



Whole-Building Energy Performance

Reducing Energy Consumption in Housing Credit Properties

2023

Energy costs are one of the biggest variable expenses in affordable multifamily housing – for both operators and residents. Reducing energy consumption through energy-saving construction and retrofits can help building owners lower long-term operating costs and free up resources to invest in the property, as well as provide services to residents. Lowering energy consumption can also drive down residents' utility bills and the property's overall carbon emissions. As such, improving a property's energy performance can help owners to enhance housing quality and promote housing stability for residents.

For properties financed with Low Income Housing Tax Credits (Housing Credits), housing finance agencies (HFAs) play a critical role in lowering the energy consumed in properties by holding developers to certain energy performance standards and tracking improvements over time. While encouraging more energy-efficient appliances and building systems is one approach, HFAs can prompt developers to consider a broader array of cost-effective energy efficiency upgrades and technologies by instead addressing whole-building property performance through their QAP provisions.

A powerful tool for enhancing whole-building performance is through energy benchmarking, wherein an owner tracks and compares their property's energy consumption with other similar properties. By encouraging wider use of energy benchmarking, HFAs can help building owners make data-driven decisions to improve operations and maintenance, prioritize upgrades that lower operating costs, and advance long-term property sustainability.

The following analysis, which examined 53¹ [Qualified Allocation Plans \(QAPs\)](#) released before March 2023, provides insight into how state and local HFAs can advance whole-building energy performance in [Housing Credit](#) properties.

Measuring Whole-Building Energy Performance

Reducing whole-building energy consumption means that owners are able to achieve a minimum energy savings target compared to a baseline. In the case of existing buildings, the baseline is pre-retrofit energy performance, whereas new construction properties may use state code or other existing state standards as a benchmark for energy performance.

¹ From all 50 states, plus DC, New York City and Chicago

NHT's QAP analysis reveals that HFAs use several common approaches to measure and set whole-building energy performance targets. The most common approach for both new construction and existing buildings is the Home Energy Rating System (HERS) Index score. A HERS Index score rates energy performance on a scale of 0 to 150 where a lower score indicates better energy efficiency. HFAs that use this approach either require or incentivize properties to achieve a HERS rating *below* a set level or, in the case of existing buildings, achieve a *minimum percentage reduction* in the HERS rating post-retrofit.

HERS

The Home Energy Rating System (HERS) Index score is the most common approach for measuring and setting whole-building energy performance targets.

States may also encourage reduced energy consumption by incentivizing or requiring third-party national standards that incorporate specific energy performance, such as ENERGY STAR, Passive House, and LEED. This analysis includes HFAs that incentivize or require a whole building energy performance approach either outside of these third-party national standards or through ENERGY STAR. Additional standards beyond ENERGY STAR are not included here.

For more information on how HFAs incorporate these standards, read [NHT's Infobrief on Third Party Green Building Standards](#).

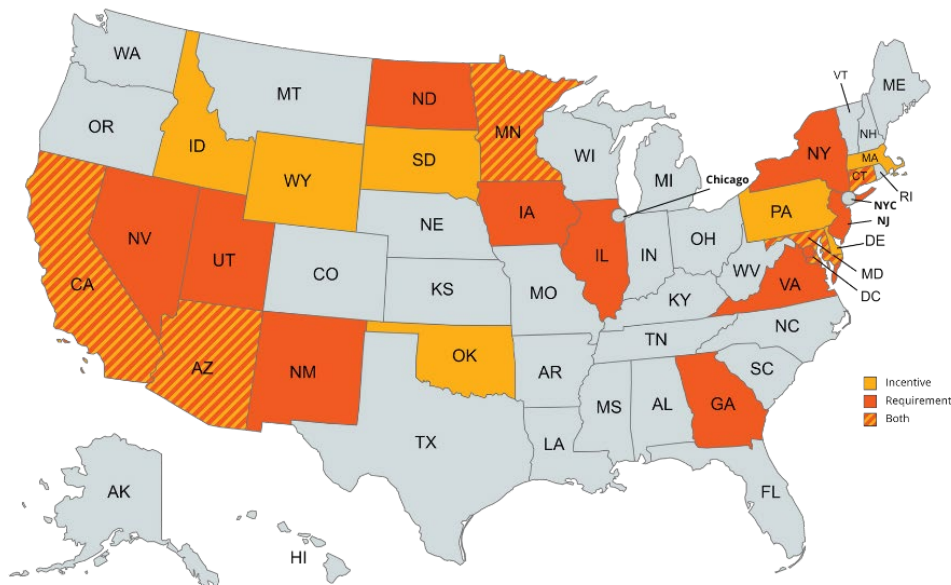
Use of Whole-Building Energy Performance Standards

HFAs in at least 23 states or localities incorporate whole-building energy performance standards in their QAPs, with most differentiating between new construction and existing buildings. Of these 23 HFAs, 20 include energy performance standards for Housing Credit awards for new construction: ten as a requirement, eight as an incentive, and three as both. Slightly fewer (21) QAPs include energy performance standards in awards for existing buildings: 13 as a requirement, eight as an incentive, and two as both.

23 OUT OF 53 HFAs

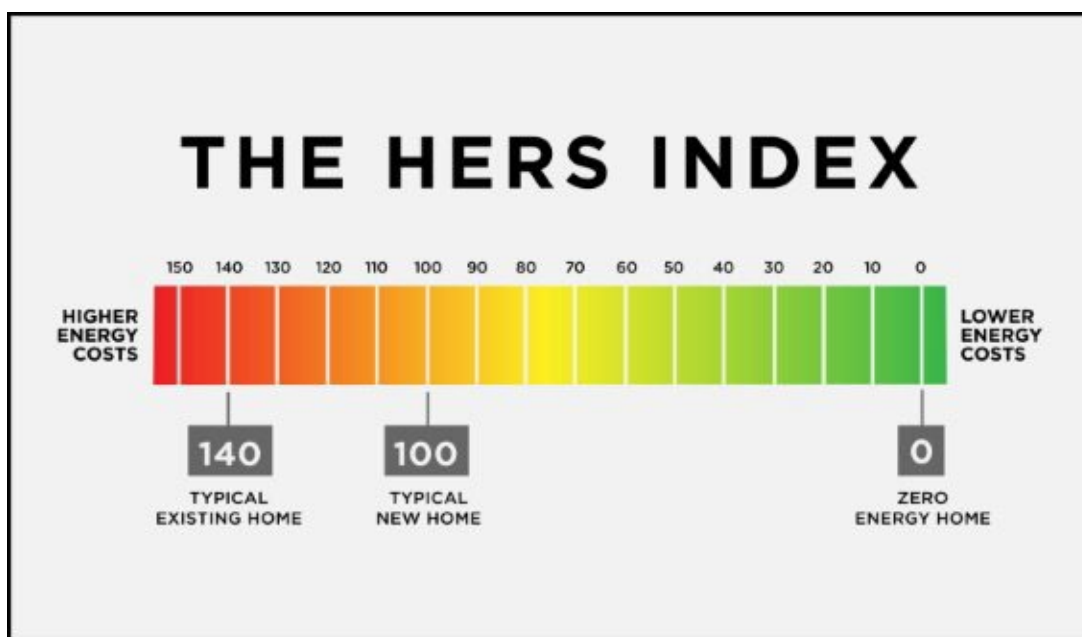
incorporate energy performance standards in their QAPs

FIGURE 1: States Requiring or Incentivizing Energy Performance Standards in their QAP



Across the 23 states that require or incentivize whole-building energy performance standards for new construction, the standards for reduction in energy consumption range from 15% to 30% less energy than is required by state code or other state energy performance standards. For existing buildings, the required or incentivized standards for reduction in energy usage range from 10% to 80% post-retrofit. Among states that use HERS Index ratings, the standards range from scores of 42 to 100 in new construction projects and 55 to 100 in existing buildings.

FIGURE 2: HERS Index²



Energy Benchmarking in Support of Higher Performing Buildings

Owners can effectively assess their building’s energy performance over time and identify opportunities to improve performance through energy benchmarking. By tracking energy consumption over time and comparing it to similar buildings, owners can better assess and prioritize the need for energy performance upgrades.

At least eight states incentivize or require energy benchmarking and often encourage the sharing of performance data with the HFA.

One of the most used benchmarking tools is ENERGY STAR Portfolio Manager, an online data management system that allows owners to easily upload and analyze property performance data. Of these eight states, five also include incentives or requirements for specific energy performance standards. Delaware State Housing Authority, for example, incentivizes a HERS Index score of at least 70 in existing buildings. The state also requires owners to continuously benchmark and share data for all owner-paid utility accounts and a sample of tenant-paid utility accounts for at least 15 years. This data can help building owners and the HFA make data-driven decisions to improve operation and management, prioritize upgrades, lower operating costs, and reduce residents’ utility bills.

8 OUT OF 53 HFAs

Incentivize or require energy benchmarking

² Image Source: <https://www.energycodehelp.com/wp-content/uploads/2018/10/hersindex.jpg>

Aligning QAPs with Statewide Building Performance Standards (BPS)



Tackling the climate crisis requires that we significantly reduce carbon emissions. Energy use in residential and commercial buildings is responsible for 40% of U.S. carbon dioxide emissions. State and local policymakers are using a new tool to attack this challenge: Building Performance Standards (BPS). While these performance standard requirements are separate from the energy performance requirements in QAPs, aligning HFA priorities with the BPS requirements is essential for ensuring Housing Credit properties comply.

BPS requires that all existing buildings meet energy use or carbon emissions targets, either now or in the near future. Building owners that do not meet the standard must act to improve their building's performance through energy or carbon-reducing measures or pay an alternative compliance fee. About a dozen states and localities have adopted BPS policies to date, and many more states and localities are considering adopting BPS policies.

In states where BPS policies are in place, HFAs have taken steps to align their priorities for Housing Credit properties with the BPS requirements. For example, the District of Columbia Department of Housing and Community Development (DHCD) requires existing building owners seeking tax credits to reduce energy usage intensity (EUI) by at least 36%, guaranteeing compliance with BPS for 12 years. In Maryland, the HFA is requiring all new construction Housing Credit properties to be highly efficient and all-electric to meet the state's BPS requirement of net-zero direct Greenhouse Gas emissions by 2040.



Solar Array Installation at Channel Square Apartments, Washington, D.C.

Leveraging Inflation Reduction Act Funds for Energy Performance and Benchmarking

Developers and households can use funds from Inflation Reduction Act (IRA) programs to advance energy performance in properties nationwide.

- HUD's **Green and Resilient Retrofit Program (GRRP)** provides grants and loans to fund projects that improve energy efficiency, among other building upgrades, to eligible HUD-assisted multifamily properties. To receive funding, projects must be projected to save a minimum of 25% of the property's energy consumption as modeled by utility consumption data. Projects must benchmark for five years post-upgrade to measure performance.
- DOE's **Home Efficiency Rebates** provide funding in rebates to low-income households and affordable multifamily building owners to reduce energy usage by at least 20%. The total rebate amount is determined by the percent of projected savings as modeled by utility consumption data.
- EPA's **Greenhouse Gas Reduction Fund (GGRF)** will provide funding for cost-effective "clean technology" projects in low-income communities, including energy performance upgrades. Funding is prioritized for highly efficient new buildings that use at least 10% less energy than retrofits of existing buildings, or achieve a minimum ENERGY STAR score of 75 or higher.



Conclusion

By encouraging increased whole-building energy performance standards and reduced energy consumption, HFAs can improve the resilience and cost-effectiveness of Housing Credit properties. Energy performance targets encourage owners to go beyond upgrading individual appliances to address whole-building comprehensive energy efficiency opportunities that maximize energy savings. In practice, HFAs encourage a range of energy performance and benchmarking standards, reflecting differences in HFAs' sustainability priorities. New sources of funding through IRA programs make it more feasible for owners to implement and HFAs to encourage whole-building energy performance upgrades.

Learn more about how QAPs can accelerate the affordability, opportunities, and sustainability of affordable housing on our [QAP analysis home page](#).

APPENDIX A: State Requirements and Incentives for Energy Performance

STATE	NEW CONSTRUCTION			REHABILITATION/PRESERVATION		
	REQUIRED	INCENTIVIZED	STANDARD	REQUIRED	INCENTIVIZED	STANDARD
AZ	X	X	HERS Index 65 HERS rating \leq 55 (5pts)	X		15% reduction
CA		X	15% better than California's Building Energy Efficiency Standards (4% increase in threshold basis limit)	X	X	10% reduction 80% reduction (4% increase in threshold basis limit)
CT	X	X	HERS Index 42-50 OR Average % below Energy Star Target Index 15%-35% (2-4pts)	X		HERS Index \leq 70 or \geq 30% reduction
DC				X		Level 1 Accelerated Savings Recognition Alternative Compliance Pathway Option for Building Energy Performance Standard (BEPS) compliance: 36% EUI savings
DE		X			X	HERS Index \leq 70
GA				X		20% reduction
IA	X		HERS Index \leq 70			
ID		X	HERS Index \leq 70 (5pts)		X	HERS Index \leq 100 (5pts)
IL				X		HERS Index 80 (exception for built before 1980) OR ASHRAE 90.1-2013
MA		X	HERS Index \leq 45 (4pts)		X	HERS Index 55-65 (3-5pts)
MD	X		Energy Star MF New Construction Certification	X	X	Energy Star MF New Construction Certification (waivers available) 15% reduction 20-30% reduction (4-6 pts)
MN ³	X ¹	X	HERS Index \leq 80	X ¹	X	HERS Index \leq 100 or less (built before 1980) or post-rehab \leq 15% reduction in HERS Index
ND	X		MF with \geq 4 stories: ASHRAE 90.1-2007 and Energy Star MF High-Rise program guidelines MF with \leq 3 stories: Energy Star New Homes Version 3 Certification	X		MF with \geq 4 stories: ASHRAE 90.1-2007
NJ	X		Energy Star MF New Construction Certification with HERS rating			
NM	X		HERS Index \leq 55	X		HERS Index \leq 65
NY	X		15% better than Energy Conservation Construction Code of New York State (ECCCNYS) 2020 Encouraged to consider 30% better	X		\geq 20% reduction. For adaptive reuse, 15% better than ECCNYS
NV	X		Energy Star Homes v3.1	X		Energy Star Homes v3.1
OK		X	HERS Index 80-95 (3-10pts)		X	HERS Index 80-95 (3-10pts)
PA		X	HERS rating through Energy Star Version 3.0 (3pts)		X	HERS rating through Energy Star Version 3.0 (3pts)
SD		X	HERS Index \leq 60 (20pts)		X	HERS Index \leq 60 (20pts)
UT	X		HERS rating through Energy Star certification	X		HERS rating through Energy Star certification
VA	X		HERS rating through Energy Star certification	X		HERS Index \leq 80 or 30% reduction. For adaptive reuse, HERS Index \leq 95
WY		X	HERS Index \leq 100 (10pts)		X	HERS Index \leq 100 (10pts)

³ Required for Pathway 3 for Alternative Building Performance Pathway

APPENDIX B: State Requirements for Energy Benchmarking

STATE	REQUIRED	INCENTIVIZED	INFORMATION IN QAP OR SUPPORTING DOCUMENTS
CO	X		Annually assess and report energy performance with Energy Star Portfolio Manager
CT	X		New Construction: Use of Energy Star Portfolio Manager is a prerequisite for Sustainability points. Preservation: Use of Energy Star Portfolio Manager for ≥ 5 years and data sharing with CHFA.
DE	X		Use of utility benchmarking service for all owner-paid utility accounts and a sample of tenant-paid utility accounts for ≥ 15 years
NJ	X		Participation in the NJHMFA Energy Benchmarking Initiative
NY	X		Projects over 25,000 square feet enter energy and water performance data into online utility benchmarking platform annually and share with HCR
PA	X		PHFA energy benchmarking program participation
SC	X		Use of Energy Star Portfolio Manager and data sharing with SC Housing for ≥ 5 years
WA	X		New Construction: Performance testing or commissioning process to meet requirements of 2018 Washington State Energy Code