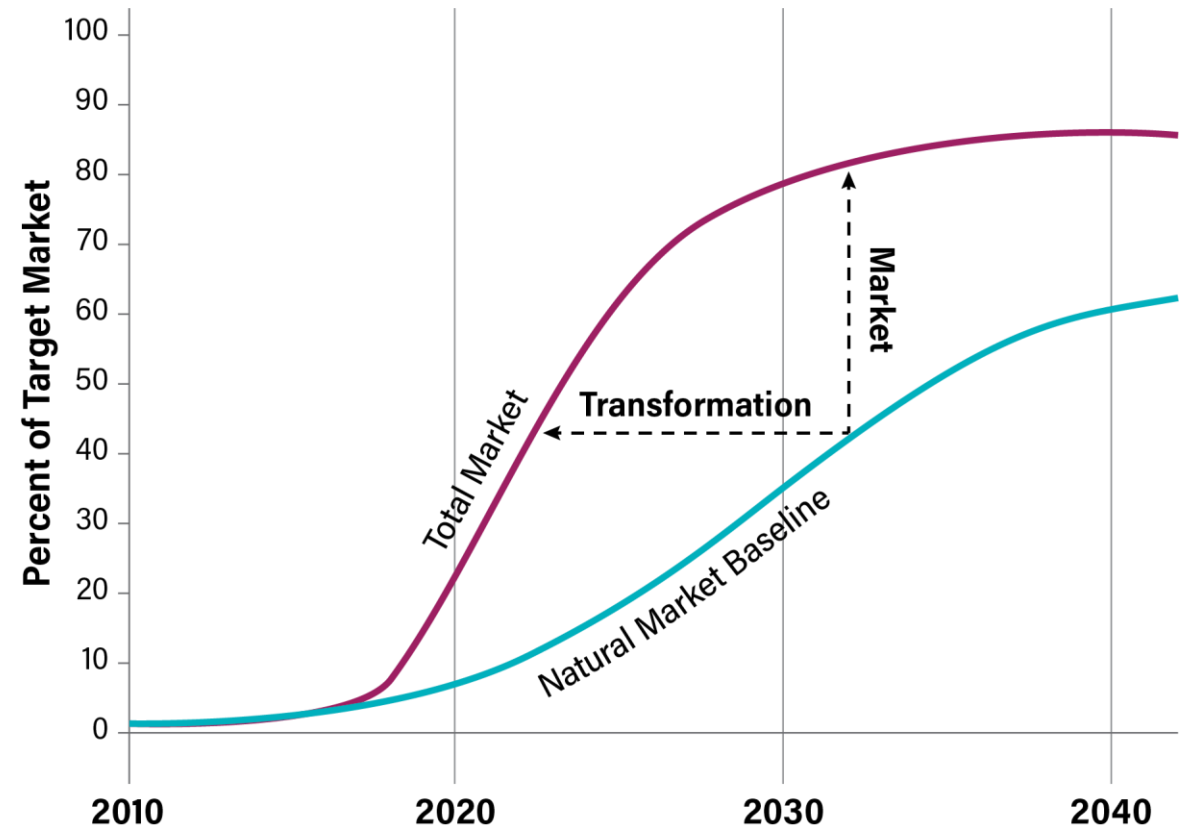
Jurisdiction / Policy Making

- Assistance with stretch code adoption or advancement
- Energy code compliance collaborative



Stretch Codes and Evaluation

- Working with IL Stakeholder Advisory Group Market Transformation Working Group
- Identify best ways to evaluate a Market Transformation program
 - Natural Market Baseline – what would have happened if the policy wasn't in place?
 - Attribution – what role did utilities have on the market?



Summary

- Building energy codes can be a very effective policy tool
- The energy savings can be significant if complied with
- Utilities can help meet the challenges that typically hinder advancement of policies





Questions?



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