Manufactured Housing Institute

December 2, 2025

The Honorable Chris Wright
Secretary
U.S. Department of Energy
1000 Independence Ave. SW
Washington, DC 20585

RE: Request for Information: Energy Conservation Standards for Manufactured Housing [EERE-2009-BT-BC-0021]

Dear Secretary Wright,

The Manufactured Housing Institute (MHI) is pleased to provide comments to the Department of Energy (DOE) in response to the Request for Information (RFI) on Energy Conservation Standards for Manufactured Housing published in the Federal Register.

MHI is the only national trade association that represents every segment of the factory-built housing industry. Our members include builders, suppliers, retail sellers, lenders, installers, community owners, community managers, and others who serve our industry, as well as 48 affiliated state organizations. Our industry is on track to build more than 100,000 homes this year, accounting for approximately 9 percent of new single-family home starts. These homes are produced by 39 U.S. corporations in 151 homebuilding facilities located across the country. Today, MHI's home builder members represent over 90 percent of all manufactured homes constructed.

Manufactured housing is the most affordable homeownership option for American families. Last year, the average price of a manufactured home was $123,300, compared to approximately $406,000 for a site-built home (excluding land). The average income for a manufactured home buyer was about $63,000, while the average income for a site-built home buyer exceeded $143,000.

This RFI represents an important opportunity to reconsider the approach DOE has taken toward energy conservation standards for manufactured housing. The manufactured housing industry supports updates to energy efficiency standards, but through the appropriate regulatory channel: The U.S. Department of Housing and Urban Development (HUD). MHI and its members have consistently advocated for updates to the Manufactured Home Construction and Safety Standards (MHCSS), including enhanced energy standards. In fact, the Manufactured Housing Consensus Committee (MHCC) met in the fall of 2022 and drafted proposed energy standards for manufactured homes that MHI strongly supports. HUD action to advance these energy efficiency improvements has been stalled because of conflicting statutory authority with the Department of Energy. The House of Representatives is considering legislation, the Affordable HOMES Act, which resolves this conflict, allowing HUD to move forward with meaningful, industry-supported updates while DOE retains input on energy efficient standards in an advisory role. The House Committee on Energy and Commerce's Subcommittee on Energy recently advanced this bill.

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The 2022 Final Rule, which has not yet taken effect, was based on flawed methodologies and inadequate consultation with HUD and the MHCC. The rule would impose substantial cost increases on manufactured homes that would price tens of thousands of households—particularly low- and moderate-income families households—out of homeownership. The RFI appropriately recognizes the need to reassess these standards in light of Executive Order 14192, recent updates to the International Energy Conservation Code (IECC), and changed economic conditions including inflation, supply chain challenges, and higher interest rates.

MHI has prepared comprehensive responses to each of the fourteen issues identified in the RFI (Appendix I). These detailed responses address the technical, economic, and regulatory questions raised by DOE. This letter summarizes the major themes and recommendations across our responses.

I. Baseline and Analytical Methodology

Neither the 2024 IECC nor the 2022 Final Rule are cost-effective for manufactured housing. The 2024 IECC imposes even more stringent requirements than the 2021 IECC, including lower window U-values (0.27-0.28 versus 0.30) that current manufactured housing window suppliers cannot meet in required quantities, with significant cost increases; skylight requirements that may not be achievable with products available from manufactured housing vendors; and mandatory energy efficiency credits (Section R408) that may require expensive upgrades such as heat pump water heaters, high-performance heat pumps, and tankless water heaters. The 2024 IECC is less cost-effective than the already problematic 2021 IECC. Both demonstrate why manufactured housing energy standards should be developed as part of HUD's Manufactured Housing Construction and Safety Standards (MHCSS) through consultation with the MHCC in accordance with 42 U.S.C. § 5403 (Section 604 of the Manufactured Housing Construction and Safety Standards Act).

DOE's analysis should use an incremental cost-effectiveness analysis rather than wholesale IECC adoption. Every step in making homes more energy efficient costs more and saves less due to diminishing returns. The proper analytical approach examines each incremental improvement in efficiency individually, with each improvement standing on its own merits. Once an energy measure begins to result in negative returns, it is no longer cost-effective to add additional measures. By combining all energy measures into a single package, as DOE did in the 2022 Final Rule, the slim benefits of the least cost-efficient measures are masked by the benefits of the most cost-effective measures.

The 2022 Final Rule should not be the baseline for analysis. The 2022 Final Rule has not yet been made effective and should be fully reconsidered. An updated analysis should focus on both MHCSS and current industry practices. Today's manufactured homes already consume significantly less energy than site-built homes due to their smaller size and factory-built construction efficiencies. Any baseline for analysis must also include all costs for compliance, testing, and enforcement, which the 2022 Final Rule entirely omitted—a major analytical deficiency that rendered DOE's cost-effectiveness determinations fundamentally flawed.

DOE's reliance on a 30-year life-cycle cost analysis to justify the cost-effectiveness of its standards is fundamentally flawed for manufactured housing. Based on industry data, manufactured homebuyers typically sell their homes within seven to ten years of purchase. The original purchaser bears the full upfront cost burden and will only realize a fraction of the projected 30-year energy savings before selling the home. Moreover, it is highly unlikely that a homebuyer financing a manufactured home purchase will be able to recover the additional upfront costs when selling the home. Any future analysis must reflect the actual time horizon over which the original purchase will own the home and capture energy savings.

II. Affordability and Financial Impacts

MHI appreciates DOE's recognition in the RFI that financial conditions have changed significantly since the 2022 Final Rule and that the economic circumstances of manufactured home purchasers warrant careful consideration. The unique financing challenges facing manufactured housing purchasers must be comprehensively addressed in any future analysis.

For manufactured housing purchasers, upfront purchase price is the decisive affordability factor, not long-term operating costs. The industry serves predominantly lower- and moderate-income households who face significant barriers to homeownership. An increased purchase price creates immediate obstacles that theoretical future energy savings cannot overcome. First, higher purchase prices directly impact loan qualification: any homebuyer at or near a lender's debt-to-income (DTI) requirement (e.g., usually 43% for FHA loans) will no longer qualify for financing because of increased monthly loan payments, regardless of potential energy savings. Second, higher purchase prices require proportionately larger down payments and closing costs, which many lower-income households cannot afford. If a household cannot afford to purchase the home in the first place due to upfront cost increases, projected energy savings over a theoretical 30-year period are entirely irrelevant, as the family will never realize those savings and may be excluded from homeownership altogether.

Rising interest rates have worsened affordability challenges and reduced the cost-effectiveness of long-term utility savings. Most analysts predict that we will not soon return to the era of lower interest rates that persisted from 2008 to 2022. Accordingly, DOE should base its analysis on an assumption that higher interest rates will persist, rather than relying on long-term historical averages that would incorporate the recent, historically unusual period of low rates.

Manufactured home purchasers face significant barriers to financing. Home-only loans, which comprise 78 percent of manufactured home purchases according to data submitted during DOE's Manufactured Housing Working Group process for the prior rulemaking, carry higher interest rates and shorter terms than conventional mortgages. The difference between home-only and land-home interest rates has dramatic implications for the cost-effectiveness of energy efficiency investments and monthly payment affordability.

Material costs and supply chain challenges must be fully considered. DOE's assumptions on material costs and inflation in the 2022 Final Rule were based primarily on 2014 data and have proven wildly inaccurate. DOE assumed a nominal construction cost increase of 2.3 percent annually from 2014 to 2023, but the actual cost increase from construction materials from 2015 to 2025 was 60.1 percent—an average annual rate of 4.3 percent. Future analysis must use realistic assumptions about inflationary pressures, current material costs, and supply chain constraints to preserve affordability.

DOE significantly underestimated the price sensitivity of manufactured housing consumers. The industry serves predominantly lower-income households for whom even modest price increases can eliminate homeownership opportunities. DOE's elasticity assumptions in the 2022 Final Rule substantially understated the number of households that would be priced out of the market by the rule's cost increases. Any future analysis must use realistic price elasticity assumptions and comprehensively assess impacts on housing access for vulnerable populations.

III. Consultation and Regulatory Coordination

The manufactured housing industry supports updates to energy efficiency standards through HUD's standard process for updating the MHCSS in consultation with the MHCC. MHI and its members have consistently advocated for updates to the MHCSS, including enhanced energy standards. The MHCC met in the fall of 2022 and drafted proposed energy standards for manufactured homes that MHI strongly supports. With over 50 years of experience working with stakeholders to promote quality, safe and affordable manufactured homes, HUD is the appropriate agency to lead the development of updated energy standards in consultation with the MHCC. The Affordable HOMES Act, which recently advanced in the House of Representatives, recognizes the need for this approach. According to the legislation, DOE could work with HUD in an advisory capacity on energy standards updates.

Section 413 of EISA has stymied progress on energy efficiency for manufactured homes. The Affordable HOMES Act brings regulatory clarity and efficiency to the production of manufactured housing by repealing Section 413 of the 2007 EISA. This provision was never properly vetted by Congress through regular order and contains language impractical and ill-suited to manufactured housing. Specifically, this provision directed the DOE to establish energy efficiency construction standards for manufactured housing in contravention of long-standing authority of HUD to promulgate federal construction standards for manufactured homes via the MHCSS, which the agency has overseen for over 50 years. This duplicative agency mandate has created regulatory confusion, undermined the goal of advancing practical energy efficiency improvements that can save homeowners on the energy bills, while jeopardizing the availability and affordability of manufactured homes. Nearly two decades after Congress directed DOE to act, the agency's prolonged failure to implement a rule demonstrates the inherent challenges and impracticality of applying the EISA rider to manufactured housing. When DOE finally issued its recommendations, HUD declined to adopt them, further underscoring that the rider's language was never properly vetted and is ill-suited for the unique characteristics of manufactured housing.

The House Committee on Energy and Commerce Subcommittee on Energy recently advanced legislation to rescind the flawed statutory language and restore the streamlined and effective regulatory framework under HUD, allowing DOE to have an advisory role. This important correction would allow for timely, practicable updates to energy efficiency standards consistent with the federal construction code for manufactured housing while preserving affordability for American households.

Off-site construction process of manufactured homes requires expertise unique to HUD. DOE's 2022 final rule is fundamentally flawed and unworkable for off-site construction. Per Section 413, it relies on the International Energy Conservation Code (IECC) designed for site-built construction homes. This fails to account for the unique characteristics of factory-built housing in which the final location and orientation of the home is often not known at the time of production. It also fails to appreciate the precision, sequencing, and transportation requirements inherent to an efficient manufactured housing process.

Beyond its technical mismatch, the DOE rule lacks a viable framework for testing, compliance, and enforcement. This regulatory gap creates uncertainty for manufacturers and impedes progress on energy efficiency improvements while also driving up costs of America's most affordable home ownership option. Worse still, it introduces a conflicting set of standards alongside HUD's existing code, undermining the regulatory clarity and efficiencies that have governed manufactured housing for decades and threatening the production of affordable homes. The rule was developed without meaningful input from those who understand the manufactured housing industry or the needs of the families it serves. When HUD's MHCC reviewed the DOE rule, it concluded that DOE failed to consider the unique nature of off-site construction — despite repeated outreach from both the MHCC and industry stakeholders.

DOE itself delayed implementation of the rule pending further rulemaking. This breakdown further illustrates why Congress, through the Manufactured Home Construction and Safety Standards Act of 1974, vested HUD with sole authority over federal construction standards for manufactured housing. Legislation is currently advancing through Congress that rightly restores HUD's authority, ensuring energy efficiency standards are developed through a process that understands — and reflects — the unique nature of manufactured housing construction.

The 2022 Final Rule demonstrated fundamental failures in consultation. DOE did not provide HUD or the MHCC with meaningful opportunities to review and provide input on DOE's technical analysis, supporting data, or draft proposals. The MHCC subsequently reviewed the 2022 Final Rule and explicitly refused to recommend wholesale adoption into the MHCSS. The MHCC concluded that DOE circumvented the standards development process prescribed in EISA, failed to adequately justify costs, and produced a rule that would adversely impact the entire manufactured housing program and reduce access to affordable housing for minorities and low-income consumers.

The most effective approach would be to harmonize DOE's requirements with HUD's comprehensive regulatory framework. Rather than creating separate DOE energy standards that must then be reconciled with MHCSS requirements, a better approach is to have DOE offer support to HUD in developing unified standards incorporated into the MHCSS. This is the approach currently advancing through Congress with bipartisan support to eliminate conflicts between DOE and HUD requirements, reduce confusion for manufacturers, leverage HUD's existing design approval and production inspection processes, and avoid duplicative enforcement mechanisms.

HUD's approach is the best way to ensure the timely adoption of improved energy efficiency standards for factory-built housing, and to preserve the availability of affordable manufactured homes for American households. With a 50-year track record in regulating standards for manufactured homes and a proven testing, compliance, and enforcement regime, HUD is the right agency to do this.

Testing, compliance and enforcement procedures must be comprehensively integrated with rules imposing substantive energy standards. Testing, compliance, and enforcement are essential aspects of a regulatory regime for energy standards and should not be developed separately as an afterthought as DOE attempted in its 2023 Enforcement Proposed Rule. The 2023 proposal illustrated the problems of developing enforcement separately: it proposed only enforcement mechanisms without any testing procedures or compliance pathways, and it relied on MHCSS documentation that was never designed to demonstrate compliance with DOE's separate standards. The most sensible approach is to incorporate energy conservation standards into the MHCSS through HUD's process of updating its construction standards and rely on HUD's existing, proven enforcement infrastructure.

IV. Technical and Practical Considerations

MHI strongly supports DOE's continued use of the three HUD climate zones rather than the IECC climate zones. EISA explicitly authorizes this approach, and it is both statutorily appropriate and practically necessary. The manufactured housing industry has operated under the MHCSS's three-zone system since 1976. This framework was specifically designed to account for the unique aspects of factory-built housing, including design, construction techniques, transportation constraints, and the need for homes to be marketable across broad geographic areas. Creating a separate climate zone system solely for DOE energy requirements would fragment the unified MHCSS regulatory structure and significantly increase compliance costs and complexity.

DOE must allow a longer implementation period. Given the substantial changes to design and manufacturing processes that would be required by standards based on the IECC, any new standards should allow an implementation period of 3-5 years, consistent with DOE's typical approach for single-appliance energy efficiency standards. This timeline is essential to allow manufacturers to update designs and manufacturing processes, ensure appropriate materials can be supplied, and work through practical challenges such as transportation constraints and the availability of components that meet new specifications while remaining viable for manufactured housing production methods.

Conclusion

MHI strongly supports energy efficiency updates to the construction standards for manufactured housing that are cost-effective and preserve the affordability that makes manufactured housing accessible to millions of American families. However, standards must be developed through HUD and the MHCC, must be based on sound analytical methodologies that accurately reflect manufactured housing construction realities and consumer financial circumstances, and must be established within HUD's comprehensive regulatory framework to avoid conflicts and duplicative requirements.

The detailed responses attached to this letter demonstrate that neither the 2024 IECC nor the 2022 Final Rule (based on the 2021 IECC) meet these criteria. Both would impose costs that exceed benefits when properly analyzed using realistic assumptions about material costs, interest rates, consumer price sensitivity, and compliance burdens. The most constructive path forward is for HUD and the MHCC to develop updated energy efficiency requirements that are incorporated into the MHCSS, considering any input that DOE may offer.

MHI appreciates this opportunity to provide input on this critical issue. The manufactured housing industry has long led the way in energy-efficient construction, and it is essential that the federal construction code keeps pace with our industry's commitment to innovation and precision in the factory-built process. Today's manufactured homes remain the most affordable form of homeownership in America while meeting, and often exceeding, the energy efficiency of new site-built homes. We stand ready to work collaboratively with HUD to ensure the federal construction code for manufactured housing remains current, including with respect to energy conservation standards. Please do not hesitate to reach out with any questions regarding the responses provided herein.

Sincerely,

Lesli Gooch, Ph.D.
Chief Executive Officer

Appendix I: Comprehensive Responses for the Fourteen Issues

Issue A–1: Cost-effectiveness of 2024 Standards

> "DOE seeks data and information regarding basing standards on the most recent version of the IECC; in particular, whether standards based on the 2024 IECC would or would not likely be cost effective or that standards more stringent than 2024 IECC would or would not be cost effective. In addition, comments should describe the basis for their perspective on compliance cost and other costs borne by consumers (e.g., layout of housing less attractive or functional due to increased insulation), cost effectiveness, including a description of methodology or analytical assumptions."

Response:

Imposing standards from the 2024 International Energy Conservation Code (IECC) would not be cost-effective for manufactured housing and would substantially reduce affordability for the nation's most cost-efficient housing option, potentially jeopardizing homeownership for tens of thousands of Americans. Beyond direct financial costs, these standards could eliminate popular design features and limit consumer choice, reducing the appeal and functionality of manufactured homes.

Use of the IECC is Fundamentally Inappropriate for Manufactured Housing

The IECC was developed for site-built residential and commercial construction. It was not intended or designed to be implemented in the manufactured housing sector and fails to consider the unique construction methods, transportation demands, and regulatory framework of the manufactured housing industry. Both the 2022 Final Rule imposing the 2021 IECC standards and the 2024 IECC standards would mandate costly changes to factory-built production that are impractical or, in some cases, impossible to implement.

Manufactured housing is the only form of housing regulated by a federal building code. Unlike site-built homes, which are subject to different state and local regulations, manufactured homes are built to one uniform federal code—the Manufactured Home Construction and Safety Standards Act of 1974 (MHCSS). The MHCSS's single regulatory framework for home design and construction includes standards for quality, safety, energy efficiency, and durability. Imposing IECC standards creates fundamental conflicts with this existing regulatory structure.

Like the 2022 Final Rule, the imposition of the 2024 IECC would necessitate changes related to the building thermal envelope; air sealing; installation of insulation; duct sealing; heating, ventilation, and air conditioning (HVAC); service hot water systems; mechanical ventilation fan efficacy; and heating and cooling equipment sizing for manufactured homes. These standards contain requirements that raise critical issues with components and materials currently used in the production of manufactured homes and with the manufacturing processes themselves.

Insulation and Thermal Envelope

Imposing the IECC standards on manufactured housing creates significant practical challenges that will increase costs. For instance, the insulation requirements in both the 2022 Final Rule and the 2024 IECC will present significant design and material sourcing problems. Manufacturers are currently using R-11 insulation for most applications, which is predominantly used in walls and floors for Zones 1 and 2. Manufacturers typically prefer to use two layers of R-11 when additional floor insulation is needed. However, the 2022 Final Rule specified a lowest insulation value of R-13, which may cause supply issues for manufacturers that have ramped up to supply large quantities of R-11. Similar supply issues exist for R-20 and R-19 insulation, which is not currently produced in the large quantities necessary to meet manufactured housing demand.

Sourcing materials for the R-5 continuous exterior insulation required by the 2024 standards also presents significant challenges. It will be difficult to identify materials that meet both the 2024 IECC requirements and the current MHCSS requirements. Additionally, R-5 continuous installation would add labor costs to build door and window framing to match the insulation thickness. The standards have specific requirements for the perm rating of exterior wall assemblies, and the perm ratings of rigid foam insulation materials may lead to redundant vapor barriers and stud cavities that do not breathe properly. This represents a potential conflict between 2022 Final Rule or 2024 IECC standards and the current MHCSS that could compromise building durability and occupant health.

The higher R-values required in the floor by both the 2022 Final Rule and the 2024 IECC will necessitate batt insulation installed between the floor joists combined with a blanket below the joists. Most manufacturers do not currently use this floor insulation technique and would need to modify their production processes. Additionally, installing the required R-30 insulation into roof cavities over the top plate at the truss heel is infeasible due to the required thickness and limited space available. Modifying designs to accommodate this insulation requirement will add substantial cost. Most manufacturers keep 50 to 100 different home models in production at any given time, so design documents would have to be modified for each impacted model. Thereafter, manufacturers, DAPIAs, IPIAs, HUD, and State Administrative Agencies (SAAs) would have to approve the changes and retrain their personnel as needed, at substantial expense.

The 2024 IECC and the 2021 IECC also both assume the floor decking is part of the thermal envelope and require all floor penetrations to be sealed, which is sensible for site-built housing. However, the thermal envelope for manufactured housing extends to the bottom board. Sealing all the floor penetrations is not practical and would add unnecessary expense.

The 2024 IECC also increased the overall air sealing requirement, at various levels by climate zone. As stated in our prior comments, the testing requirements for both air sealing and duct leakage could add substantial cost, particularly for multi-section units if post-installation inspections are necessary. It is essential that these testing costs be considered in DOE's cost-benefit analysis.

High-cost Appliances Necessitated by IECC Energy Credit System

The 2024 IECC requires homes to obtain additional energy credits from a set of options with different scoring based on climate zones. Several of the options are not applicable or feasible for manufactured housing. To meet these requirements, manufacturers would have to add expensive elements such as heat-pump water heaters, high-efficiency heat pumps, and/or 95% efficiency gas furnaces that will substantially increase costs for consumers, particularly for existing lower-cost home options.

HVAC Equipment Sizing Requirements

Both the 2024 IECC and the 2022 Final Rule require heating and cooling equipment to be sized in compliance with ACCA Manuals J and S. This requirement creates an untenable conflict with the MHCSS and the fundamental realities of manufactured home production and distribution. ACCA Manual J requires knowledge of the exact location and orientation of the home relative to the sun for cooling load analysis. However, manufacturers typically do not know where a home will be sited or its final orientation until after it is installed, often hundreds of miles from the production facility. This requirement is particularly problematic in Thermal Zone 3, where design parameters can vary substantially. ACCA Manual S establishes sizing limits that presume thermal loads are established for a specific location and building orientation, but the variation in design parameters within a single HUD thermal zone exceeds the sizing limits established by ACCA Manual S.

Furthermore, the MHCSS requires manufacturers to install furnaces that are "listed or certified by a nationally recognized testing agency for use in manufactured homes." The current supply of HUD-approved furnaces can be oversized by as much as 200 percent under the MHCSS because the United States is divided into three broad climate zones that can vary drastically within each zone. However, ACCA Manual S prohibits oversizing equipment by more than 40 percent. As a result, there are currently no furnaces available that are both rated for use under the MHCSS and that comply with Manual S/Manual J requirements. This conflict effectively eliminates the longstanding industry practice of manufacturing homes for stock inventory, which provides retailers with floor models and allows consumers to purchase and move into homes quickly. Requiring homes to be custom-ordered and sized for specific locations would substantially increase costs, extend delivery times, and reduce the flexibility that makes manufactured housing accessible to price-sensitive buyers.

Transportation Constraints and Practical Limitations

The changes required by both the 2022 Final Rule and the 2024 IECC will significantly affect the overall shipping height and width of homes. In some cases, these changes are substantial and create serious practical problems. For example, to meet the required U-value performance for Tier 2, Zone 3 homes, manufacturers would need to change from 2x6 floor joists to 2x8 floor joists, change from 2x4 exterior walls to 2x6 exterior walls, and increase the truss heel height from 3-1/2 inches to 5-1/2 inches. These changes increase the shipping height from 14 feet 4 inches to 14 feet 8 inches or more. The additional height could prevent shipping a home into areas of the country with low bridges, resulting in consumers having to settle for a different style of home or, more likely, being forced out of the housing market entirely due to lack of affordable housing options in their area.

Furthermore, homes that exceed maximum width or height may require an additional escort or pole car to accompany the transport, which could add thousands of dollars to the final price for the consumer. These transportation-related costs were not reflected in DOE's cost-benefit analysis in the 2022 Final Rule but represent real, substantial expenses that directly impact affordability.

Limitations on Consumer Design Choices

Beyond direct construction and material costs, the IECC standards would eliminate many architectural and design features that consumers value, significantly limiting the range of home styles and options that manufacturers can offer.

The increased insulation thickness requirements would make optional vaulted ceilings impossible to construct in many home designs. Currently, vaulted ceilings are a popular option that enhances the aesthetic appeal and perceived spaciousness of manufactured homes. Due to the R-38 ceiling insulation requirement and increased truss heel height, the attic space in some designs becomes too constrained to accommodate vaulted ceiling construction. This represents a significant loss of consumer choice and reduces the architectural appeal of manufactured homes.

Similarly, options for 8-foot or 9-foot wall heights and transom windows would be severely limited or eliminated. These features are important to consumers who desire homes with a more spacious feel and enhanced natural lighting. HUD recently updated exterior door requirements in the MHCSS to better accommodate the open floor plans preferred by consumers. The combination of thicker walls, deeper floor joists, and increased heel heights necessitated by the 2022 Final Rule and 2024 IECC would constrain the ability to offer these popular design features while staying within transportation height limits.

The necessity of using exterior walls instead of 2x4 walls results in heated and cooled interior space being reduced by approximately 27 square feet in a typical multi-section home. While this may seem modest, it represents a meaningful loss of usable living space for consumers purchasing homes that are already carefully designed to maximize functionality within standard dimensions.

Additionally, manufacturers may need to make floor plan changes to accommodate the additional insulation and structural modifications required by the standards. The industry has developed floor plans over decades based on the realities of manufactured housing construction, transportation, and installation. Forced redesigns to accommodate IECC requirements may result in less functional and less appealing layouts.

Window Limitations

To achieve the required U-values under the prescriptive pathway, manufacturers would need to significantly reduce the number of windows or use windows with much lower U-values (0.30 or better) than are currently standard. In some scenarios analyzed, manufacturers would need to eliminate windows almost entirely to meet performance requirements—creating homes that would fail to meet basic code requirements for egress, light, and ventilation.

Even with substantial changes to wall and floor construction, incorporating a reasonable number of windows requires upgrading to windows with a U-value of 0.30 or lower; the 2024 IECC sets a standard of 0.28 or 0.27 in some climate zones. The U-value for skylights was also lowered in the 2024 IECC. Windows and skylights meeting these standards are not readily available in the market for manufactured housing applications.

Miscellaneous Additional Requirements

In addition to the items mentioned above, the 2024 IECC would add cost in the following areas:

- Increased insulation requirements for hot water pipes (R-3 to R-7)
- Lower efficiency ratings and special switches required for bathroom exhaust fans.

The cost-effectiveness of these new requirements should be analyzed in consultation with the industry.

Competitive Disadvantage Relative to Site-Built Housing

These design limitations would reduce the appeal of manufactured housing relative to site-built homes, many of which are built to less stringent standards in jurisdictions that have not adopted the most recent IECC. DOE has a statutory obligation to publish a determination on the most recently published residential energy code, as compared to the previous version. State and local jurisdictions rely on these determinations to guide their code adoption processes in ways that benefit homeowners in terms of higher quality homes and lower energy bills. DOE's evaluation and determination does not consider manufactured housing. To date, only 10 states have adopted the 2021 IECC standards or higher. This creates a fundamental inequity where the most affordable housing option—manufactured housing—would face the most restrictive requirements, while more expensive housing options retain greater design flexibility.

Cost-Benefit Analysis Methodology

Any assessment of the cost-effectiveness of the 2024 IECC standards must avoid the analytical deficiencies of the prior DOE rulemaking efforts. Our responses to issues A-2 and B-4 provide greater detail on these deficiencies and recommended improvements. Importantly, DOE's analysis did not fully account for the costs associated with testing, certification, and enforcement. These compliance costs represent real expenses that will be passed on to consumers but were not included in DOE's cost-benefit calculations. The absence of these costs from the analysis rendered DOE's conclusions about cost-effectiveness incomplete and unreliable.

Upfront Financial Burden of the 2024 IECC is Significant

Mandating the 2024 IECC standards for manufactured housing would substantially increase costs and would directly undermine the goal of affordable homeownership. An analysis performed by Home Innovation Research Labs found that the adoption of the 2024 IECC could increase upfront costs for a typical site-built home by as much as $10,245 relative to 2018 standards.[1] The 2022 Final Rule estimated that costs would increase by over $5,000 for multi-section units, and we expect that the 2024 IECC would be even more costly.

These significant increases to the purchase price of a manufactured home will result in higher required down payments and higher monthly mortgage payments, reducing the number of households that can qualify for a mortgage to purchase a home based on the debt-to-income limits used by mortgage providers. For low- and moderate-income purchasers who rely on manufactured homes for attainable homeownership, even modest cost increases lead to loan denial, effectively pricing thousands of eligible families out of the market entirely.

Conclusion

Standards based on the 2024 IECC would not be cost-effective for manufactured housing when all costs are properly considered, including material cost inflation, compliance expenses, transportation challenges, and the loss of consumer design options. These standards would substantially increase the purchase price of manufactured homes while eliminating popular features that consumers value, making homeownership unattainable for tens of thousands of families annually.

The most constructive path forward is for HUD and the MHCC to develop energy efficiency improvements that are specifically designed for manufactured housing, that account for the unique aspects of factory-built construction, that preserve the affordable housing mission of the industry, and that maintain reasonable consumer choice, considering any input that DOE may have. Incremental improvements based on careful analysis of what is technically and economically feasible is the best way to keep the construction standards up to date and preserve access to homeownership for America's working families.

[1] Home Innovation Research Labs, "2024 IECC Cost Analysis for Single-Family Homes", January 13, 2025.https://www.nahb.org/-/media/NAHB/advocacy/docs/top-priorities/codes/code-adoption/2024-iecc-cost-analysis-hirl.pdf

Issue A–2: Appropriate baseline for analysis

> "DOE seeks input on the appropriate baseline to use in conducting further technical analysis in support of an updated manufactured housing energy conservation standards rulemaking. We seek information on the best representation of the current state of energy efficiency in manufactured housing to characterize the baseline— e.g., the HUD standards, the 2022 Final Rule efficiency levels, or another efficiency level."

Response:

To identify the most cost-effective energy standards for manufactured housing, an incremental approach should be applied—one that accounts for the diminishing cost savings associated with higher levels of energy-efficiency investment. In the 2022 Final Rule, DOE estimated energy savings by comparing homes built to the current HUD energy standards with homes meeting the 2021 IECC in select locations. At that time, most manufactured homes already exceeded the outdated HUD standards. As a result, the comparison produced an exaggerated difference in energy use and estimated costs between benchmarks that were not aligned with industry practice. These inflated "savings" were then used to justify excessive upfront energy conservation costs. In reality, energy improvements yield diminishing returns, and today's manufactured homes are already highly energy efficient.

Every step in making homes more energy efficient costs more and saves less. The biggest savings come from the first measures to improve performance. For example, adding R-5 insulation to a wall that is R-10 saves more energy than adding the same amount of insulation to a wall that is already R-20, but it costs the same. If you are aiming to optimize investment (i.e., find the lowest combination of construction and operating costs) the proper way to do the analysis is by examining each incremental improvement in efficiency individually. Each performance improvement must be cost justified and stand on its own. Once an energy measure begins to result in negative returns, it is no longer cost effective to add additional measures. DOE developed and promoted a Building Energy Optimization Tool that used this incremental approach to find the optimum investment. By combining all the energy measures together into a single figure, the slim benefits of adding the last, least cost-efficient measures, is subsumed in and masked by the benefits of adding the first, most cost-effective measures.

Today's manufactured homes already consume significantly less energy than site-built homes. According to the U.S. Energy Information Administration, "most energy end-uses are correlated with the size of the home. As square footage increases, the burden on heating and cooling equipment rises, lighting requirements increase, and the likelihood that the household uses more than one refrigerator increases. Square footage typically stays fixed over the life of a home and it is a characteristic that is expensive, even impractical to alter to reduce energy consumption."[2] According to the U.S. Census Bureau, the median size of a completed single-family house in 2020 was 2,261 square feet, while the median size of a manufactured home was 1,338 square feet. The significant difference is size correlates with a significant reduction in energy usage. A study of residential energy consumption showed that manufactured homes consume the least energy of all types of homes, at 59.8 million BTUs per household, compared to 94.6 million BTUs for single-family detached homes and 70 million BTUs for townhomes.[3]

[2] https://www.eia.gov/consumption/residential/reports/2009/square-footage.php
[3] https://www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce1.1.pdf

Further, the controlled environment of the factory-built process not only offers consumers unmatched quality and affordability due to technological advancements and other advantages, but the industry is a pioneer in the development of processes that value efficiency and reduce waste. Our in-factory home builder members are constantly developing new initiatives and technologies, such as comprehensive recycling programs, to reduce waste. The factory-built process utilizes exact dimensions and measurements for most building materials, eliminating waste. Today's modern manufacturing plants are so efficient that nearly everything is reused or recycled such as cardboard, plastic, carpet padding, vinyl siding, scrap wood and much more. This stands in sharp contrast to the widespread use of commercial dumpsters at traditional site-built homes.

Finally, it would be inappropriate to use the 2021 IECC or 2022 Final Rule as the baseline for analyzing the implementation of the 2024 IECC standards. On July 2, 2025, DOE extended the compliance date for both Tier 1 and Tier 2 manufactured homes until after the publication of a final enforcement rule, which is still pending. The 2022 Final Rule has not been incorporated into the HUD Manufactured Housing Construction and Safety Standards (MHCSS), and these standards have not been broadly adopted by the industry. Additionally, most states have not adopted the 2021 or 2024 IECC standards for site-built homes.

Given the high level of energy efficiency prevalent in the manufactured housing industry and the current state of energy codes reflected in the states for site-built homes and in the MHCSS, an incremental analysis of individual standards is the best method to ensure the optimum cost-efficiency for consumers.

Additionally, the baseline for analysis should consider costs for compliance, testing, and enforcement (CTE) imposed by the new standards. The 2022 Final Rule did not include provisions for CTE and failed to include any CTE costs in their cost-benefit analysis. This was a major deficiency in the rule and artificially deflated the cost impact to the industry and consumers for such rule, negatively impacting the regulatory efficiencies that enable this industry to produce quality homes at affordable price points. Any such costs imposed on manufacturers will be passed on to consumers and may render the new standards not cost efficient.

Issue A–3: Impact of expiration of Energy Star tax credit.

> "While DOE typically considers existing standards to be the minimum baseline, DOE also typically takes into account any information that demonstrates current manufacturing practice results in a range of efficiencies available in the marketplace. For example, significant percentages of manufactured home shipments historically met the Energy Star criteria. Between 2020 and 2022, approximately 21 percent of buildings met the Energy Star criteria for manufactured homes, while in 2023 the fraction was 36 percent. DOE notes that in 2023 the Federal tax credits were increased from $1,000 to $2,500 for manufactured homes meeting Energy Star and certain researchers have postulated that the tax credit program influenced the 2023 results. DOE seeks input to best assess appropriate baseline efficiency levels reflective of what is observed in shipments in the manufactured housing market. Specifically, DOE seeks input on fractions of manufactured homes with building envelopes constructed effectively at the current HUD requirements for their HUD region, fractions that would meet the lower Uo 5 envelope requirements under the EnergyStar 2.0 criteria, and fractions currently constructed at the 2022 final rule Uo levels to best assess appropriate baseline efficiency levels reflective of what is observed in shipments in the manufactured housing market. As part of this request, DOE requests input on the impact of the expected expiration of the Federal tax credit on the fraction of shipments that meet Energy Star criteria."

Response:

The manufactured housing industry offers consumers a broad range of energy-efficient options, including homes built to the highest standards. New factory-built homes are not only as efficient as site-built homes, but in 2024 approximately 47 percent of manufactured homes were certified to meet Energy Star 2.0 standards. Many additional homes achieved comparable efficiency levels without formal certification because affordability is a critical consideration for homebuyers. Energy Star certification adds roughly $1,000 to the cost of a home, and manufacturers often choose to avoid this additional expense while still delivering homes with equivalent energy performance. Like site-built homes, manufactured homes incorporate energy-efficient features tailored to the climate conditions of the region where they will be located.

It is important to note that today's manufactured homes already meet high energy-efficiency standards, and improvements beyond these levels yield diminishing returns. While the federal tax credit for energy-efficient homes has influenced some purchasing decisions, manufacturers have consistently produced Energy Star-compliant homes even before the credit increase in 2023. As the credit expires, we expect some reduction in the share of certified homes due to higher price points for consumers, but the industry will continue to offer significant numbers of homes meeting Energy Star 2.0 standards. This reflects our ongoing commitment to energy efficiency while balancing affordability for consumers, which is the hallmark of manufactured housing.

Issue B–4: Changes to analytical approach

> "What analytical aspects related to DOE's May 2022 Final Rule should DOE consider re-examining as part of its ongoing consideration of energy efficiency standards for manufactured housing? This request for input encompasses whether DOE's analysis sufficiently addressed the cost- effectiveness of standards based on the then-current 2021 IECC when considering the code's impact on both the purchase price of manufactured housing and on total life-cycle construction and operating costs. See 42 U.S.C. 17071(b)(1). If changes are recommended, how should DOE reconsider how it addressed costs (even those that are hard to quantify) and the cost-effectiveness of the IECC criteria and what specific changes, if any, should DOE make to its assumptions or analyses to better address this in any future analysis for manufactured housing? As part of this request, DOE encourages commenters to provide specific supplemental supporting data regarding any changes that commenters may suggest."

Response:

The analytical approach used by the Department of Energy in the 2022 Final Rule was fundamentally deficient and produced deeply flawed conclusions regarding cost-effectiveness. The multiple methodological errors, inaccurate assumptions, and omitted costs render the 2022 Final Rule's cost-benefit analysis unreliable and inappropriate as a basis for energy conservation standards for manufactured housing. These deficiencies demonstrate that DOE is not the appropriate agency to lead the development of manufactured housing energy standards. Instead, these standards should be developed as part of HUD's Manufactured Housing Construction and Safety Standards (MHCSS) through consultation with the MHCC in accordance with 42 U.S.C. § 5403 (Section 604 of the Manufactured Housing Construction and Safety Standards Act), considering any input DOE may have.

Failure to Consider Unique Characteristics of Manufactured Housing

The analysis failed to adequately consider the unique characteristics of manufactured housing, including factory construction methods, transportation requirements, and the distinct regulatory framework under the MHCSS. Unlike site-built homes subject to varying state and local codes, manufactured homes are built to one uniform federal standard that integrates requirements for quality, safety, energy efficiency, and durability. The wholesale adoption of IECC standards developed for site-built construction ignores these fundamental differences and creates conflicts with existing MHCSS requirements that were not properly analyzed or resolved.

Inappropriate Use of 30-Year Life-Cycle Cost Analysis

The 30-year Life-Cycle Cost (LCC) approach used by DOE in the 2022 Final Rule is not an appropriate method to determine cost-effectiveness for an initial buyer of a manufactured home. This analytical flaw fundamentally distorts the cost-benefit calculation in several critical ways:

Based on MHI's industry data, manufactured homebuyers usually sell their homes within seven to ten years of purchase. The original purchaser—who bears the full upfront cost burden of energy efficiency improvements—will only realize a fraction of the projected 30-year energy savings before selling the home. Basing cost-effectiveness determinations on benefits that accrue over 30 years when the typical owner will only capture 7-10 years of those benefits grossly overstates the value proposition for the actual purchaser making the buying decision.

It is highly unlikely that a manufactured homebuyer financing the purchase of a new manufactured home will be able to recover the additional upfront costs of energy efficiency improvements at a future sale. The resale market for manufactured homes does not typically reflect or reward the incremental investment in energy efficiency features in a manner that would allow cost recovery.

The use of a 30-year analysis period obscures the fundamental affordability challenge these standards create. The increased upfront cost is borne immediately by purchasers who are disproportionately lower-income households, while the purported benefits are spread over three decades and largely accrue to subsequent owners. This temporal mismatch makes the 30-year LCC analysis particularly inappropriate for assessing whether standards are truly cost-effective from the perspective of the consumer making the purchase decision.

Failure to Account for Access to Financing

The analysis must consider the impact of upfront price increases on purchasers' eligibility for mortgage financing, regardless of projected energy savings. An increased home purchase price results in a proportionate increase in the homebuyer's debt burden. Debt-to-income ratio is a key determinant of loan qualification. For instance, FHA's customary debt-to-income (DTI) requirement is 43 percent. Therefore, any homebuyer at the edge of this 43 percent DTI requirement will no longer qualify for an FHA loan because of a price increase caused by new energy standards.

This impact is not theoretical. In 2024, 35 percent of denied loans for manufactured home purchases listed the applicant's debt-to-income ratio as a reason for denial.[4] Any theoretical savings projected by the rule are meaningless if the price increase causes the homebuyer to no longer qualify for a mortgage loan because they no longer meet DTI underwriting requirements. Any increase in purchase price will also necessitate a higher down payment, which may present a significant obstacle for many lower-income households who are already struggling to accumulate sufficient savings for homeownership.

These financing barriers disproportionately affect lower- and moderate-income families for whom manufactured homes represent the most affordable path, and often the only path, to homeownership. DOE's failure to adequately model these impacts represents a critical gap in the cost-effectiveness analysis.

Inaccurate Material Cost and Inflation Assumptions

DOE's assumptions on material costs and interest rates were calculated primarily in 2014 leading up to the 2016 Proposed Rule and have proven wildly inaccurate. These flawed assumptions fundamentally undermined the reliability of the cost-benefit analysis.

Most notably, DOE assumed a nominal construction cost increase of 2.3 percent annually from 2014 to 2023, but the actual cost increase from construction materials from 2014 to 2021 was 6.5 percent annually—nearly triple DOE's assumption. The actual construction materials cost increase from 2015 to 2025 was 60.1 percent, representing an average annual rate of 4.3 percent. This discrepancy between assumed and actual material cost inflation dramatically understates the true cost burden that the standards would impose on consumers.

[4] Source: 2024 Home Mortgage Disclosure Act Data.

Inaccurate Interest Rate Assumptions

DOE also assumed a 5 percent interest rate for land-home deals and a 9 percent interest rate for home-only deals. These assumptions were optimistic even when made and have become completely divorced from current market realities. The 30-year fixed mortgage rate went above 7% after the publication of the 2022 Final Rule and remains above 6%, while home-only loan interest rates may be as high as 11.5 percent for some borrowers—substantially higher than DOE's assumptions.

Higher interest rates have two critical effects. First, they increase the monthly payment burden on purchasers, straining debt-to-income ratios for loan qualifications and increasing ongoing costs. Second, higher discount rates reduce the present value of future energy savings, making the long-term cost-benefit calculation less favorable.

Impact of Correcting Material Cost and Interest Rate Assumptions

These errors are not minor technical details—they fundamentally alter the cost-effectiveness conclusions. In MHI's prior analysis, correcting only these two inputs to reflect actual cost inflation and actual interest rates and using DOE's own analytical model, approximately 95 percent of shipments had a negative cost-benefit outcome. Had DOE updated its cost calculations before the 2021 Proposed Rule and the Final Rule to reflect actual economic conditions, it would have determined that the assumptions it developed leading up to the 2016 Proposed Rule had proven wrong and that the standards were not cost-effective.

Failure to Include Testing, Compliance, and Enforcement Costs

DOE's 2022 Final Rule entirely omitted the costs of testing, compliance, and enforcement from its cost-effectiveness analysis—a critical analytical failure that rendered the entire cost-benefit determination fundamentally flawed. To properly consider the cost-effectiveness of increased energy standards, any increased costs for testing, compliance, and enforcement must be considered.

The 2022 Final Rule established stringent energy efficiency requirements based on the 2021 IECC but provided no testing procedures, compliance pathways, or enforcement mechanisms. As DOE itself acknowledged in the 2016 Proposed Rule, "[t]est procedures are necessary to provide for accurate, comprehensive information about energy characteristics of manufactured homes and provide for the subsequent enforcement of the standards." 81 FR 78734. Yet the Final Rule proceeded without establishing such procedures or accounting for their costs.

This omission is particularly egregious given that DOE was fully aware of the need for testing, compliance, and enforcement procedures but chose to defer development of those procedures while proceeding with the substantive standards. The result is a cost-effectiveness analysis that dramatically understated the true costs to be borne by manufacturers and ultimately by consumers.

Failure to Use Incremental Cost-Effectiveness Analysis

DOE's analytical approach of bundling all energy efficiency measures into a single package masked the diminishing returns of less cost-effective measures. Every step in making homes more energy efficient costs more and saves less due to diminishing returns. The proper analytical approach examines each incremental improvement in efficiency individually, with each improvement required to stand on its own cost-benefit merits.

By combining all energy measures into a single package, as DOE did in the 2022 Final Rule, the minimal or negative benefits of the least cost-efficient measures are hidden by the benefits of the most cost-effective measures. This approach inevitably leads to mandating efficiency improvements that fail the cost-effectiveness test when examined individually. Future analysis must evaluate incremental costs and benefits of each energy efficiency measure separately and establish standards at the point where additional measures cease to be cost-effective.

Failure to Properly Account for Consumer Price Sensitivity

DOE's price elasticity assumptions substantially understated the number of households that would be priced out of the manufactured housing market by the rule's cost increases. The industry serves predominantly lower-income households for whom even modest price increases can eliminate homeownership opportunities. Research and industry data demonstrate that manufactured housing consumers are significantly more price-sensitive than site-built home purchasers.

Any future analysis must use realistic price elasticity assumptions that properly reflect the income characteristics and financial constraints of the manufactured housing consumer base. The analysis must also comprehensively assess impacts on housing access for vulnerable populations, including lower-income families, seniors on fixed incomes, and first-time homebuyers.

Recommendations for Future Analytical Approach

Any future cost-effectiveness analysis for manufactured housing energy standards must:

- Use a time horizon that reflects actual homeownership periods (7-10 years) rather than an artificial 30-year period that bears no relationship to consumer decision-making or benefit realization.
- Include all costs for testing, compliance, and enforcement in the cost-effectiveness calculation, with realistic estimates based on consultation with HUD, the MHCC, and industry stakeholders.
- Use current, accurate data on material costs, construction inflation, and interest rates.
- Apply appropriate discount rates that reflect current financing costs and market interest rates.
- Comprehensively analyze impacts on mortgage qualification, including debt-to-income ratio effects and down payment requirements.
- Evaluate each energy efficiency measure incrementally rather than bundling all measures into a package, establishing standards at the point where additional measures cease to be cost-effective on their own merits.
- Use realistic price elasticity assumptions that properly account for the price sensitivity of manufactured housing consumers and assess impacts on housing access for lower-income households.
- Be led by HUD and the MHCC to ensure analytical assumptions and methodologies are appropriate for manufactured housing. In fact, the most constructive path forward is for HUD and the MHCC to develop updated energy efficiency requirements that are incorporated into the MHCSS, considering any input that DOE may have.

Issue B–5: Climate Zones

> "DOE seeks comments on the appropriateness of using the HUD climate zones, and whether the use of the HUD climate zones continues to be appropriate."

Response:

MHI strongly supports use of the three HUD climate zones rather than the IECC climate zones. The use of HUD climate zones is both statutorily appropriate and practically necessary for the manufactured housing industry and should be maintained in any future rulemaking.

EISA explicitly provided DOE with the authority to "consider... the climate zones established in [HUD's] Manufactured Home Construction and Safety Standards... rather than the climate zones under the [IECC]." 42 U.S.C. 17071(b)(2)(B). DOE appropriately exercised this discretion in the May 2022 Final Rule, showing that it could recognize the fundamental differences between manufactured housing and site-built construction.

The manufactured housing industry has operated under the MHCSS's three-zone system since 1976. This regulatory framework was specifically designed to account for the unique aspects of factory-built housing, including design, construction techniques, transportation constraints, and the need for homes to be marketable across broad geographic areas. Shifting to a different climate zone system would create unnecessary regulatory complexity and confusion for manufacturers, retailers, installers, and consumers.

The use of HUD climate zones ensures consistency with the broader MHCSS requirements that govern all other aspects of manufactured home construction and safety. This harmonization is critical because:

- Manufacturers design and build homes to comply with an integrated set of MHCSS requirements, not just energy provisions in isolation
- Design Approval Primary Inspection Agencies (DAPIAs) review plans for compliance with the entire MHCSS
- In-Plant Primary Inspection Agencies (IPIAs) monitor manufacturing for compliance with all HUD standards
- State administrative agencies (SAAs) enforce the complete MHCSS framework

Creating a separate climate zone system would fragment this unified regulatory structure and significantly increase compliance costs and complexity.

Additionally, manufacturers typically build homes for broad regional markets that often span multiple states. The three HUD zones allow manufacturers to design homes that can be sold throughout large geographic areas, which is essential for maintaining inventory that retailers can sell to customers across their service areas, achieving production efficiencies through longer manufacturing runs, and providing consumers with reasonable choice and availability of home models.

Issue B–6: Access to Financing

> "DOE acknowledges that interest rates change over time and expects the interest rates used in the 2022 Final Rule will change as more data becomes available. DOE seeks comments regarding the previous financial findings regarding the economic impact of energy conservation standards on the ability of purchasers to buy manufactured homes. In stakeholders' experiences, are these findings reasonably accurate, and are there other data that DOE should examine, or other factors that DOE should consider? In addition, are the total costs of ownership accurately reflected in the analysis? Assuming that these findings are reasonably accurate, what role, if any, should they play in shaping potential amended standards that DOE may ultimately adopt for manufactured housing and why? If these findings do not appear accurate, what data supports the discrepancy, what specific shortcomings are indicated, and what assumptions/changes should DOE apply when determining the stringency and structure of energy conservation standards for manufactured housing?
>
> DOE also seeks input on the advisability of using current interest rates versus longer historical averages. DOE also seeks input on the advisability of continuing to use 30-year analytic time horizon in the analysis or whether the analytic time horizon should reflect average ownership of manufactured housing."

Response:

MHI appreciates DOE's recognition that financial conditions have changed significantly since the 2022 Final Rule and that the economic circumstances of manufactured home purchasers warrant careful consideration. The financial findings referenced in the RFI regarding interest rates, loan types, and consumer characteristics are generally accurate and consistent with MHI's experience and data. However, DOE's prior analysis did not adequately account for these financial realities or their implications for affordability and cost-effectiveness. Any future rulemaking must comprehensively address these factors and use realistic assumptions that reflect actual market conditions and consumer financial circumstances.

Most analysts predict that we will not soon return to the era of lower interest rates that persisted for most of 2008 to 2022. Accordingly, analysis must be based on an assumption that higher interest rates will persist, rather than relying on a longer-term historical average that would incorporate the historically unusual period of low rates seen after the global financial crisis.

Home-only loans for manufactured housing, which comprised 78% of new manufactured home purchases in 2024 according to the Manufactured Housing Survey, carry higher interest rates (often 10% or higher) and shorter terms. This significantly increases monthly payments, which must be reflected in a cost and affordability analysis. The difference between home-only and land-home interest rates has dramatic implications for the cost-effectiveness of energy efficiency investments. A consumer paying 10 percent interest on a home-only loan will require much greater energy savings to justify upfront efficiency investments compared to a consumer paying 6 percent on a land-home mortgage. An appropriate analysis should account for this reality.

The analysis also must recognize the impact of increased upfront costs on access to financing, regardless of projected utility savings. An increased home purchase price will cause a proportionate increase in the homebuyer's debt burden. FHA's customary debt-to-income (DTI) requirement is 43 percent. Therefore, any homebuyer at the edge of this 43 percent DTI requirement will no longer qualify for an FHA loan because of the higher price caused by the new energy standards. Any theoretical savings in the rule are meaningless if the price increase causes the homebuyer to no longer qualify for a mortgage loan, because they no longer meet DTI underwriting requirements. Any increase in purchase price will also necessitate a higher downpayment, which may be a significant obstacle for many lower income households.

DOE's prior emphasis on a 30-year period of analysis for life-cycle cost calculations was inappropriate. Based on industry data, manufactured home purchasers typically sell their homes within 7-10 years. The first owner bears the full upfront cost of efficiency investments but may not remain in the home long enough to recoup these costs through energy savings and is unlikely to recover the value of those future energy savings at resale. Additionally, if significant numbers of low- and moderate-income consumers cannot purchase homes at prices resulting from proposed standards, those standards are unaffordable regardless of theoretical long-term savings. A 7 - 10-year analysis period most accurately reflects the economic reality for the typical purchaser of manufactured homes.

Issue C–7: Affordability analytical approach

> "In the 2022 Final Rule analyses DOE analyzed "packages" of efficiency changes that reflected the 2021 IECC requirements. For the Tier 1 standards, DOE analyzed individual energy efficiency options to identify a package of options that totaled less than $750 and that yielded a positive cash flow in year 1 taking into account the increases in first-year loan cost and the down payment and the reductions in first year energy costs. (See 2022 Final Rule Technical Support Document, p. 6–3.) Further, in this analysis, DOE assumed the purchaser would use a chattel loan. DOE seeks comments on the appropriateness of this methodology for assessing affordability. Are there metrics DOE could use to assess the impact of standards on consumers other than the life-cycle cost analysis and the cash flow analysis? Are there other consumer impacts that the life-cycle cost and cash flow analysis should reflect, such as availability of other housing options using cross-price elasticities?
>
> For Tier 2, DOE considered a package of energy efficiency options that mirror the 2021 IECC, with adjustments made for the practicalities of manufacturing and transporting and setting homes up on-site. For example, because of the need to join sections in order to perform an envelope air-sealing test, DOE, working with the Manufactured Housing Working Group,10 came up with an alternative requirement based on visual assessment. Minimum ceiling R-values from the IECC were reduced in consideration of factory construction techniques when compared to site-built homes. In the analysis of options, DOE found R–20+5 exterior wall insulation to not be cost effective and reduced that requirement to R–21. For Tier 2, DOE analyzed the life-cycle cost effectiveness of standards. DOE seeks input on the appropriateness of the methodologies used in the 2022 Final Rule, including both the use of life-cycle cost and the first-year positive cash flow analyses, for analyzing possible updates to the 2022 Final Rule."

Response:

In the 2021 Proposed Rule, DOE established tiers based on list prices to establish different thresholds of energy standards, which MHI strongly opposed. Manufacturer list prices are not a clearly defined or uniform practice in the industry, and this approach would have created significant confusion and additional burden. Additionally, the initial price thresholds were set unreasonably low, grouping many homes that were affordable even to low-income purchasers in Tier 2. The final rule's revised approach distinguishing single section homes from multi-section homes was an improvement, and MHI supports special consideration to ensure affordability is preserved for the most cost-sensitive consumers. The majority of these homes are purchased with home-only loans, which the analysis should reflect.

For Tier 2 (multi-section homes), we reiterate that the analysis should assess cost effectiveness based on an incremental approach to identify the optimum standard.

Additionally, utility savings should be assessed over a 7-10 year period reflecting typical ownership for an initial purchaser. The initial purchaser, who bears the full upfront cost burden, will realize only a fraction of projected 30-year energy savings before selling the home. It is highly unlikely that a homebuyer financing a manufactured home purchase will recover additional upfront costs at resale. Cost-effectiveness analysis should therefore reflect the actual time horizon over which the original purchaser will own the home and capture energy savings, not a theoretical 30-year period.

Any affordability analysis must recognize the primary importance of upfront prices. Purchase price impacts occur immediately and create a binary outcome—the consumer either can or cannot complete the purchase. Operating cost savings accrue gradually over time and are only relevant to consumers who successfully complete the initial purchase. If a consumer is unable to obtain financing or is otherwise priced out by increased upfront costs, they lose access to all benefits of homeownership, including any energy savings. An appropriate analysis must therefore prioritize affordability at the point of purchase as the primary determinant of affordability for the low- and moderate-income consumers in the manufactured housing market.

The impact of any new standards on the home features and options that manufacturers will be able to offer to consumers should also be a consideration. For instance, the 2022 Final Rule made certain features such as vaulted ceilings more difficult if not impossible in certain existing product designs and also may necessitate floor plan changes to accommodate additional insulation. In addition to limiting consumer choice, these challenges may reduce the appeal of manufactured housing relative to site-built homes built to a lower standard. To mitigate these challenges, the Manufactured Housing Consensus Committee in accordance with 42 U.S.C. § 5403 (Section 604 of the Manufactured Housing Construction and Safety Standards Act) must fully assess these impacts. The most constructive path forward is for HUD and the MHCC to develop updated energy efficiency requirements that are incorporated into the MHCSS, considering any input that DOE may have.

Issue C–8: Affordability impact

> "Manufactured housing owners tend to be lower-income compared to other homeowners and are also likely to finance their manufactured housing purchase using higher-rate chattel loans. As a result, the Department is particularly interested in specific comments, analysis, and data regarding the affordability of manufactured housing and how the requirements adopted in the 2022 Final Rule for both Tier 1 and Tier 2 manufactured homes will likely affect affordability, and which manufactured home purchasers may be most impacted."

Response:

Manufactured housing is an essential homeownership option for low-income households. Last year, the average price of a manufactured home was $123,300, compared to approximately $406,000 for a site-built home (excluding land). The average income for a manufactured home buyer was about $63,000, while the average income for a site-built home buyer exceeded $143,000. Manufactured homes are clearly more affordable, serving homebuyers with much lower incomes. To protect this crucial pathway for homebuyers, the importance of upfront pricing for home financing, the higher interest rates paid by purchasers using home-only loans, and the actual length of time that buyers will benefit from utility savings, must be considered in any analysis.

First, any home purchase price increase will result in a proportionate increase in the homebuyer's debt burden, which will affect their ability to qualify for financing. For instance, FHA's customary debt-to-income (DTI) requirement is 43 percent. Therefore, any homebuyer at the edge of this 43 percent DTI requirement would no longer qualify for an FHA loan because of an increased price caused by the new energy standards. An analysis by the National Association of Homebuilders found that a $1,000 increase in the median price of new homes would price an additional 115,593 households out of the market. Any theoretical savings in new energy standards are meaningless if the price increase causes the homebuyer to be denied for a mortgage loan because they no longer meet DTI underwriting requirements. Any increase in purchase price will also necessitate a higher downpayment and higher mortgage insurance premium, which may be a significant obstacle for many lower income households.

Additionally, home-only loans for manufactured housing, which comprised 78% of new manufactured home purchases in 2024, carry significantly higher interest rates and shorter terms. This significantly increases monthly payments, which must be reflected in a cost and affordability analysis. Future utility savings should be discounted at a similar rate, enabling an accurate comparison of the financing impact of increased upfront costs with the projected savings.

Finally, based on MHI's industry data, buyers usually sell their homes within seven to ten years of purchase, and it is unlikely that a manufactured homebuyer financing the purchase of a new manufactured home would recover upfront costs required by higher energy standards at a future sale. To optimize affordability for consumer's, the actual savings that a typical initial purchaser would realize should be all that is considered.

Issue C–9: Lending and Purchasing Modeling

> "In the 2022 Final Rule the Department took into account the impact of price sensitivity of manufactured home purchasers when estimating the shipments of products by applying an estimate of price elasticity to percentage changes in the up-front price of manufactured homes. Lenders and home purchasers often take into account costs and benefits beyond the simple up-front cost when making lending or purchasing decisions. including default risks and changes in the features of manufactured housing. The Department seeks input concerning whether there is a more comprehensive way to model lending behavior and purchasing behavior rather than simply first-cost, particularly when considering that DOE's assessment of the financing mechanisms typically relied upon and the energy benefits that accrue from energy efficiency standards."

Response:

DOE's current approach to modeling lending behavior and purchasing decisions—which relies primarily on price elasticity applied to upfront cost increases—is inadequate and likely understates the negative market impacts of energy conservation standards on manufactured housing. A more comprehensive analytical framework that accounts for the multiple factors that influence both lender willingness to extend credit and consumer ability to purchase homes is necessary. This framework must recognize the unique characteristics of the manufactured housing finance market and the particular vulnerabilities of the low- and moderate-income consumers this industry serves.

DOE's current methodology applies an elasticity coefficient to estimate how changes in home purchase prices affect shipments (sales). Specifically, the Department applies a price elasticity estimate to the percentage change in upfront price to project the percentage change in shipments. This approach has several significant limitations.

First, price elasticity captures only the relationship between price and quantity demanded, treating all price changes as equivalent regardless of the source of the price increase (e.g., material costs vs. regulatory requirements), the financial circumstances of buyers (income, credit score, existing debt), the financing options available (home-only vs. land-home, interest rates), and whether the price increase moves consumers across critical qualification thresholds. Traditional elasticity models assume that all consumers who are willing to pay the higher price can obtain financing and complete purchases. This assumption does not hold in the manufactured housing market, where consumers face substantial barriers to financing, debt-to-income ratios create hard qualification thresholds, and down payment requirements may be prohibitive for low-income consumers.

Elasticity estimates are typically derived from historical data reflecting specific market conditions. The manufactured housing market has experienced dramatic changes in recent years, including substantial increases in baseline home prices, rising interest rates, persistent inflation, and supply chain disruptions. Consumers may be increasingly price-sensitive when baseline prices are already elevated and financing costs are high. Historical elasticity estimates may not adequately capture this dynamic sensitivity.

DOE's elasticity-based approach likely substantially understated the number of consumers who would be priced out of manufactured housing by its ill-conceived energy conservation standards. In the 2022 Final Rule, DOE estimated that approximately 5,000 families annually would be unable to afford a manufactured home as a result of the standards. This estimate was based on applying a price elasticity of demand of -0.76, meaning a 1% price increase would result in a 0.76% decrease in quantity demanded. HUD has previously identified studies estimating the price elasticity of demand for manufactured housing at -2.4. Based on this alternative price sensitivity, the price increases could affect more than three times as many families as DOE estimated.

These elasticity-based estimates, regardless of which coefficient is used, may fail to capture consumers who would be priced out not because they are unwilling to pay the higher price, but because they cannot qualify for financing at the higher price point. Lenders use debt-to-income (DTI) ratios as qualification criteria. FHA's customary maximum DTI is 43 percent. This creates a hard threshold: consumers above this ratio cannot obtain FHA-backed financing regardless of their willingness to pay higher prices. Because manufactured home purchasers have substantially lower incomes than site-built homebuyers, a larger fraction of manufactured home purchasers are likely to be near DTI qualification limits.

Any analysis should explicitly account for the fact that price increases will prevent some consumers from qualifying for financing—an effect that simple elasticity models do not adequately capture and that may be particularly severe for the low- and moderate-income consumers who constitute the manufactured housing market.

Without such considerations, it was impossible for DOE to accurately assess whether proposed standards meet EISA's cost-effectiveness requirement or fulfill the Department's obligation to consider impacts on purchase prices and total ownership costs. It is imperative to ensure that updated energy efficiency standards preserve manufactured housing as an affordable option for the American families who depend on this critical housing resource.

Issue C–10: Defining Affordability

> "DOE has previously viewed "affordability" as a combination of up-front cost, which may price out some number of potential homeowners at time of purchase, as well as operating costs, which will affect all manufactured housing owners over a longer time horizon. HUD and prominent industry organizations generally define housing affordability in terms of a percentage of income. The Department seeks comments that provide information on how to weigh these components in defining affordability, with consideration for economic factors such as income, and with a particular focus on affordability for lower-income consumers."

Response:

MHI appreciates DOE's recognition that affordability encompasses both upfront costs and operating costs. For affordable homeownership, the upfront purchase price is the most critical determinant of housing affordability for manufactured home purchasers because it directly determines whether consumers can access financing and complete a purchase. Increased upfront costs of both Tier 1 and Tier 2 manufactured homes are important for lower-income consumers as both single-section and multi-section manufactured homes currently provide affordable homeownership opportunities for very low, low and moderate-income households.

Upfront price is the key determinant of affordability.

For prospective manufactured home purchasers, the upfront purchase price is the primary factor determining affordability. Lenders evaluate consumers' ability to afford monthly payments using debt-to-income (DTI) ratios. Higher purchase prices result in higher monthly loan payments, which increase DTI ratios. Consumers whose DTI ratios exceed lender thresholds (typically 43% for FHA loans, for instance) cannot obtain financing. Even modest price increases can push marginal borrowers over qualification thresholds, completely eliminating their ability to achieve homeownership.

The upfront price also impacts down payments, which are typically 10% of purchase price for manufactured homes. The 2022 Final Rule's projected price increases of $3,914 to $5,289 for Tier 2 homes would require an additional $391 to $529 in additional cash at closing. For low-income purchasers with limited savings, finding this additional funding may be a significant barrier.

Purchase price impacts occur immediately and create a binary outcome—the consumer either can or cannot complete the purchase. Operating cost savings accrue gradually over time and are only relevant to consumers who successfully complete the initial purchase. If a consumer is priced out of homeownership by high upfront costs, they lose access to all the benefits of homeownership, including any energy savings.

Manufactured housing is critical for low-income homebuyers.

Housing affordability is conventionally measured using HUD's standard that housing is "affordable" when households pay no more than 30 percent of their income for housing costs. These monthly housing costs are driven primarily by purchase price, which determines mortgage or loan payments—typically 80-85% of base housing costs before utilities.

Using this definition, manufactured homes currently provide affordable homeownership opportunities for a wide range of low- and moderate-income households. HUD defines "low-income" households as those earning 80% or less of area median income (AMI). The national median household income is approximately $84,000, making the low-income threshold $67,200.

A typical $84,800 single-section manufactured home financed with 10% down at 9% interest results in direct monthly housing costs of approximately $900 (including loan payment, taxes, and insurance). For this to be affordable under HUD's 30% standard requires annual income of only $36,000—well below the low-income threshold of $67,200 and even below the "very low-income" threshold of $42,000. Single-section manufactured homes are thus affordable for households with incomes well below low-income thresholds, making them accessible to very low-income households who have virtually no other homeownership options.

Multi-section manufactured homes have an average price of $154,000. A typical multi-section home financed similarly results in total monthly housing costs of approximately $1,550. This requires an annual income of $62,000 for affordability—below HUD's low-income threshold. Multi-section manufactured homes are affordable for low-income households, providing a pathway to homeownership with more space and features comparable to site-built homes.

By contrast, the median price of a new site-built home is approximately $410,000, requiring income of $110,000 or more for affordability—well beyond low-income households. Rising costs and interest rates have been particularly difficult for first-time homebuyers. A recent report by the National Association of Realtors found that first-time buyers now make up only 21% of home purchases, a historic low.[5] For these households, manufactured housing is often the only realistic pathway to affordable homeownership in safe, modern homes built to current standards.

The current affordability of manufactured housing makes this sector critical to the nation's affordable housing infrastructure. Manufactured housing serves approximately 22 million Americans in 8.5 million homes and produces 90,000-113,000 new homes annually, which is 9-11% of new single-family starts. Manufactured housing residents are disproportionately low- and moderate-income households, including elderly persons on fixed incomes and rural residents with limited housing options.

Conclusion

Affordability in the manufactured housing context is fundamentally determined by purchase price, which controls whether consumers can obtain financing and achieve homeownership. Manufactured homes currently provide the only realistic pathway to homeownership for many low- and moderate-income families, with both single-section and multi-section homes affordable under standard HUD measures for low-income households.

In establishing energy conservation standards, preserving affordability by giving primary weight to purchase price impacts, using realistic financial assumptions reflecting actual borrowing costs and qualification criteria, focusing analysis on 10-year time horizons reflecting typical ownership, and explicitly modeling how many consumers will be unable to obtain financing due to increased prices is imperative. Standards that significantly increase purchase prices—even if theoretically cost-effective over 30 years—may be inappropriate if they price significant numbers of consumers out of the homeownership that manufactured housing uniquely provides to low- and moderate-income American families.

[5]https://www.nar.realtor/newsroom/first-time-home-buyer-share-falls-to-historic-low-of-21-median-age-rises-to-40

Issue D–11: Costs of materials

> "The cost of efficiency improvements directly affects the affordability of any standard DOE might adopt. To avoid short-term cost fluctuations, DOE's engineering analyses supporting appliance efficiency rulemakings will commonly use 5-year averages in prices of materials such as structural steel that fluctuate with world markets. In doing so, the analyses smooth out some of the effects of transitory price shocks, without removing the shocks from the data. DOE seeks input on appropriate methods for establishing costs for major cost categories such as insulation, softwood lumber, window products, and other major components that may impact the cost effectiveness of energy conservation standards for manufactured housing. Certain stakeholders have also highlighted the impact of inflation and recent supply shortages on the construction and manufactured housing industry. Has cost inflation related to materials needed for manufactured housing eased? Are there residual supply chain shortages for materials needed to construct manufactured housing? Are changing tariff structures expected to impact costs or materials availability? How should DOE conduct sensitivity analysis incorporating different price scenarios systematically to offer better analysis?"

Response:

The accuracy of material cost assumptions is fundamental to a proper cost-effectiveness and affordability analysis for new energy conservation standards. DOE's material cost and interest rate assumptions in the 2022 Final Rule were calculated primarily in 2014 for the 2016 Proposed Rule and have proven substantially inaccurate. Most notably, DOE assumed a nominal construction cost increase of 2.3 percent annually from 2014 to 2023, but the actual cost increase for construction materials from 2015 to 2025 was 60.1 percent—an average annual rate of 4.3 percent, nearly double DOE's assumption. This significant underestimation of material cost inflation increased the inaccuracy of DOE's cost-benefit analysis and understated the number of households who would be priced out of homeownership by the standards.

The Manufactured Housing Consensus Committee is the best resource for assessing the availability and suitability of materials necessary to meet any proposed standards. In fact, the most constructive path forward is for HUD and the MHCC to develop updated energy efficiency requirements that are incorporated into the MHCSS, considering any input that DOE may have. The standards in the 2022 Final Rule and in the 2024 IECC would require manufacturers to use different components, including insulation materials, windows, skylights, mechanical equipment, and appliances, all of which must be practicable for the unique production methods, transportation demands, and space limitations inherent in manufactured housing construction. Not all materials suitable for site-built construction are viable for manufactured housing. Formal coordination with industry on these issues is essential to fully consider availability, supply chain capacity, lead times, and the practical implementation challenges that could further increase costs beyond DOE's engineering estimates.

Finally, given the substantial changes to design and manufacturing processes required by the 2022 Final Rule and any future updates, new standards should allow an implementation period of 3-5 years, as is typical for appliance efficiency standards. This extended timeline is necessary to allow manufacturers sufficient time to update designs and manufacturing processes, secure reliable sources for new materials, and work through supply chain adjustments—all of which will help moderate cost impacts and preserve affordability for consumers.

Without accurate material cost assumptions—properly coordinated with realistic interest rate assumptions and discount rates that reflect actual manufactured housing financing conditions—it is impossible to establish cost-effective standards or accurately assess impacts on the affordability that manufactured housing uniquely provides to low- and moderate-income American families.

Issue D–12: Time period for cost-effectiveness analysis

> "The Department also seeks comment on whether cost- effectiveness analyses should be performed over the expected life of manufactured homes, or over some other time period, for example that reflecting the average time period that the original owner of the home will live in the home and benefit from the efficiency improvements. Since any subsequent owners of the home will continue to receive the energy benefits for the entire life of the home, is it reasonable to model the economic benefits of the improvements to energy efficiency of the home over any lifetime less than the expected 30-year life of the home, and if so, what are the arguments for doing so? Or should DOE also analyze the consumer discounting of the future decrease in energy consumption seen in used energy efficient goods such as cars and appliances? Is this a life- cycle cost question or is this an affordability question?"

Response:

The 30-year Life-Cycle Cost approach used by DOE in the 2022 Final Rule is not an appropriate method to determine cost-effectiveness for an initial buyer of a manufactured home. Based on MHI's industry data, buyers usually sell their homes within seven to ten years of purchase. This ownership period is significantly shorter than the 30-year analysis period DOE employed. For the initial purchaser financing the home—the person who pays the higher upfront cost mandated by energy efficiency standards—a 30-year payback period is economically meaningless.

Based on input from industry partners, we have found that buyers will not recoup energy efficiency costs at resale. As suggested in the RFI language, this is consistent with evidence on cost recovery of high-efficiency features in the used vehicle market, where the higher upfront costs of more energy efficient vehicles are associated with faster price depreciation.[6] An appropriate assumption based on available data is that manufactured homebuyer will not recover increased upfront energy efficiency costs when they sell the home 7-10 years later.

Additionally, mortgage qualification impacts must be analyzed separately from life-cycle cost considerations, as these represent distinct but equally important dimensions of affordability. An increased home purchase price will result in a proportionate increase in the homebuyer's debt burden. For prospective homebuyers, a key qualification for financing will be the borrower's debt-to-income ratio. Therefore, any homebuyer at the edge of a lender's DTI requirement (e.g., typically 43% for FHA loans) will no longer qualify for the loan because of the higher price caused by the new energy standards. Any theoretical savings in the rule are meaningless if the price increase causes the homebuyer to no longer qualify for a mortgage loan. Any increase in purchase price will also necessitate a higher downpayment, which may be a significant obstacle to completing a purchase for many lower income households.

[6] Roberson, L. et al., "Battery-Powered Bargains? Assessing Electric Vehicle Resale Value in the United States," *Environmental Research Letter* (2024)

Issue E-13: HUD Consultation

> "EISA requires DOE to consult with the Secretary of HUD, who may seek input from the Manufactured Housing Consensus Committee (MHCC). In the prior rulemaking process, which eventually led to the 2022 Final Rule, DOE met with HUD on multiple occasions and attended and presented at MHCC meetings. DOE consulted with HUD on pathways to compliance and enforcement of the energy conservation standards toward the objective of aligning with HUD's current inspection and enforcement processes and reducing regulatory burden and duplication of effort. In addition, as part of the rulemaking process, DOE empaneled and took input from a Manufactured Housing Working Group. The rulemaking process itself also provides an additional avenue for consultation through which industry stakeholders and the general public can review rulemaking documents, supporting analysis, and provide input. Consultation with HUD also occurs during interagency clearance required by Executive Order 12866. DOE intends to continue consultation with HUD as it considers whether to amend its energy conservation standards for manufactured housing. Given HUD's historic and ongoing role in the regulation of manufactured housing generally, DOE seeks input on how DOE can best identify synergies with existing HUD processes and standards, while still satisfying DOE's statutory mandate to establish standards for energy efficiency in manufactured housing.
>
> How can DOE operationalize or amend this rule in a manner that reduces compliance burden on manufacturers?"

Response:

MHI appreciates DOE's stated intent to consult with the industry and HUD and reduce regulatory burden on manufacturers. However, DOE's consultation efforts during the prior rulemaking were perfunctory and did not come close to being considered meaningful engagement with industry, HUD or the Manufactured Housing Consensus Committee (MHCC). Industry participants were never consulted and repeatedly raised concerns about the absence of substantive, decision-level DOE participation in the MHCC process and the lack of alignment with HUD's established inspection and enforcement framework. These deficiencies resulted in standards developed without meaningful consultation with HUD or the MHCC and without consideration of factory-built construction techniques, alternative compliance paths, or cost-effectiveness for homebuyers.

The manufactured housing industry supports modernized energy efficiency standards through the proper regulatory channel—HUD's preemptive Manufactured Home Construction and Safety Standards (MHCSS)—with MHCC input. In fact, the MHCC convened in late 2022 and drafted proposed HUD Code energy standards tailored to the realities of manufactured home construction, and MHI strongly supports those proposals. There was no meaningful DOE participation at that meeting and no one from the DOE with decision making authority over the rulemaking attended.

Unfortunately, HUD action to advance energy efficiency improvements has been hindered by conflicting statutory authority created by EISA Section 413. Legislation now advancing in Congress would resolve this conflict and restore regulatory clarity by repealing Section 413 and nullifying DOE's 2022 rule, allowing HUD to move forward with meaningful updates while DOE retains an advisory role.

Unworkability of Section 413 of EISA

Section 413 of the 2007 EISA was never properly vetted by Congress through regular order and contains language impractical and ill-suited to manufactured housing. Specifically, this provision directed the DOE to establish energy efficiency construction standards for manufactured housing in contravention of long-standing authority of HUD to promulgate federal construction standards for manufactured homes via the MHCSS, which the agency has overseen for over 50 years. This duplicative agency mandate has created regulatory confusion, undermining efforts to advance practical energy efficiency improvements that can save homeowners on the energy bills and jeopardizing the availability and affordability of manufactured homes.

Nearly two decades after Congress directed DOE to act, the agency's prolonged failure to implement a rule demonstrates the inherent challenges and impracticality of applying the EISA rider to manufactured housing. When DOE finally issued its recommendations, HUD declined to adopt them—further underscoring that the rider's language was never properly vetted and is ill-suited for the unique characteristics of manufactured housing.

Legislation is advancing through Congress to rescind this flawed directive and restore a streamlined, effective regulatory framework under HUD while DOE retains input in an advisory role. This will allow for timely, practicable updates to energy efficiency standards consistent with the federal construction code for manufactured housing while preserving affordability for American households.

DOE's 2022 final rule is fundamentally flawed and unworkable for off-site construction. Per Section 413, it relies on the International Energy Conservation Code (IECC) designed for site-built construction homes. This fails to account for the unique characteristics of factory-built housing in which the final location and orientation of the home is often not known at the time of production. It also fails to appreciate the precision, sequencing, and transportation requirements inherent to an efficient manufactured housing process.

Beyond its technical mismatch, the DOE rule lacks a viable framework for testing, compliance, and enforcement. This regulatory gap creates uncertainty for manufacturers and impedes progress on energy efficiency improvements while also driving up costs of America's most affordable home ownership option. Worse still, it introduces a conflicting set of standards alongside HUD's existing code, undermining the regulatory clarity that has governed manufactured housing for decades and threatening the production of affordable homes. The rule was developed without meaningful input from those who understand the manufactured housing industry or the needs of the families it serves. When HUD's MHCC reviewed the DOE rule, it concluded that DOE failed to consider the unique nature of off-site construction — despite repeated outreach from both the MHCC and industry stakeholders.

DOE itself delayed implementation of the rule pending further rulemaking. This breakdown further illustrates why Congress, through the Manufactured Home Construction and Safety Standards Act of 1974, vested HUD with sole authority over federal construction standards for manufactured housing. The Affordable HOMES Act rightly restores that authority, ensuring energy efficiency standards are developed through a process that understands — and reflects — the unique nature of manufactured housing.

Deficiencies in consultation in the prior rulemaking

EISA explicitly requires DOE to consult with the Secretary of HUD, who may seek further counsel from the MHCC, before establishing energy conservation standards for manufactured housing. 42 U.S.C. 17071(a)(2). This consultation requirement reflects Congress's recognition that:

- HUD has been the primary regulatory authority for manufactured housing since 1974
- HUD possesses unique expertise in the design, construction, and regulation of factory-built housing
- The MHCC brings together producers, users, and public officials with specialized knowledge of manufactured housing
- Energy conservation standards must be integrated with HUD's comprehensive regulatory framework for manufactured housing

While DOE met with HUD and attended MHCC meetings during the rulemaking process leading to the 2022 Final Rule, these interactions did not constitute the meaningful consultation that EISA requires.

At the formative stages of the rulemaking, DOE developed its proposed approach without substantive input from HUD or the MHCC. By the time DOE presented its proposals to these bodies, the fundamental framework was already established, leaving little room for meaningful input on whether the IECC-based standards were appropriate and cost-effective for manufactured housing.

The MHCC was given only a preview of a small portion of the proposed rule approximately two months before publication, which raised many concerns about both affordability and feasibility. The MHCC was not provided an opportunity to review and comment on DOE's technical analysis, cost-effectiveness determinations, or enforcement approach before the rule was proposed.

Throughout the rulemaking, DOE suggested it might rely on HUD to enforce DOE's standards but never formalized this arrangement or confirmed HUD's willingness and capability to enforce standards that differ from those HUD would develop through its own processes.

The inadequacy of DOE's consultation became apparent when HUD convened the MHCC in 2022 to consider aligning the MHCSS with DOE's 2022 Final Rule. After thorough review, the MHCC explicitly rejected wholesale adoption of the DOE standards and instead recommended incremental improvements that would achieve significant energy efficiency gains while maintaining affordability and accounting for manufactured housing construction realities. No one from the DOE with decision making authority attended this convening.

In its recommendations to HUD, the MHCC concluded that DOE "circumvented the standards development process prescribed in EISA which requires cost justification and consultation with HUD." The MHCC noted that "DOE provided an energy conservation standard which was based on site-built construction and applied it to a performance-based national code" and that "if adopted as written, the final rule would adversely impact the entire Manufactured Housing program, and cost increases associated with compliance would reduce prospective purchasers (especially minorities and low-income consumers) from durable, safe, high quality and affordable housing."

Aligning with HUD's Regulatory Framework

The most constructive path forward is for HUD and the MHCC to develop updated energy efficiency requirements that are incorporated into the MHCSS, considering any input that DOE may have. This approach is the best way to ensure the timely adoption of improved energy efficiency standards for factory-built housing, and to preserve the availability of affordable manufactured homes for American households. With a 50-year track record in regulating standards for manufactured homes and a proven testing, compliance, and enforcement regime, HUD is the right agency to do this.

The MHCC's recommendations to HUD provide a strong foundation for this approach, which would reduce regulatory burden on manufacturers, minimize costs to consumers, avoid conflicting requirements, and result in more appropriate standards that reflect the expertise of the agencies and stakeholders with the deepest knowledge of manufactured housing.

Issue E-14: Enforcement Procedures

> "DOE published a NOPR in December 2023 to establish enforcement procedures for its energy conservation standards for manufactured housing. These procedures were not included in the May 2022 final rule, where the Department established its standards, and were published separately via the later NOPR. However, while DOE received comments on the NOPR and proposed enforcement procedures, it never finalized such procedures by issuing a final rule. In considering whether to further amend its energy conservation standards for manufactured housing, should DOE more comprehensively incorporate enforcement procedures into updated standards or continue in separately issuing enforcement procedures? How might such enforcement standards leverage the enforcement program administered by HUD?
>
> DOE encourages stakeholders to review and submit comments on the issues listed previously and on other issues that they believe warrant DOE's consideration in any potential future rulemaking on energy conservation standards for manufactured housing."

Response:

To minimize negative impacts on consumers and the manufactured housing industry, clear and sensible enforcement procedures should be included in any new energy standards rule. The 2022 Final Rule and the 2023 Enforcement Proposed Rule demonstrated fundamental flaws that must be avoided in any future approach. Most critically, any enforcement procedures must be comprehensively integrated with the substantive energy standards themselves—not developed separately as an afterthought. The most effective approach would be to incorporate energy conservation standards into the MHCSS and rely on HUD's existing, proven enforcement infrastructure.

Deficiencies in the 2023 Enforcement Proposed Rule

The proposed rule illustrated the problems that result from developing enforcement procedures separately from substantive standards and without meaningful consultation with HUD and the MHCC:

No Testing or Compliance Procedures: The Enforcement Proposed Rule proposed only enforcement mechanisms (investigation and penalties) without any testing procedures or compliance pathways. As DOE itself acknowledged in the 2016 Proposed Rule, "[t]est procedures are necessary to provide for accurate, comprehensive information about energy characteristics of manufactured homes and provide for the subsequent enforcement of the standards." 81 FR 78734. An enforcement-only regime leaves manufacturers uncertain on the appropriate steps to demonstrate compliance.

Reliance on Misaligned Documentation: The Enforcement Proposed Rule relied on manufacturers maintaining and submitting documentation required under the MHCSS—documents that were never designed to demonstrate compliance with DOE's separate energy standards. As MHI explained in prior comments on the enforcement NOPR, none of the MHCSS records (DAPIA approvals, quality assurance manuals, Subpart I determinations, on-site construction records) are designed to demonstrate compliance with the 2022 Final Rule, which materially differs from the MHCSS.

Undefined Standards: The enforcement proposed rule provided no guidance on how DOE would interpret and apply MHCSS documents to determine compliance with the Energy Rule. It offered no standards, measurements, testing procedures, interpretive materials, or safe harbors—only the threat of civil penalties for violations determined through DOE's subjective review of documents created for a different purpose.

Vague and Excessive Penalties: The enforcement proposed rule relied on EISA's civil penalty of "1 percent of the manufacturer's retail list price", a term that does not exist in the manufactured housing industry and that manufacturers cannot calculate with reasonable certainty. The NOPR further provided that each day of noncompliance and each unit sold would constitute separate violations, potentially resulting in civil penalties many times the cost of manufacturing a home, without identifying when "noncompliance" begins or providing any opportunity to resolve issues before penalties multiply.

Substantial Hidden Costs: Despite DOE's claim that the enforcement NOPR would impose no additional costs because it relied on existing MHCSS documentation, the reality is that manufacturers would need to incur substantial expense to retrofit their designs and quality assurance manuals to address requirements that differ from the MHCSS. These costs—which DOE never analyzed—would be passed to consumers.

The Need for Integrated Standards and Enforcement

The problems with the December 2023 enforcement proposed rule stemmed directly from DOE's decision to exclude testing, compliance, and enforcement provisions from the 2022 Final Rule. This approach was fundamentally flawed.

As MHI and the MHCC repeatedly emphasized throughout rulemaking, DOE's failure to include costs of testing, compliance, and enforcement in its life-cycle cost analysis rendered that analysis incomplete and inaccurate. Standards cannot be determined to be cost-effective without accounting for all compliance costs.

When DOE finalized energy standards without specifying how compliance would be demonstrated or tested, manufacturers were left unable to prepare. Any preparations manufacturers made after May 2022 were speculative because they had no guidance on what DOE's ultimate enforcement approach would require.

DOE's bifurcated approach—finalizing standards in May 2022 but not proposing enforcement procedures until December 2023—created massive uncertainty and made it impossible to establish appropriate implementation timelines. The standard DOE practice of providing 3-5 year implementation periods for single appliances should apply with even more force to comprehensive standards affecting entire home construction, but the implementation timeline cannot even begin to run until manufacturers know what compliance requires.

Leveraging HUD's Existing Enforcement Infrastructure

Rather than continuing attempts to create a separate DOE enforcement mechanism, HUD and the MHCC should develop updated energy efficiency requirements that are incorporated into the MHCSS, considering any input that DOE may have. This will ensure that HUD's existing enforcement infrastructure applies to any updated energy efficiency standards, preserving regulatory efficiencies.

Since 1974, HUD has administered a comprehensive enforcement program for manufactured housing including:

- Design Approval Primary Inspection Agencies (DAPIAs) that review and approve home designs
- Production Inspection Primary Inspection Agencies (IPIAs) that monitor manufacturing
- State Administrative Agencies (SAAs) that handle consumer complaints and enforcement
- The Institute for Building Technology and Safety (IBTS) providing additional oversight
- Established procedures for investigating violations and imposing penalties
- The HUD certification label that provides manufacturers with clear evidence of compliance

Unlike the IECC, which was developed for site-built construction, HUD's enforcement system was specifically designed for factory-built housing and accounts for the unique aspects of manufactured home design, construction, transportation, and installation.

HUD's system provides multiple checkpoints and layers of review—from initial design approval through ongoing production monitoring. This comprehensive approach is far superior to DOE's proposed enforcement-only mechanism that provides no guidance on how to achieve compliance.

Every manufactured home built under the MHCSS bears a HUD certification label confirming compliance. This label provides manufacturers, retailers, installers, consumers, and enforcement agencies with clear, objective evidence that a home meets applicable standards. DOE's enforcement NOPR had no comparable certification mechanism.

Leveraging HUD's existing infrastructure would minimize additional costs to manufacturers and consumers. Creating a parallel DOE enforcement system would impose duplicative costs, require manufacturers to work with multiple agencies on related issues, and create potential conflicts if DOE and HUD enforcement approaches differ.

Conclusion

The December 2023 enforcement proposed rule demonstrated that enforcement procedures cannot be developed separately from substantive standards. Any future approach must comprehensively integrate testing, compliance, and enforcement with the energy standards themselves, with all associated costs included in cost-effectiveness analysis.

HUD and the MHCC should develop updated energy efficiency requirements that are incorporated into the MHCSS, considering any input that DOE may have. This will ensure that HUD's existing enforcement infrastructure applies to any updated energy efficiency standards, preserving regulatory efficiencies. The implementation period provided should be 3-5 years, similar to the implementation period provided for single appliances.

This integrated approach would reduce regulatory burden on manufacturers, minimize costs to consumers, avoid conflicting requirements, ensure manufacturers have clear pathways to compliance, and produce more effective enforcement.