The North Star Framework for Replicable Energy Code Advancement

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ABSTRACT

In 2023, the Minnesota State Legislature adopted one of the nation's most ambitious energy efficiency goals for energy codes. Specifically, Minnesota set a goal for its commercial energy code to achieve an 80% reduction in energy use relative to an ASHRAE 90.1-2004 baseline by 2036 and a 70% reduction relative to a 2006 IECC baseline by 2038 (Minnesota Statutes 2024, § 326B.106).

To support these goals, the Minnesota Advanced Energy Code Partnership (the Partnership) was established, bringing together two state agencies, three nationwide consulting firms, a local university group, and a local nonprofit organization. Early on, this team identified foundational components critical to success, including a robust technical approach, strong local stakeholder engagement, national collaboration, compliance support, and compliance resource development.

From defining a robust strategy for advancing the commercial and residential energy codes to developing specific amendments that put the state on the path to meet its goals, the Partnership has demonstrated the effectiveness of a structured, multi-faceted approach to code advancement. Through this process, the Partnership's proposals have received broad support and have progressed through the code development process largely uncontested, an unprecedented outcome in Minnesota.

This paper outlines the framework underpinning this success by examining the key components of effective code advancement, how they interact, and how jurisdictions can respond when one or more components are absent or at risk. By sharing the Partnership's replicable structure, tested process, and lessons learned, this work aims to equip other jurisdictions with actionable strategies to accelerate their own code advancement efforts.

Introduction

Why Energy Codes Matter

In 2023, the combined end-use energy consumption by residential and commercial buildings in the U.S. accounted for about 27.6% of all U.S. end-use energy consumption (EIA n.d.). With worldwide energy consumption at an all-time high (IEA 2025), efforts to reduce energy consumption are intensifying. In the building sector, design and construction decisions lock in a building's energy use, operating costs, and greenhouse gas emissions for decades, making the time of construction a pivotal moment for long-term energy outcomes. Energy codes offer a practical, scalable policy lever for state governments to influence these outcomes at scale. By improving the efficiency of new construction buildings through energy codes, states can cost-

effectively reduce future energy consumption while lowering homeowner's and building owner's bills, increasing resiliency, and improving comfort within the buildings (DOE n.d.).

The Need for a Structured Framework

Increasing the stringency of energy codes without causing negative market impacts requires a coordinated set of programmatic elements. These elements serve as the structural pillars of effective code advancement.

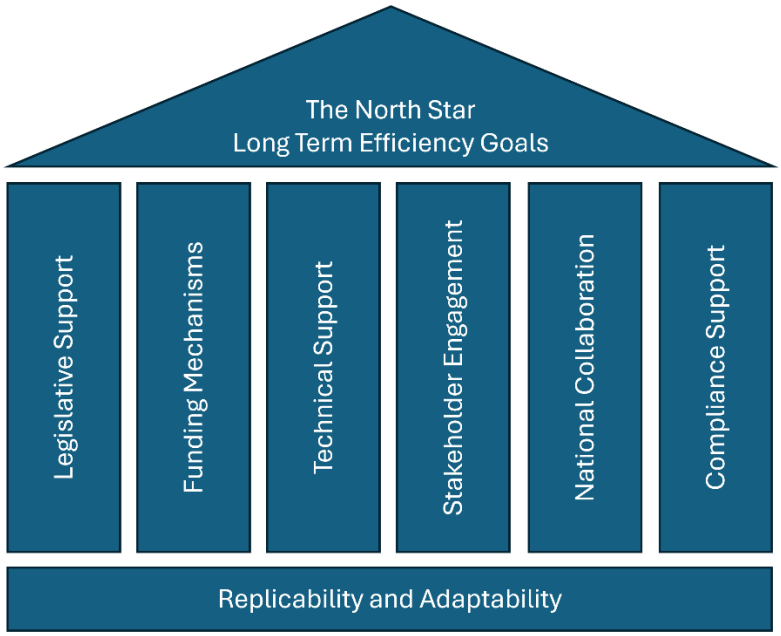

Figure 1. The North Star Framework

Figure 1 illustrates the North Star Framework, which organizes the essential components of effective energy code advancement into a multi-pillar structure. The following sections explore each pillar in detail, drawing on Minnesota's experience to illustrate implementation and highlighting how other jurisdictions can adapt the framework.

The North Star Framework in Action

Legislative Support

While energy codes are typically updated through a regulatory process, legislative action can strengthen code advancement by establishing authority, direction and accountability. Legislation can set efficiency goals, define timelines, clarify agency responsibilities and ensure continuity across administrative and political transitions. These directives often increase market predictability and align energy codes with broader state priorities, including housing affordability and climate goals. While legislation should not replace technical code development, it can provide a strong foundation for ongoing, responsible code advancement.

In 2023 and 2024, Minnesota enacted legislation to significantly increase the stringency of commercial and residential energy codes in support of broader statewide climate goals (Minnesota Statutes 2024, § 326B.106). The legislation requires that each new model code be evaluated, ultimately adopting an equivalent or more efficient code. While most Minnesota codes have followed a six-year update cycle, this legislation shifts energy codes to the three-year model code cycle, accelerating progress. Minnesota statutes also require the state commercial energy code to achieve an 80% reduction in annual net energy consumption or greater, using the ASHRAE 90.1-2004 as a baseline, by 2036. On the residential side, the state must achieve a 70% reduction in annual net energy consumption or greater, using the 2006 International Energy Conservation Code (IECC) State Level Residential Codes Energy Use Index for Minnesota, as published by the United States Department of Energy's Building Energy Codes Program, as a baseline.

Statutory Targets as a Catalyst

Statutory efficiency targets not only support code changes, but they also shift the code development conversation. Minnesota's code development process typically consists of a review of the updated model code, focusing on changes from the current Minnesota code and discussion around the state level applicability and feasibility. The process also includes evaluation of individually drafted code change proposals, which can be brought forward by any member of the public and often address individual or organizational goals or concerns or procedural challenges with the existing code. Some past examples include a proposal to reduce allowable air leakage rates in residential construction, brought forward jointly by PHIUS and Passive House Minnesota, or the removal of a requirement for heat recovery or energy recovery ventilation systems in Climate Zones 7 and 8, brought forward by a mechanical contractor as an undue cost (Minnesota Department of Labor and Industry 2021). Each proposal is evaluated individually by the Technical Advisory Group (TAG) and either recommended for rulemaking or denied.

Shifting to a code development environment where efficiency targets are defined encourages stakeholders to set intermediate goals and to evaluate packages of measures, trade-offs, and phased approaches rather than isolated technical provisions. Efficiency targets can also encourage the use of feasibility studies where pathways to achieve the goal are identified, including combinations of measures that collectively meet the target levels while considering market conditions, building science principles, and affordability. With conversations anchored in a common target, the code development process becomes a coordinated strategy for long-term performance improvement.

With three to four code cycles between Minnesota's adoption of efficiency statutes and the target years, the Partnership defined interim goals for each of the code cycles in which more significant efficiency gains are made in the initial cycles and taper off in the remaining cycles. This approach recognizes the increasing challenge in improving efficiency as the targets approach and seeks to balance the effort across each cycle for the code development cohort. These goals are reflected in Table 1. Other approaches could include equal energy use intensity (EUI) reduction each cycle or equal percentage improvement each cycle.

Table 1. Minnesota commercial energy code incremental goals

MN In Effect Year (actual or projected)		2024	2028	2030	2033	2036
ASHRAE Model Code	ASHRAE 90.1-2004	ASHRAE 90.1-2019	ASHRAE 90.1-2022	ASHRAE 90.1-2025	ASHRAE 90.1-2028	ASHRAE 90.1-2031
MN EUI (actual or target)	1.00	0.630	0.491	0.390	0.250	0.200
Target % better than ASHRAE 90.1-2004			46.4%	61%	75%	80%

Advancing Codes Without Legislation

Although legislative action is a powerful tool, code advancement can proceed without it. States can align energy codes with broader objectives such as utility capacity planning, housing affordability, and climate commitments. Efficiency improvements can reduce peak demand, defer infrastructure investments, and stabilize long-term costs, positioning energy codes as cost-effective load management tools. Furthermore, energy efficiency supports housing affordability by reducing energy costs for households. Finally, energy codes represent a direct, state-controlled mechanism for advancing climate goals. While Minnesota benefits from strong legislative direction, the underlying approach is replicable if states anchor code advancement in shared objectives and predictable, incremental progress, even when lacking clear statutory mandates.

Funding Mechanisms

Sustained funding is essential for effective energy code advancement, regardless of legislative context. Core activities — data collection, technical analysis, stakeholder engagement — are resource-intensive and ongoing, requiring continuous updates to reflect evolving markets, technologies, and building practices. There are several approaches to securing ongoing funding for this work.

Minnesota's Utility-Driven Funding Model

In Minnesota, a code advancement program is funded by Minnesota's Efficient Technology Accelerator (ETA). ETA is a statewide market transformation program that accelerates deployment and reduces the cost of emerging and efficient innovative technologies. ETA is funded by the state's investor-owned utilities, administered by the Minnesota Department of Commerce, Division of Energy Resources, and implemented by Center for Energy and Environment (CEE) (ETA n.d.). The ETA program supports progress toward utilities' energy-saving goals established by the Minnesota Energy Conservation and Optimization (ECO) Act (ECO Act 2021; Minnesota Department of Commerce 2023). Utility-based funding is an

effective method for ensuring stable, sustained program funding, but relies on realizing energy savings to justify ratepayer funding. Therefore, it is critical that a utility-funded program has an effective evaluation and attribution framework to ensure savings are captured accurately.

While Minnesota's framework around energy savings evaluation is used to support a utility program, the concept of demonstrating energy savings to justify funding can be broadly applied. In Minnesota, the ETA program uses modeled savings from projected code amendments to calculate program savings. This value is then derated by a compliance factor, which is anticipated to increase the longer a specific code is in effect. The statewide annual savings potential calculated using this approach is shown in Table 2 (Center for Energy and Environment 2023).

Table 2. Statewide annual savings potential from codes advancement (first-year savings)

	Electric (MWh)	Gas (Dth)	Combined (Net MMBtu)
Commercial Code Advancement	33,593	224,672	339,292
Residential Code Advancement	32,050	182,600	291,963
Total codes annual gross savings (first year)	65,643	407,272	631,255
Total annual first savings (derated by compliance factor)	42,745	266,830	412,682

When demonstrating the value gained from an investment in advancing energy codes, it is also critical to clearly show how and where the efforts of the initiative impact the resulting energy codes. Minnesota's ETA program approached this through a logic model process, which involves carefully documenting market barriers and opportunities, identifying activities to leverage opportunities and overcome barriers, and describing intended market outcomes, which ultimately lead to energy savings. An example of the logic model output in Minnesota's code advancement initiative is illustrated in Figure 2. The logic model serves as a guiding document for the program and is used to check that specific market activities align with the intended plan. To understand the initiative's progress, additional outputs and market progress indicators (MPIs) are tracked over time to indicate whether the initiative is achieving or progressing toward intended outcomes.

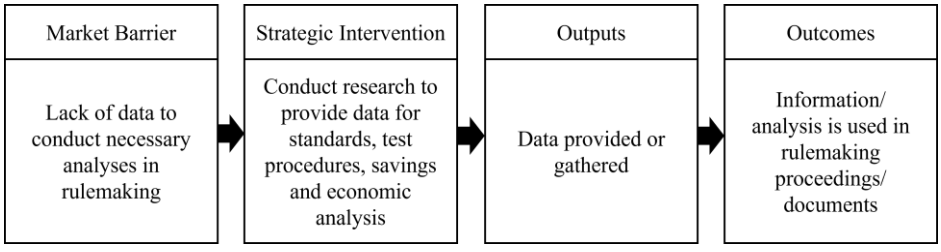

Figure 2. Example of codes initiative logic model

Alternative Funding Pathways

While Minnesota's utility-driven model has proven effective, other codes and standards programs use a range of funding approaches to support sustained code advancement. Federal funding is commonly used to support technical assistance, modeling, and research across states. Regional Energy Efficiency Organizations (REEOs), including the Midwest Energy Efficiency Alliance (MEEA), Northwest Energy Efficiency Alliance (NEEA), Southeast Energy Efficiency Alliance (SEEA), Northeast Energy Efficiency Partnerships (NEEP), and more, coordinate multi-state code advancement efforts and use blended funding models that combine federal support with membership contributions. Nonprofit organizations such as American Council for an Energy-Efficient Economy (ACEEE) and Rocky Mountain Institute (RMI) often support analysis and policy development through philanthropic grants, corporate support, and project-based funding. National laboratories and research institutions, including Pacific Northwest National Laboratory (PNNL), also play a significant role, typically funded through federal contracts. While funding is essential for an effective codes and standards program, numerous proven pathways, as shown here, exist to obtain it. Funding should, therefore, be considered an obstacle that can be successfully overcome rather than a barrier to progress.

Technical Support

Advancing building energy codes requires significant technical support. While targets and dedicated funding can set the stage for progress, meaningful advancement depends on credible, transparent analysis and practical validation. Bridging the gap between building science, market readiness, construction practices, and economic impact, technical support ensures any advancements brought forward are practical and reasonable. With decisions rooted in data rather than assumption or anecdote, energy efficiency efforts move from intent to action by increasing stakeholder confidence, supporting legislation, and ensuring that energy efficiency efforts produce beneficial long-term outcomes.

Energy Modeling

Energy modeling serves numerous functions in code advancement, from calculating overall energy efficiency values like site or source energy use intensity to gauging the impact of individual advancements. Both applications are critical as they help align with funders, ensure critical MPIs are being met, and confirm proposed measures are achieving desired outcomes. Modeling also supports the evaluation of cost assessments, including incremental costs and lifecycle cost-effectiveness.

While having energy modeling capabilities is a tremendous asset to a code advancement initiative, many programs find success without that capability in-house. In fact, it is common for jurisdictions to successfully leverage external technical partners, contract-based support, and existing datasets to supplement internal resources.

For commercial code development in Minnesota, the Partnership identified a potential package of amendments to ASHRAE 90.1-2022 through literature reviews, stakeholder engagement, and market research. The team then worked with PNNL to run a model of the overall site EUI impact of that package. This analysis broke down the impact to the building prototype level, but the team needed an approximation of the energy savings associated with

each potential measure to support their adoption through Minnesota's TAG process. To do that, the team worked with West Monroe (formerly 2050 Partners) to calculate energy savings at the measure level. While acknowledging that interactions can play a significant role in energy savings, this analysis provided a sufficient approximation of energy savings to demonstrate the impact of each measure. The results of this analysis are shown in Figure 3. A notable insight was that the initial daylighting measure that was proposed would not provide energy savings in Minnesota as expected, and the decision was made to not bring the proposal forward.

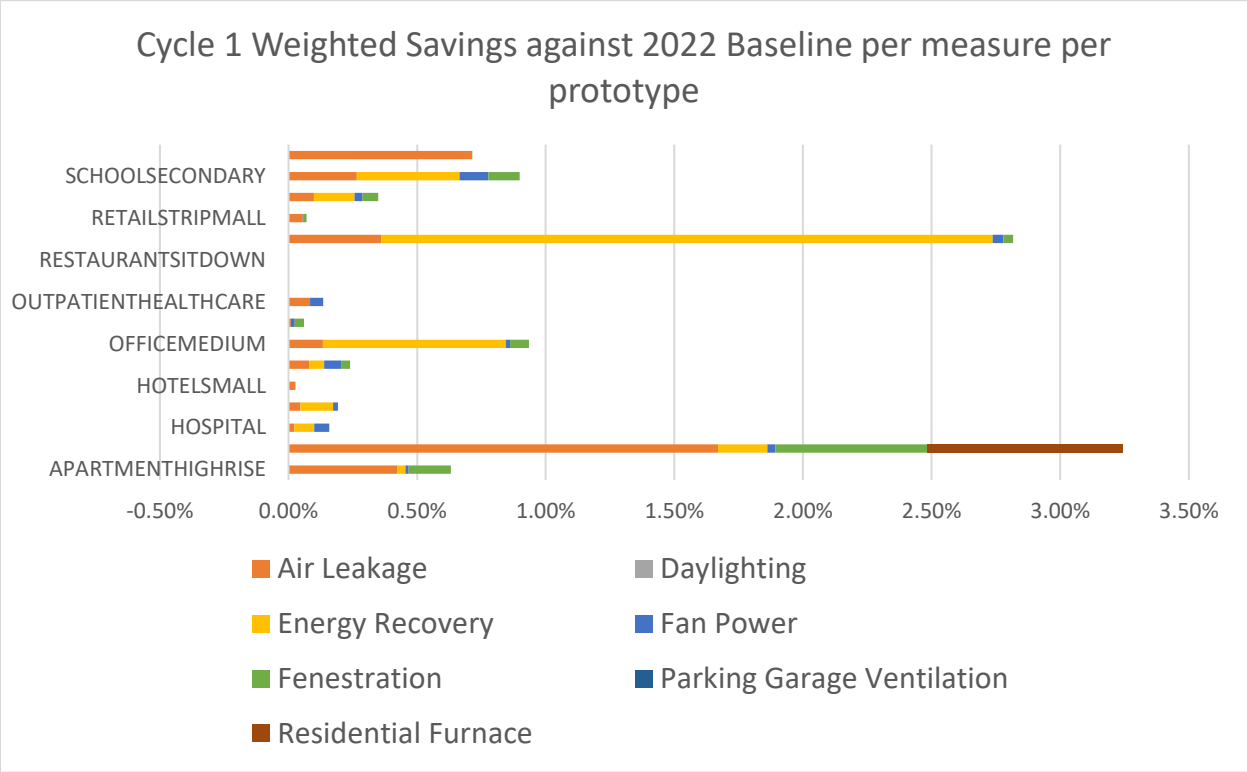

Figure 3. Minnesota measure-level energy savings approximation

This modeling analysis enabled the Partnership to focus on a small number of high-impact code change amendments to support energy efficiency goals while minimizing complexity.

Assessing Market Readiness

When building a package of code amendments, energy savings potential must be balanced with an evaluation of practicality. This includes an evaluation of the market readiness and cost-effectiveness of each proposed measure or approach. A market-readiness assessment considers product availability, constructability, workforce capacity, supply chain stability, and current market practices. Through this evaluation, teams can determine if proposed measures can be delivered at scale in the current market. By understanding current market trends, adoption patterns and above-code construction practices, decisions can be made to modify, phase, or defer a measure based on current market practices. The team may also determine whether market

intervention strategies, such as training or providing technical assistance, could be used to better prepare the market for implementation.

One measure brought forward in Minnesota was a trade-off proposal for multifamily apartments stating, "Where individual gas furnaces are used, the user can choose a furnace with efficiency not less than 93 AFUE or improvements to the envelope and exhaust air energy recovery." When originally drafting this proposal, the Partnership proposed an efficiency level of 95 AFUE or higher. Through stakeholder engagement and market research, the team came to understand that a common furnace used in Minnesota's multifamily construction had efficiency ratings just below that level. A moderate adjustment to the proposal ensured the market could provide and install products meeting the proposed requirements.

Cost-Effectiveness

For each proposed code advancement measure, cost-effectiveness must be considered to ensure the change is viable. While increasing efficiency to the levels aspired may ultimately have a cost associated with them, the Partnership brings forward the lowest-cost proposals with the greatest energy-savings potential. Unfortunately, reliable and comprehensive cost data can be difficult to find, which is why a multitiered approach is critical to code advancement.

While it is not always possible to collect perfect cost data, the Partnership has found success in a few different approaches to cost-effectiveness analyses. The first is working with external partners, such as Pacific Northwest National Laboratory (PNNL) to provide custom cost analyses. Although they cannot fulfill all requests, valuable informal guidance may be provided in circumstances where they are unable to fulfill the request. A second approach is through national databases, such as RSMeans, a nationally recognized and respected source of information that is widely used for government contracts and cost validation. Access to these databases is often fee based and not inclusive of all products or situations but can be valuable when the needs align with the data provided. Cost data can also come from model code appendices or addenda, above-code programs or stretch codes, or California's Title 24 Part 6 Codes and Standards Enhancement (CASE) Initiative Reports. While the cost reports may reflect regional differences, they can be a strong datapoint. Finally, the Partnership used stakeholder discussions to provide cost data as needed. Stakeholders may be willing to share data from recent projects or quotes to support cost-effectiveness analyses.

The Partnership experienced the impact of cost-effectiveness analyses when considering ASHRAE 90.1 Table 6.5.6.1.2-1, which dictates energy recovery ventilator (ERV) applicability and which was noted to be outdated and due for reevaluation (ASHRAE 90.1-2022 Section 6.5.6.1.2, Table 6.5.6.1.2-1). The team originally proposed extending ERV requirements from Climate Zone 7 to Climate Zone 6 which would cover the whole state of Minnesota. However, numerous stakeholders voiced concern about the cost effectiveness of this proposal, leading to additional analysis conducted by West Monroe (formerly 2050 Partners). Ultimately, the analysis found that applying Climate Zone 7 ERV applicability to single-zone systems would be a cost-effective approach. However, the results from modeling the multi-zone variable air volume (VAV) systems with lower design outdoor airflow were less clear. In response to this information, the team added an exception for VAV systems, but kept the Climate Zone 6A ERV

applicability requirements for single-zone systems, which matched the Climate Zone 7 levels to all other systems. This analysis also revealed that PNNL's default frost-control method significantly underestimates ERV savings in Minnesota's climate. After raising this issue, PNNL acknowledged the gap and is working to improve future versions of the model, highlighting the ways in which local analysis can support nationwide change (Landry 2025).

Stakeholder Engagement

Building energy codes influence a broad and interconnected set of market actors, and it is crucial to engage these stakeholders in the code development process. Stakeholders include industry participants, such as building designers, builders, suppliers, manufacturers, and raters, as well as utility, state agencies, regulators, and policymakers. Throughout the code development process, stakeholder engagement plays an evolving but consistently important role. From model code review to amendment development; through implementation and compliance, stakeholder engagement sets the direction of the code and ensures proposed updates reflect market realities and consider full impacts across the building ecosystem. Authentic engagement combined with rigorous technical analyses builds credibility in the process and the team, while also supporting long-term success by reducing the likelihood of implementation barriers. Engaging a diverse set of stakeholders early and often strengthens code development process and ensures durability.

Strategies for Effective Engagement

Accounting for the significant benefits of engaging with each of these stakeholders and the challenges in doing so, the Partnership has identified key strategies for effective engagement.

Building the Partnership team

The Partnership was formed to meet the technical needs of code advancement efforts while providing broad perspectives and engagements. The Partnership, led by CEE, is composed of:

- The Minnesota Department of Labor and Industry, responsible for code development and enforcement
- The Minnesota Department of Commerce, responsible for existing buildings
- The University of Minnesota Center for Sustainable Building Research, a strong advocate for advanced energy code policy and the administrator of the Sustainable Building 2030 program, a Minnesota-based program that sets progressive, performance-based energy and carbon reduction targets for new and substantially renovated commercial, institutional and industrial buildings
- West Monroe (formerly 2050 Partners), a technical consultant that supports numerous states and the national code development program
- NORESCO, a technical consultant with experience implementing compliance support strategies in several leading states in the U.S. including California, Colorado, New York, and Massachusetts
- GARD Analytics, a technical consultant with building energy modeling, energy analysis, and energy code development capabilities
- Pacific Northwest National Laboratories (PNNL), who provided technical support

By starting with a strong team of external partners in addition to internal program leadership and technical expertise, the Partnership was able to meet the immediate needs of Minnesota by drafting and supporting code change proposals for the residential and commercial energy codes that meet the state's requirements and goals. Minnesota's experience shows that assembling a multidisciplinary team early creates the foundation for a replicable, well-supported advancement process.

Stakeholder profile matrix

There are many stakeholders who have an interest in or impact on code advancement, so it is important to understand key information about each group. This information can be used to prioritize engagement, tailor communication, and address potential concerns. Table 3 is a non-exhaustive list of key stakeholders for code advancement.

Table 3. Stakeholder profile matrix

Stakeholder Group	Who are they?	Why do they care about code development?	How can they support code advancement?	Challenges with engagement
Industry Professionals	Architects, engineers, builders, contractors, raters, suppliers, manufacturers, and trade associations	Directly impacted by changes in the energy code	Provide feedback on product availability, constructability challenges, and potential unintended consequences Share previous challenges with energy code compliance Identify areas of the code lacking clarity Propose potential advancement measures based on work experience	Perception of energy code as a regulatory burden Resistance to change Perception that energy code changes equate to higher costs, additional paperwork, and increased risk Tight construction timelines are not conducive with engagement

Utilities	Regulated electric and natural gas providers	May provide funding Future usage projections can be significantly impacted by the energy code Energy codes support system planning efforts	Provide programmatic data for analysis Provide funding Provide technical support Support stakeholder engagement	Code advancement may compete with other utility programs Regulatory constraints Risk aversion Concerns about public perception
Regulatory Bodies	Government entities that oversee, approve, or constrain the code development process and/or utility spending	May oversee utility spending Oversee the adoption of energy codes and enforcement frameworks	Support utility funding framework Provide opportunities for public engagement Facilitate a code development process with sufficient focus and rigor Provide compliance support	Influenced by a wide variety of stakeholders Bound by regulatory processes
Plan Reviewers and Building Inspectors	Local code officials responsible for ensuring buildings are designed and constructed in compliance with adopted codes	Defines the work they are responsible for enforcing	Identify enforcement challenges Provide field-based feedback Support compliance resources	Limited time Risk aversion Perception of added workload

Transparency

Since modeling, cost projections, and savings estimates can impact decision-making, openly sharing assumptions, data sources, methodologies, and outputs is critical to building

credibility and fostering collaboration. Providing iterative analyses and acknowledging uncertainties where they exist fosters conversation rather than debate. These conversations are valuable in identifying errors or oversights, identifying areas needing further exploration, and building mutually respectful conversations.

The Partnership experienced the value of transparency when bringing forward a residential proposal to reduce maximum energy rating index (ERI) values in Climate Zones 6 and 7 to better align with the prescriptive pathway. While the proposal was initially met with significant skepticism from TAG members, it gained support after numerous rounds of modeling, for which all assumptions and inputs were shared, along with market data from RESNET, which sources information from commonly used rating platforms. This level of transparency and collaboration addressed critical questions from stakeholders before asking for their support for the proposal.

Relationships are built and strengthened by sharing iterative efforts, seeking opportunities to understand and meet needs, and demonstrating active listening by being responsive to feedback and critique. When stakeholders see that their input can shape outcomes, trust increases and resistance shifts toward constructive problem-solving. Over time, collaboration can imbue a sense of shared ownership to the process and sets the stage for successful adoption and implementation of advanced codes.

Capacity constraints

Finally, with many impacted parties within the code development process, there are very real capacity limitations that must be strategically addressed, for both the code advancement team and the stakeholders they want to engage. To combat this, the team must thoughtfully prioritize interactions based on impact and influence. While this may mean engaging with fewer stakeholders, it allows the conversations to be meaningful and productive. Teams must also ensure that all time spent together is valuable by structuring discussions to be focused and efficient. Strategies to accomplish this include providing analysis documents ahead of time, creating clear, focused agendas for each meeting, and reliably following up as needed. One strategy the Partnership has used is layering conversations. For example, the Partnership has provided training on the current code to firms who have reached out with that need and, in the same discussion, incorporated some of our code advancement work in those trainings to start that conversation.

By clearly identifying the value of engaging with each stakeholder type while also recognizing the potential challenges, teams can define an effective strategy for engagement. While team capacity may influence the extent of stakeholder engagement that is practical, the team can ensure that the quality of engagement is high through transparency, collaboration, and intentional discussions.

National Engagement

While stakeholder engagement focuses on building relationships and influencing the local code development process, national engagement provides expanded capacity and shared infrastructure. National engagement happens through collaboratives, such as ACEEE, Regional Energy Efficiency Organizations (REEOs), other nonprofit organizations or consultants supporting these efforts or above code or stretch code programs. These groups often provide

technical expertise and coordination around energy codes that we have noted is critical to the success of individual jurisdictions and can often be applied more broadly.

The Partnership has realized three key benefits from national engagement. The first of these is the benefit of casual collaboration. When participating in events such as MEEA's annual Codes Conference, relationships are built over lunch, social hours and hallway conversations following insightful presentations. The Partnership has found these conversations to be enlightening in not only the content provided in the moment, such as a stretch code to explore or a challenge to understand, but also in follow up conversations that happen as similar opportunities or challenges arise. The second is the structured exchange of knowledge through groups like MEEA's Building Policy Committee, where a variety of entities working in this space share program updates, success stories, challenges and more. Through opportunities such as these, the Partnership gains early insight into national trends and implementation strategies. Finally, national engagement expands capacity and increases capacity. Through messaging alignment, precedence and access to technical analyses, the program's position is strengthened.

Compliance Support

Ultimately, the goal in code advancement is to generate real-world energy savings. Achieving this outcome depends on both the adoption of increasingly efficient energy codes and strong compliance once those codes are adopted. For this reason, code advancement programs must extend beyond code development to include deliberate compliance support efforts.

Minnesota's Compliance Support Ecosystem

The Partnership has been able to support code compliance through the BuildUp MN brand. One method BuildUp MN has employed to support code compliance is third-party plan review. The plan review program is designed to intervene at critical times in the commercial building design and development process to identify areas not on track to meet code requirements and provide feedback early, when it is both easiest and most cost-effective to implement solutions. While providing a valuable service to construction teams, this program also provides code advancement efforts with numerous benefits, including building relationships and goodwill among stakeholders, identifying high and low compliance measures, and a better understanding of current building practices and methods of compliance.

BuildUp MN has also offered a variety of trainings ranging from Energy Codes 101 to HVAC-specific training. By delivering training, the team establishes itself as an expert resource for the energy code and becomes a go-to resource for code questions and concerns. Through stepping into this role, the team has been able to engage in large group and small group discussions, learning more about common questions or concerns and providing an opportunity to build relationships. As challenges with compliance emerge through both third-party plan review and training engagement, the team has developed and published resources to provide additional guidance or tools to support compliance (BuildUp MN n.d.).

Finally, the team offers individualized engagement with stakeholders as needed, allowing the team to continue to grow and deepen relationships while having more in-depth and nuanced conversations. Together, this compliance ecosystem has garnered trust that future code advancements will be met with sufficient support, easing concerns about implementation in the code development process.

Advancing Compliance Support with Limited Resources

While a formal compliance support program provides significant benefits to implementation and code advancement efforts, many jurisdictions do not have the resources available for a dedicated compliance program. In these situations, teams can still provide value to the market through leveraging existing resources and training opportunities made available from partners like utilities, industry associations, or regional organizations. On the more personal level, finding ways to incorporate compliance support into existing stakeholder engagement opportunities can bring value to both parties. Discussions around current challenges or needs can be leveraged when drafting code proposals. When working with stakeholders, teams can also identify existing champions for specific technologies or methods, building out a library of trusted contacts that can be leveraged to support one another. In these ways, the team can leverage compliance support needs while acknowledging resource capacity.

Advancing Proposals and Measuring Progress

Ultimately, applying the North Star Framework for code advancement allowed the Partnership to bring forward well-supported, technically grounded proposals to the commercial and residential TAGs, the majority of which advanced to rulemaking. On the residential side, the Partnership advanced a package of residential amendments focused on equity among compliance pathways and building sizes. Key provisions included a change to air leakage metric, updated fenestration requirements, lowered ERI maximum values, and improved envelope construction in performance pathways. Collectively, the next projected code is expected to be roughly 20% more energy efficient than Minnesota's current Residential Energy Code. Commercial proposals centered on lower air leakage maximum values, increased mechanical system efficiency and applicability, improved fenestration requirements, and more. The package is expected to be greater than 22% more efficient than the current Minnesota Commercial Energy Code, as illustrated in Figure 4.

Together, the proposals demonstrate how the North Star Framework translates into concrete, data-driven code updates and leads to significant steps forward in efficiency. While the specific amendments reflect Minnesota's statutory targets and market conditions, the underlying approach offers a replicable model for other jurisdictions seeking to advance their codes in a strategic, outcome-oriented way. These gains underscore the effectiveness of a coordinated multi-pillar approach.

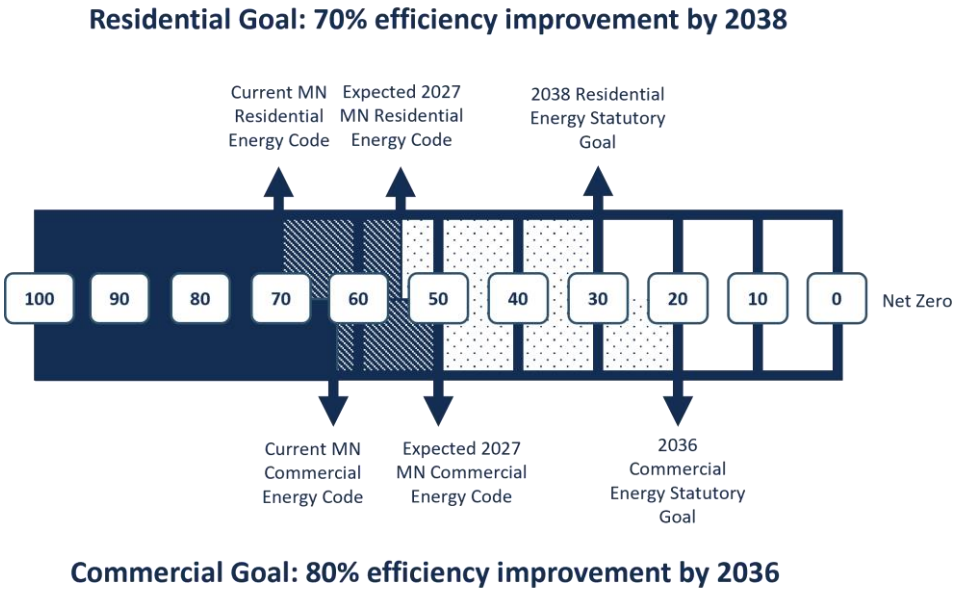

Figure 4. Minnesota energy code progress

Conclusion

Minnesota's experience demonstrates that meaningful energy code advancement is neither accidental nor the product of a single intervention — it is the outcome of a coordinated, well-resourced, and data-driven system. By aligning legislative direction, sustained funding, rigorous technical analysis, intentional stakeholder engagement, national collaboration, and robust compliance support, the Partnership has shown that ambitious efficiency goals can be translated into practical, broadly supported policy. Just as importantly, this work illustrates that even when one component is constrained or absent, progress remains possible when teams adapt strategically and ground decisions in transparency, collaboration, and real-world data. As other jurisdictions confront their own climate, affordability, and energy efficiency challenges, Minnesota's replicable framework offers a roadmap for accelerating code advancement in a way that is durable, equitable, and responsive to market realities. By orienting around a shared North Star and building the pillars to support it, jurisdictions can navigate the path to ambitious, achievable energy code progress.

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