

Keeping Up with ENERGY STAR

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October 2, 2024

Agenda

- Touching base on the 45L federal tax credit
- National Version 3.2 program requirements
- What's next with ENERGY STAR?
- Introducing ENERGY STAR NextGen



Touching Base on the 45L Tax Credit

Summary of available credits

Residential Building Type	Minimum Eligible Version	ENERGY STAR Homes	Zero Energy Ready Homes
Certified New Single-Family Homes, Duplexes, & Townhouses	Varies by Program, Year, and Location	\$2,500	\$5,000
Certified New Manufactured Homes	Varies by Year	\$2,500	\$5,000
Certified New Multifamily Buildings	Varies by Program, Year, and Location	\$500 per dwelling unit*	\$1,000 per dwelling unit*

* Higher amounts available if prevailing wage requirements have been met.

Minimum ENERGY STAR program versions eligible for the § 45L credit



For **ENERGY STAR**, the minimum eligible program version for the tax credit is determined relative to the dwelling's **acquisition date** (not the permit date).



Tables of minimum eligible versions **for the tax credit** are on the ENERGY STAR website for acquisitions made in 2023 – 2026 at www.energystar.gov/45Ltaxcredits.



Note that minimum eligible version for tax credit can be more stringent than what is required just for certification.

Minimum ENERGY STAR program versions eligible for the § 45L credit

2024 Acquisition Dates
Minimum ENERGY STAR Program Versions Eligible for the § 45L Credit

State/Territory	Single-Family	Manufactured	Multifamily
AL, AK, AR, AZ, CO, CT, DC, DE, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, UT, VA, VT, WI, WV, WY	SFNH National v3.1	MH v2	MFNC National v1.1
CA	SFNH California v3.3	MH v2	MFNC California v1.3
FL	SFNH Florida v.3.1; or SFNH National v3.1	MH v2	MFNC National v1.1
HI	SFNH Pacific v3	MH v2	MFNC National v1.1
OR, WA	SFNH Oregon and Washington v3.2; or SFNH National v3.2	MH v2	MFNC Oregon and Washington v1.2; or MFNC National v1.2

Minimum ENERGY STAR program versions eligible for the § 45L credit

2025 Acquisition Dates
Minimum ENERGY STAR Program Versions Eligible for the § 45L Credit

State/Territory	Single-Family	Manufactured	Multifamily
AL, AK, AR, AZ, CO, CT, DC, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, UT, VA, VT, WI, WV, WY	SFNH National v3.2	MH v2	MFNC National v1.1
CA	SFNH California v3.3	MH v2	MFNC California v1.3
HI	SFNH Pacific v3	MH v2	MFNC National v1.1
OR, WA	SFNH National v3.2	MH v2	MFNC Oregon and Washington v1.2; or MFNC National v1.2

Minimum ENERGY STAR program versions eligible for the § 45L credit

2026 Acquisition Dates
Minimum ENERGY STAR Program Versions Eligible for the § 45L Credit

State/Territory	Single-Family	Manufactured	Multifamily
AL, AK, AR, AZ, CO, CT, DC, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, UT, VA, VT, WI, WV, WY	SFNH National v3.2	MH v3	MFNC National v1.1
CA	SFNH California v3.4	MH v3	MFNC California v1.3
HI	SFNH Pacific v3.2	MH v3	MFNC National v1.1
OR, WA	SFNH National v3.2	MH v3	MFNC Oregon and Washington v1.2; or MFNC National v1.2

Minimum versions eligible for the § 45L credit vs certification

- Visit www.energystar.gov/newhomesrequirements to find the minimum ENERGY STAR program versions that are eligible **for certification**.

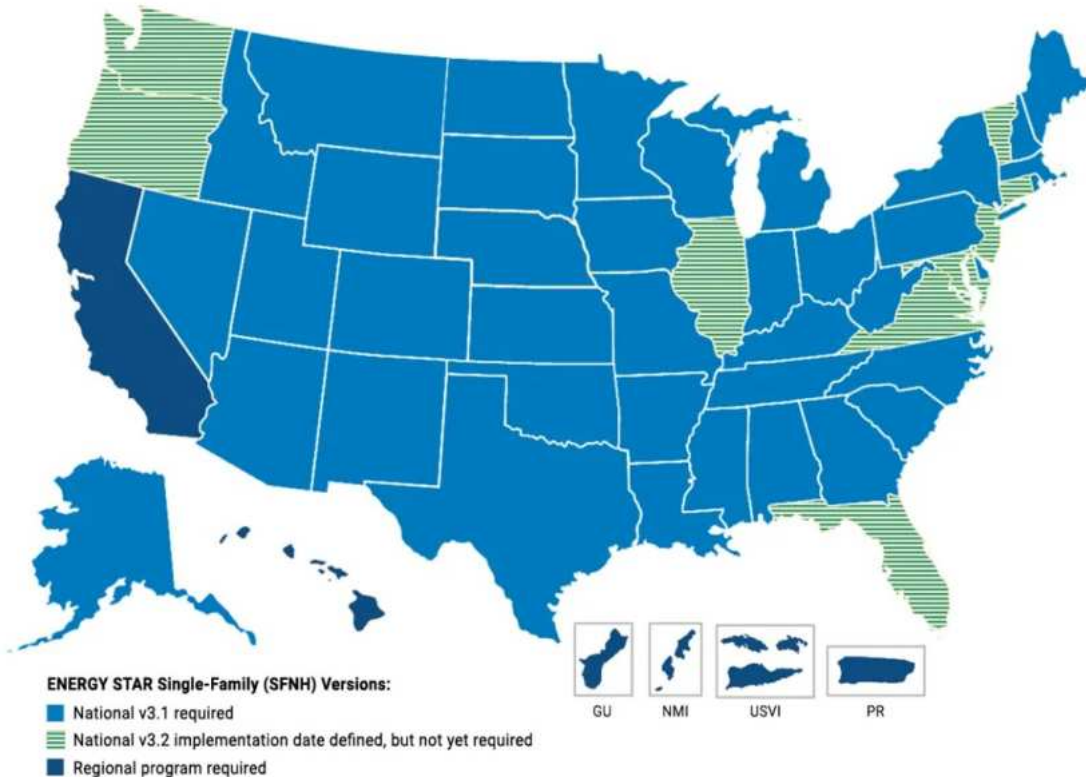


Exhibit 1: Applicable ENERGY STAR SFNH Program Requirements, Versions, and Revisions for All Locations Except California

Home Is Built in This State Or Territory:	Home Is Permitted ^{1, 2} On or After This Date:	For Homes Meeting the Adjacent Criteria, These Are the Applicable Program Requirements, Including Minimum Version ("v") & Revision ("Rev.")	
AL, AK, AZ, AR, CO, IN, ID, KS, KY, LA, MS, MO, NH, NC, ND, OH, OK, SC, SD, TN, WV, WI, WY	01-01-2022	SFNH National v3	Rev. 11
	01-01-2023	SFNH National v3.1	Rev. 11
	01-01-2024	SFNH National v3.1	Rev. 12
	01-01-2025	SFNH National v3.1	Rev. 13
DC, DE, IA, MA, MI, MN, MT, NE, NV, NY, PA, RI, TX	01-01-2022	SFNH National v3.1	Rev. 11
	01-01-2024	SFNH National v3.1	Rev. 12
	01-01-2025	SFNH National v3.1	Rev. 13
GA, NM, UT	01-01-2022	SFNH National v3	Rev. 11
	07-01-2022	SFNH National v3.1	Rev. 11
	01-01-2024	SFNH National v3.1	Rev. 12
	01-01-2025	SFNH National v3.1	Rev. 13
ME	01-01-2022	SFNH National v3	Rev. 11
	10-01-2022	SFNH National v3.1	Rev. 11
	01-01-2024	SFNH National v3.1	Rev. 12
	01-01-2025	SFNH National v3.1	Rev. 13

Minimum versions eligible for the § 45L credit vs certification

- Builders that find the requirements for § 45L too stringent may be able to continue certifying homes to a lesser version.
- While they won't be eligible for the tax credit, they can still benefit from:
 - Market advantage
 - Meeting corporate sustainability goals
 - Local incentives

Pop quiz question:

- Example: A home in LA is permitted 01/25 and acquired 08/25. What minimum program version must be used for **certification** and for §45L federal **tax credit**?
 - A. Certification: National v3.1 Tax credit: National v3.1
 - B. Certification: National v3.1 Tax credit: National v3.2**
 - C. Certification: National v3.2 Tax credit: National v3.2

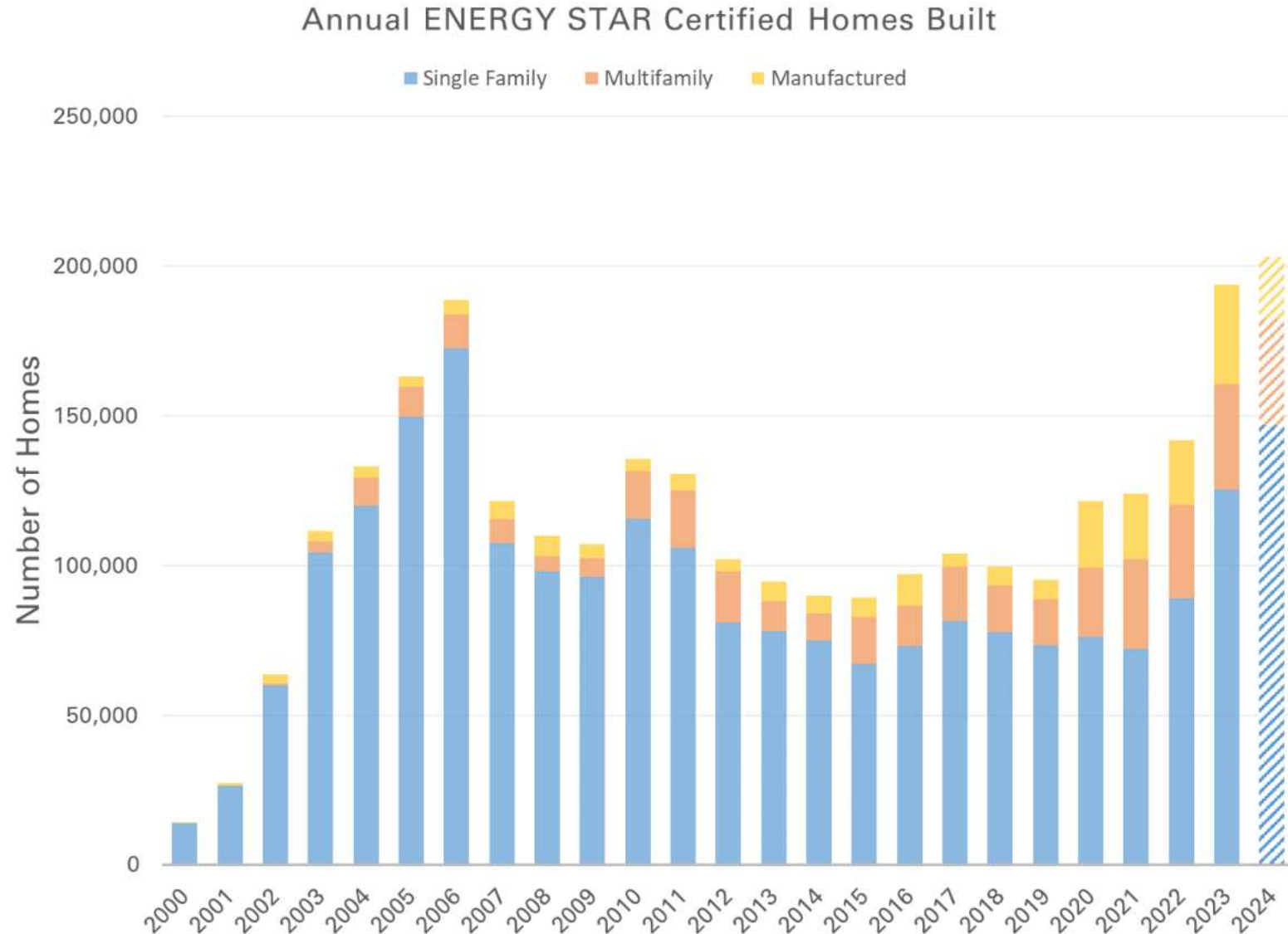
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AL, AK, AZ, AR, CO, IN, ID, KS, KY, LA, MS, MO, NH, NC, ND, OH, OK, SC, SD, TN, WV, WI, WY	01-01-2022	SFNH National v3	Rev. 11
	01-01-2023	SFNH National v3.1	Rev. 11
	01-01-2024	SFNH National v3.1	Rev. 12
	01-01-2025	SFNH National v3.1	Rev. 13
DC, DE, IA, MA, MI, MN, MT, NE, NV, NY, PA, RI, TX	01-01-2022	SFNH National v3.1	Rev. 11
	01-01-2024	SFNH National v3.1	Rev. 12
	01-01-2025	SFNH National v3.1	Rev. 13

2025 Acquisition Dates
Minimum ENERGY STAR Program Versions Eligible for the § 45L Credit

State/Territory	Single-Family	Manufactured	Multifamily
AL, AK, AR, AZ, CO, CT, DC, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, UT, VA, VT, WI, WV, WY	SFNH National v3.2	MH v2	MFNC National v1.1
CA	SFNH California v3.3	MH v2	MFNC California v1.3
HI	SFNH Pacific v3	MH v2	MFNC National v1.1
OR, WA	SFNH National v3.2	MH v2	MFNC Oregon and Washington v1.2; or MFNC National v1.2

Program participation is rising, for now..





National Version 3.2

Poll

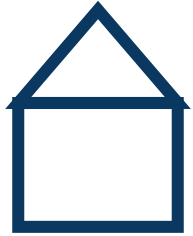
- How familiar are you with National Version 3.2?
 - A. It is a stranger to me. This is the first time I'm hearing of it.
 - B. We're generally acquainted. I have a basic understanding.
 - C. We're best buds. I'm already assessing whether homes comply.

Differences between National v3.1 and v3.2

- There are only two differences between National v3.1 and v3.2:
 1. A more stringent ERI target
 2. A more stringent thermal backstop

More Stringent ERI Target

Explaining the ENERGY STAR ERI Target



1 Rating software automatically creates a 'target home', with same key architecture, location, & fuel type as home pursuing certification.



2 Rating software applies the ENERGY STAR Reference Design to 'target home', a prescriptive set of efficiency measures covering all aspects of the home



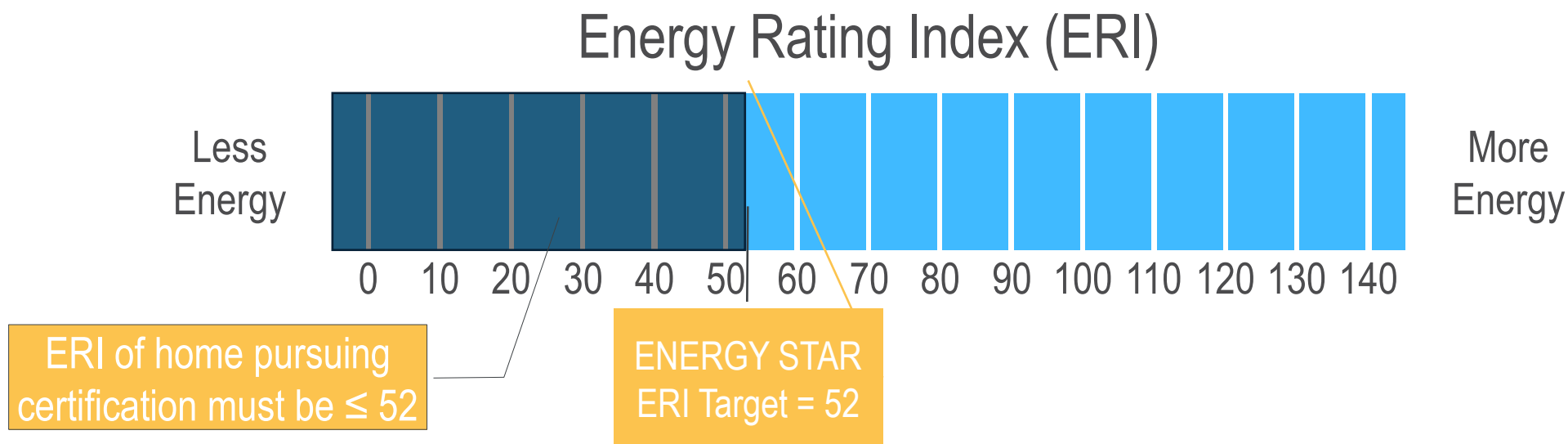
3 Rating software calculates the ENERGY STAR ERI Target, the ERI of the 'target home' with the ENERGY STAR Reference Design measures applied.



4 Builders select measures that meet or beat the ENERGY STAR ERI Target.

Explaining the ENERGY STAR ERI Target

- For example:



- None of the ENERGY STAR Reference Design measures are mandatory, but if not used, other measures must be selected to hit target.

Explaining the ENERGY STAR ERI Target

- Designed to be $\geq 10\%$ above code
- Demonstrated by meeting the ENERGY STAR ERI Target*:

	Typical ENERGY STAR ERI Target
National Version 3.1 Implemented in states with code less stringent than 2021 IECC	~ 55-65
National Version 3.2 Implemented in states with code equivalent to 2021 IECC	~ 45-55

- *Performance target is defined differently in California, the Pacific, and the Caribbean.

Key efficiency features of National v3.2 Reference Design

Enclosure Measures

Climate Zone	1	2	3	4	4C & 5	6	7	8
Thermal Enclosure								
Ceiling Insulation	R-30	R-49		R-60				
Ceiling Insulation Grade	I							
Wall Insulation: Cavity + Continuous	R-13		R-20	R-20 + R-5				
Wall Insulation Grade	I							
Frame Floor Insulation	R-13		R-19		R-30		R-38	
Floor Insulation Grade	I							
Slab Insulation & Depth	Uninsulated		R-10, 2 ft		R-10, 4 ft			
Window U-factor / SHGC	0.40 / 0.25	0.40 / 0.25	0.30 / 0.25	0.30 / 0.30	0.27 / 0.30			
Door U-factor	0.17							
Infiltration and Mechanical Ventilation								
Infiltration (ACH50)	3		3					
Mech. Vent. Type & Efficiency (CFM / W)	Supply Fan / 2.8				Exhaust Fan / 2.8			

Key efficiency features of National v3.2 Reference Design

Non-Enclosure Measures

Climate Zone	1	2	3	4	4C & 5	6	7	8
HVAC								
Furnace & AC Efficiency (AFUE / SEER)	80 / 16			90 / 16	95 / 14			
Heat Pump Efficiency (HSPF / SEER)	9.2 / 16							
HVAC Grade - Airflow, Watt Draw, Charge	Grade II, Grade II, Grade III							
Thermostat Type	Programmable							
Duct Leakage to Outside (CFA) & Insulation	0 CFA / Not Present							
Duct Location	100% Conditioned Space							
DHW								
Gas / Electric - Efficiency (UEF)	0.90 / 2.20							
Lighting & Appliances								
Lighting	100% LED							
Refrigerator (kWh/yr)	ENERGY STAR							
Dishwasher	ENERGY STAR							

ENERGY STAR ERI Target for National Version 3.2

- ENERGY STAR v3.2 ERI target is ~45-55
- None are mandatory, but if not used, other measures must be selected to hit target
- But it will be hard to hit the target without these key features:
 - 2021 IECC insulation levels or equivalent
 - Ducts in conditioned space
 - Instant gas or heat pump water heater

Trade-off examples: CZ 2

- 2,400 sq. ft., 2-story home, slab on grade, with heat pump, in Phoenix.

Measure	v3.2	High	High	High	
	Reference Design	Adjusted Shell	Efficiency HVAC	Efficiency DHW	HVAC Grading
Ceiling (R-value)	R-49	R-38	R-38	R-38	R-38
Windows (U / SHGC)	0.40 / 0.25	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	0.35 / 0.25
Above-Grade Walls (R-value)	R-13	R-13	R-13	R-13	R-13
Slab Insulation (R-value)	None	None	None	None	None
Infiltration (ACH50)	3	4	4	4	5
Duct Location	Cond. Space	Cond. Space	Cond. Space	Cond. Space	Cond. Space
DHW (UEF)	2.20	2.20	0.92	3.30	0.92
Heat Pump (HSPF / SEER)	9.2 / 16	9.2 / 16	9.2 / 18	9.2 / 16	9.2 / 16
HVAC Grade - Airflow / Watt Draw / Charge	2 / 2 / 3	2 / 2 / 3	3 / 3 / 3	3 / 3 / 3	1 / 1 / 1
Lighting (% LED)	100%	100%	100%	100%	100%
ES ERI Target	50	50	50	50	50
Rated Home ERI	49	49	48	48	48

Trade-off examples: CZ 4

- 2,400 sq. ft., 2-story home, conditioned basement, with gas furnace, in Baltimore.

Measure	v3.2	Adjusted	High	High	HVAC Grading
	Reference Design	Shell	Efficiency HVAC	Efficiency DHW	
Ceiling (R-value)	R-60	R-49	R-49	R-49	R-49
Windows (U / SHGC)	0.30 / 0.30	0.25 / 0.30	0.25 / 0.30	0.25 / 0.30	0.25 / 0.30
Above-Grade Walls (R-value)	R-20 + R-5	R-21	R-21	R-21	R-21
Foundation Walls (R-value)	R-13	R-13	R-13	R-13	R-13
Infiltration (ACH50)	3	3	3.5	3.25	3
Duct Location	Cond. Space	Cond. Space	Cond. Space	Cond. Space	Cond. Space
DHW (UEF)	0.90	0.90	0.90	0.95	0.90
Furnace & AC (AFUE / SEER)	90 / 16	90 / 16	95 / 16	90 / 16	90 / 14
HVAC Grade - Airflow / Watt Draw / Charge	2 / 2 / 3	2 / 2 / 3	3 / 3 / 3	3 / 3 / 3	1 / 1 / 1
Lighting (% LED)	100%	100%	100%	100%	100%
ES ERI Target	52	52	52	52	52
Rated Home ERI	51	52	50	51	52

Trade-off examples: CZ 6

- 2,400 sq. ft., 2-story home, conditioned basement, with gas furnace, in St. Paul.

Measure	v3.2	High	High	High	
	Reference Design	Adjusted Shell	Efficiency HVAC	Efficiency DHW	HVAC Grading
Ceiling (R-value)	R-60	R-49	R-49	R-49	R-49
Windows (U / SHGC)	0.27 / 0.30	0.25 / 0.30	0.25 / 0.30	0.25 / 0.30	0.25 / 0.30
Above-Grade Walls (R-value)	R-20 + R-5	R-21	R-21	R-21	R-21
Foundation Walls (R-value)	R-19	R-21	R-21	R-21	R-21
Infiltration (ACH50)	3	3	3.25	3.25	3.25
Duct Location	Cond. Space	Cond. Space	Cond. Space	Cond. Space	Cond. Space
DHW (UEF)	0.90	0.90	0.90	0.95	0.90
Furnace & AC (AFUE / SEER)	95 / 14	95 / 14	96 / 14	95 / 14	95 / 14
HVAC Grade - Airflow / Watt Draw / Charge	2 / 2 / 3	2 / 2 / 3	3 / 3 / 3	3 / 3 / 3	1 / 1 / 1
Lighting (% LED)	100%	100%	100%	100%	100%
ES ERI Target	50	50	50	50	50
Rated Home ERI	49	50	50	50	50



More Stringent Thermal Backstop

Thermal backstop

- The **thermal backstop** is the minimum amount of insulation and minimum window performance that must be met.
- Regardless of ERI, a home cannot have an enclosure worse than this limit.
- But a home can trade off between: ceiling insulation, wall insulation, foundation insulation, windows, and doors.

Thermal backstop examples

- Thermal backstop is the area-weighted U-factor for the enclosure.
 - U-factor x Area, often seen as “Building UA” value.
- Here are some examples calculated for a 2,400 sq. ft., two-story home with 15% window area to floor area ratio.

Windows			
U-value	Area	UA	Change in UA
0.35	360	126	-
0.30	360	108	-18
0.25	360	90	-18

Walls				
R-value	U-Value	Area	UA	Change in UA
13	0.077	1978	152	-
15	0.067	1978	132	-20
19	0.053	1978	104	-28
21	0.048	1978	94	-10

Ceilings				
R-value	U-Value	Area	UA	Change in UA
38	0.026	1200	32	-
49	0.020	1200	24	-7
60	0.017	1200	20	-4

- To improve a home’s UA, these will have the biggest impacts: 1) windows, 2) walls, 3) ceilings.

Thermal backstop limits

ENERGY STAR Version	Thermal Backstop
National Version 3.1	All permits: 100% x UA of the 2009 IECC Prescriptive Path
National Version 3.2	Permits before 01/25: 105% x UA of the 2021 IECC Prescriptive Path Permits on or after 01/25: 100% x UA of the 2021 IECC Prescriptive Path

CZ	Code	Windows	Ceiling	Wall: Cavity + Cont	Frame Floor	Basement Wall	Crawlspace Wall	Slab
1	2009 IECC	1.20	30	13	13	0	0	0
	2021 IECC	0.50	30	13	13	0	0	0
2	2009 IECC	0.65	30	13	13	0	0	0
	2021 IECC	0.40	49	13	13	0	0	0
3	2009 IECC	0.50	30	13	19	13	13	0
	2021 IECC	0.30	49	20	19	13	13	10, 2ft
4	2009 IECC	0.35	38	13	19	13	13	10, 2ft
	2021 IECC	0.30	60	20 + 5	19	13	13	10, 4ft
4C & 5	2009 IECC	0.35	38	20	30	13	13	10, 2ft
	2021 IECC	0.30	60	20 + 5	30	19	19	10, 4ft
6	2009 IECC	0.35	49	20	30	19	13	10, 4ft
	2021 IECC	0.30	60	20 + 5	30	19	19	10, 4ft
7 & 8	2009 IECC	0.35	49	21	38	19	13	10, 4ft
	2021 IECC	0.30	60	20 + 5	38	19	19	10, 4ft

Thermal Backstop Examples – CZ 1 & 2

- In **Climate Zone 1**, 2021 IECC is basically the same as the 2009 IECC.
- In **Climate Zone 2**, for a slab-on-grade home:

Climate Zone	2	
IECC Version	2009	2021
Ceiling Insulation	30	49
Wall Insulation: Cavity + Cont	13	13
Windows & Doors	0.65	0.40
Frame Floor Insulation	13	13
Basement Wall Insulation	0	0
Crawlspace Wall Insulation	0	0
Slab Insulation	0	0

Scenario Name	2021 IECC	Alt. 1
Ceiling Insulation	49	30
Wall Insulation: Cavity	13	13
Wall Insulation: Continuous	None	None
Window U-factor	0.40	0.30
Door U-factor	0.40	0.17
Frame Floor Insulation	n/a	n/a
Basement Wall Insulation	n/a	n/a
Crawlspace Wall Insulation	n/a	n/a
Slab Insulation & Depth	None	None
Total UA for Home	452.8	412.0
% better than 2021 IECC		9.0%

Thermal Backstop Examples – CZ 5

- In Climate Zone 5-8, for a conditioned basement home:

Climate Zone	5	
	2009	2021
Ceiling Insulation	38	60
Wall Insulation: Cavity + Cont	20	20 + 5
Windows & Doors	0.35	0.30
Frame Floor Insulation	30	30
Basement Wall Insulation	13	19
Crawlspace Wall Insulation	13	19
Slab Insulation	10, 2ft	10, 4ft

Scenario Name	2021 IECC	Alt. 1	Alt. 2	Alt. 3
Ceiling Insulation	60	60	49	49
Wall Insulation: Cavity	20	21	23	21
Wall Insulation: Continuous	5	None	None	None
Window U-factor	0.30	0.27	0.27	0.25
Door U-factor	0.30	0.17	0.17	0.17
Frame Floor Insulation	n/a	n/a	n/a	n/a
Basement Wall Insulation	19	21	19	13
Crawlspace Wall Insulation	n/a	n/a	n/a	n/a
Slab Insulation & Depth	None	None	None	None
Total UA for Home	381.2	378.4	378.7	379.2
% better than 2021 IECC		0.7%	0.7%	0.5%

Thermal Backstop Examples – CZ 3

- In **Climate Zone 3**, for a slab-on-grade home:

Climate Zone	3	
IECC Version	2009	2021
Ceiling Insulation	30	49
Wall Insulation: Cavity + Cont	13	20
Windows & Doors	0.50	0.30
Frame Floor Insulation	19	19
Basement Wall Insulation	13	13
Crawlspace Wall Insulation	13	13
Slab Insulation	0	10, 2ft

Scenario Name	2021 IECC	Alt. 1	Alt. 2	Alt. 3
Ceiling Insulation	49	49	49	49
Wall Insulation: Cavity	20	15	21	15
Wall Insulation: Continuous	None	3	None	3
Window U-factor	0.30	0.28	0.29	0.25
Door U-factor	0.30	0.17	0.17	0.17
Frame Floor Insulation	n/a	n/a	n/a	n/a
Basement Wall Insulation	n/a	n/a	n/a	n/a
Crawlspace Wall Insulation	n/a	n/a	n/a	n/a
Slab Insulation & Depth	10, 2ft	R5, 2ft	None	None
Total UA for Home	343.3	337.6	342.6	342.5
% better than 2021 IECC		1.7%	0.2%	0.2%

Thermal Backstop Examples – CZ 4

- In **Climate Zone 4**, for a home with a slab:

Climate Zone	4	
IECC Version	2009	2021
Ceiling Insulation	38	60
Wall Insulation: Cavity + Cont	13	20 + 5
Windows & Doors	0.35	0.30
Frame Floor Insulation	19	19
Basement Wall Insulation	13	13
Crawlspace Wall Insulation	13	13
Slab Insulation	10, 2ft	10, 4ft

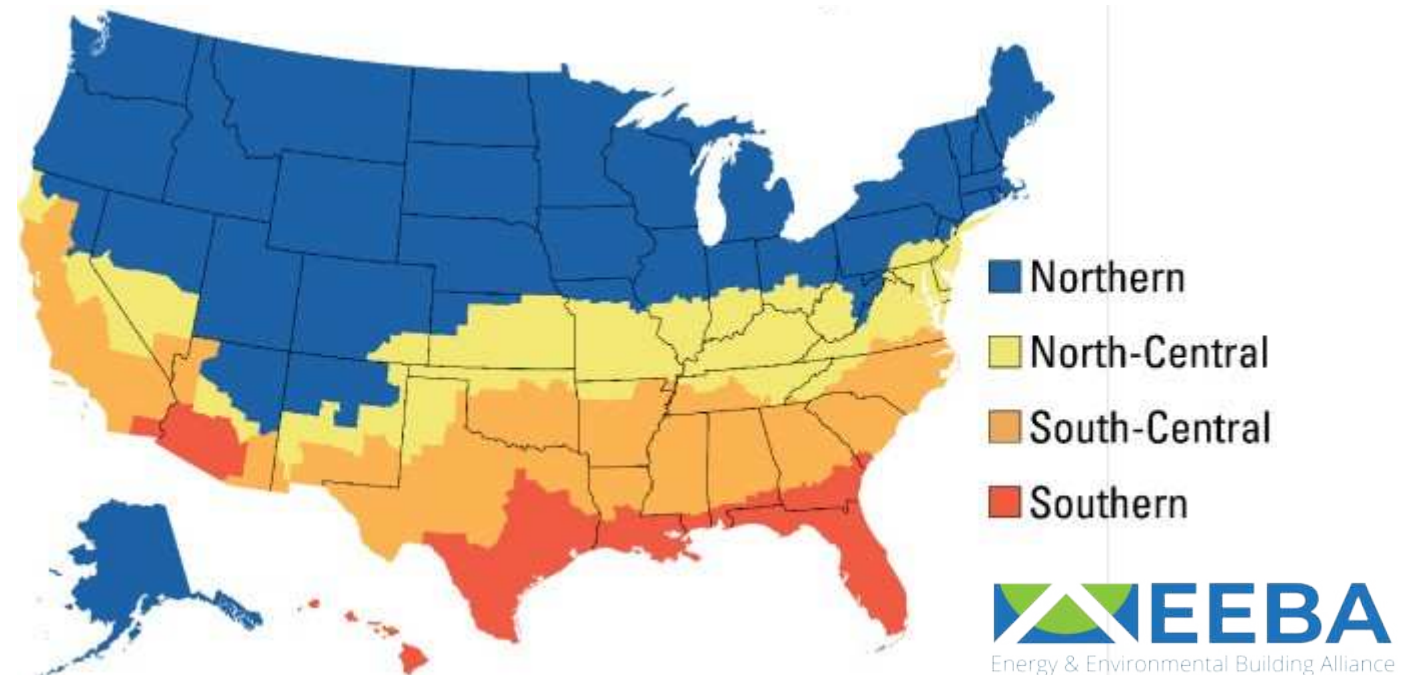
Scenario Name	2021 IECC	Alt. 1	Alt. 2
Ceiling Insulation	60	60	49
Wall Insulation: Cavity	20	23	21
Wall Insulation: Continuous	5	None	None
Window U-factor	0.30	0.27	0.24
Door U-factor	0.30	0.17	0.17
Frame Floor Insulation	n/a	n/a	n/a
Basement Wall Insulation	n/a	n/a	n/a
Crawlspace Wall Insulation	n/a	n/a	n/a
Slab Insulation & Depth	10, 4ft	10, 4ft	10, 4ft
Total UA for Home	303.2	300.3	299.9
% better than 2021 IECC		1.0%	1.1%

Thermal backstop: More efficient windows coming

- New specification for ENERGY STAR Residential Windows, Doors, & Skylights went into effect last October.
- In 2020, 84% of windows sold in the US were ENERGY STAR certified. Therefore, expecting many windows will meet this new specification.

Windows

Climate Zone	U-Factor ¹	SHGC ²	
Northern	≤ 0.22	≥ 0.17	Prescriptive
	= 0.23	≥ 0.35	Equivalent Energy Performance
	= 0.24	≥ 0.35	
	= 0.25	≥ 0.40	
	= 0.26	≥ 0.40	
North-Central	≤ 0.25	≤ 0.40	
South-Central	≤ 0.28	≤ 0.23	
Southern	≤ 0.32	≤ 0.23	



Pop quiz question #1:

- What's the key difference between National Version 3.1 and National Version 3.2?
 - A. A more stringent ERI target.
 - B. A more stringent ERI target and a new thermal backstop.
 - C. Battery storage required in every home.

Pop quiz question #2:

- What's the typical range of ERI targets for National Version 3.2?
 - A. ~ 0-10
 - B. Exactly 50 for every home
 - C. ~ 45-55

Pop quiz question #3:

- Which homes have to meet a thermal backstop equal to 100% x 2021 IECC UA?
 - A. All homes certified using National v3.2
 - B. All homes certified using National v3.2 if permitted after 01/01/2025
 - C. All homes certified (using any version) if permitted after 01/01/2025



What's Next?

Revision 14

- Annual maintenance release to clarify, simplify, and improve the program.
- Almost entirely driven by partner feedback.
- Five key proposals for Rev. 14:
 1. Eliminate mandatory reduced thermal bridging details
 2. Streamline air sealing details and add infiltration backstop
 3. Narrow scope of builder-verified items
 4. Transition to Track A: HVAC Grading and Sunset Track B
 5. Sunset the Water Management System Builder Requirements
- Learn more by watching this [webinar](#).
- Solicited feedback in July and August. Now reviewing comments and determining whether to proceed. Aiming to release Rev. 14 by end of calendar year.

National Version 3.3

- In response to the more stringent 2024 IECC, we're developing a new version of the national program requirements.
- Primary goal is to maintain at least 10% savings relative to the latest model code.
- Comment period forthcoming this fall; anticipated to be finalized by end of year.
- Earliest possible date it could be required for certification is 1/1/2027.

California Version 3.5

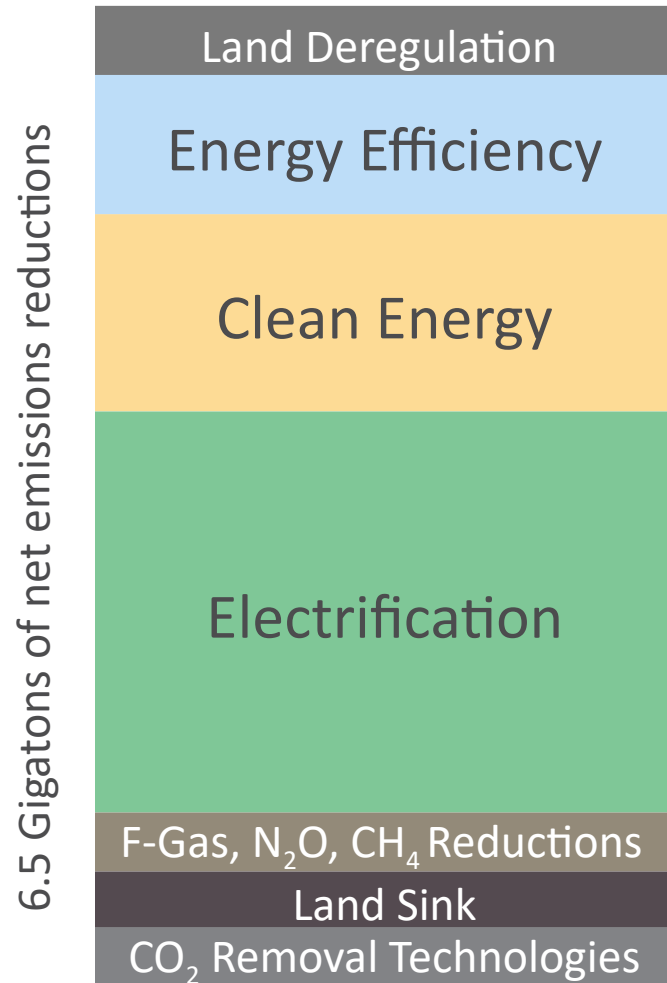
- In response to the new 2025 edition of the California code, we're developing a new version of the regional California program requirements.
- Primary goal is to maintain at least 10% savings relative to the latest state code.
- Because the efficiency features of the code have leveled out, the overall stringency of the new version is expected to be comparable to the prior version.
- Comment period begins 10/10; anticipated to be finalized by end of year.
- Earliest possible date it could be required for certification is 1/1/2027.



Overview of ENERGY STAR NextGen

Introduction

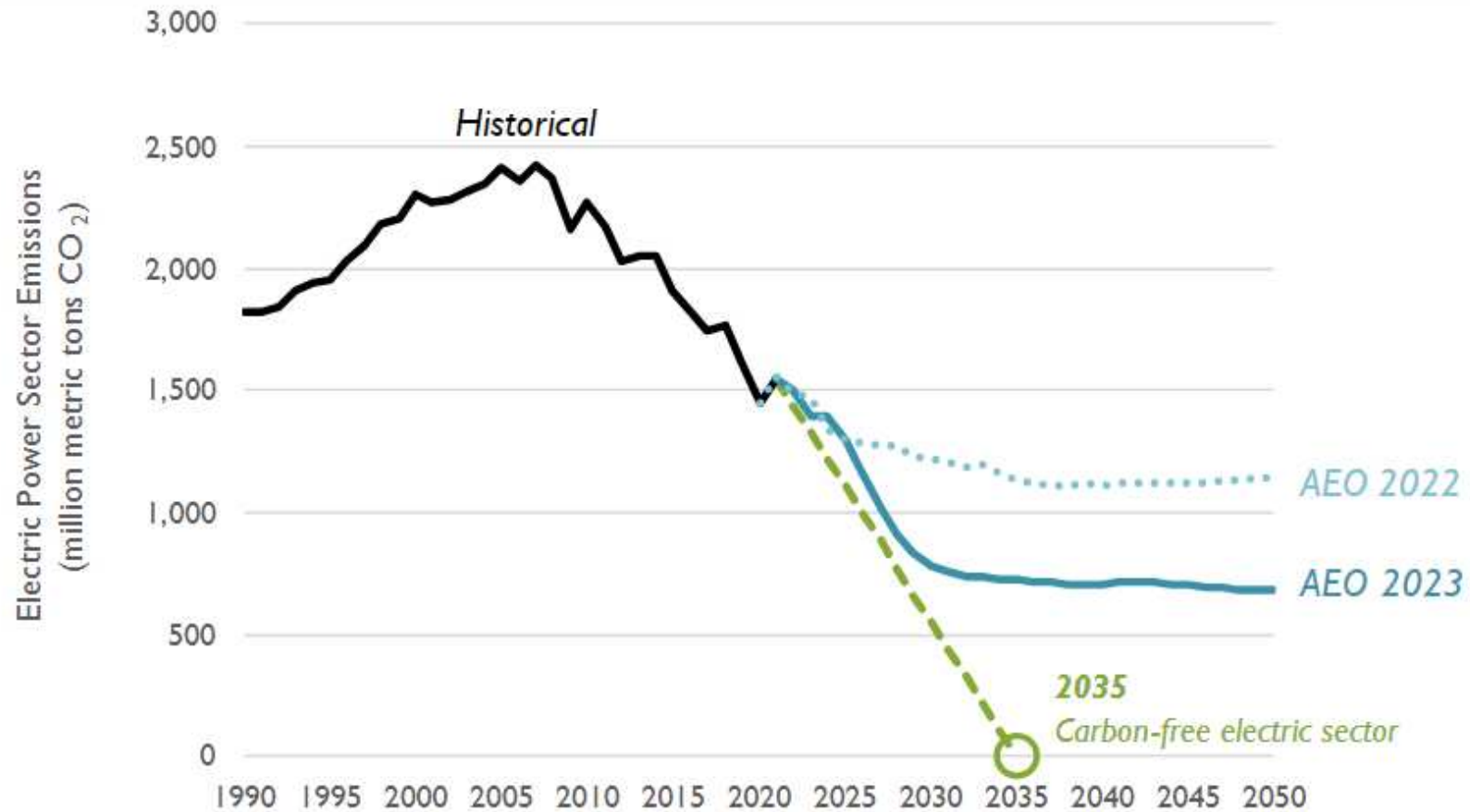
The Path to Decarbonization



U.S. Decarbonization Strategy

- **Energy Efficiency:** ENERGY STAR has a 30+ year track record.
- **Clean Energy:** EPA's Green Power Partnership is helping to drive demand.
- **Electrification:** EPA will be guiding people to do it right (by prioritizing efficiency).

Electricity is getting cleaner



Source: [Annual Energy Outlook 2023](#), graph from [Synapse Energy](#)

Why ENERGY STAR NextGen?

- EPA's goal: coalesce the industry around key approaches around **operational decarbonization** while ensuring a good consumer experience.
- ENERGY STAR NextGen is **forward-looking** and distinct from current programs.
- It is not intended to replace the core ENERGY STAR program or DOE's Zero Energy Ready homes program.

Overview of Program Requirements

NextGen Energy Efficiency Specifications

Achievable, advanced, market-ready innovations



Highly
efficient
construction



Heat pump
space
heating



Heat pump
water
heating



Electric
cooking



Electric
vehicle
charging
capability

#1. Certified to ENERGY STAR National v3.2



- For ENERGY STAR NextGen, homes must be certified to the most rigorous ENERGY STAR Single-Family New Homes program requirements:

Location	ENERGY STAR Version
All states but California	National v3.2
California	CA v3.4

#2: ENERGY STAR Certified Multi-Speed Heat Pumps

- a) ENERGY STAR certified two-speed or variable-speed heat pump installed that serves the design load of each heated zone



#2: ENERGY STAR Certified Multi-Speed Heat Pumps

b) In Climate Zones 5-8, installed heat pumps are ENERGY STAR Cold Climate certified

Cold Climate Heat Pump Case Studies



“I’ve **saved thousands of dollars** by heating my entire home with two heat pumps. I’ve kept my oil-burning furnace as backup, but it rarely gets used. In fact, I haven’t had an oil delivery since the fall of 2021.”

~Paul N., Van Buren, ME

“I live on the top of a mountain in Waterford, Maine, where it gets pretty windy. **That’s not a challenge for my heat pumps**, which during the February cold snap kept me warm without backup even during -49 °F wind chill! I’m also saving around \$300 a month using heat pumps instead of propane.”

~Frank D., Waterford, ME

#2: ENERGY STAR Certified Multi-Speed Heat Pumps

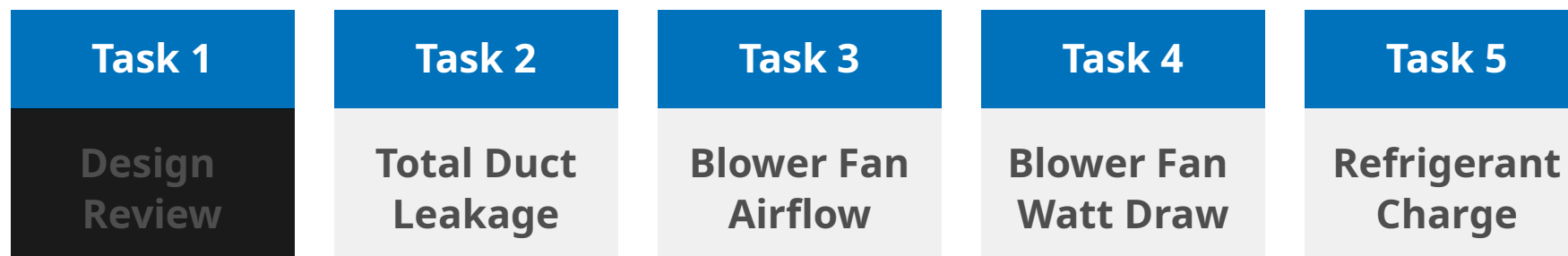
- c) Each heat pump must also meet EPA 'connected' criteria or is controlled by a wifi or ENERGY STAR certified smart thermostat



#2: ENERGY STAR Certified Multi-Speed Heat Pumps

- d) For air-source heat pumps, blower fan volumetric airflow, blower fan watt draw, and refrigerant charge are Grade I per ANSI / RESNET / ACCA / ICC Std. 310

The Five Key Sequential Tasks in Standard 310

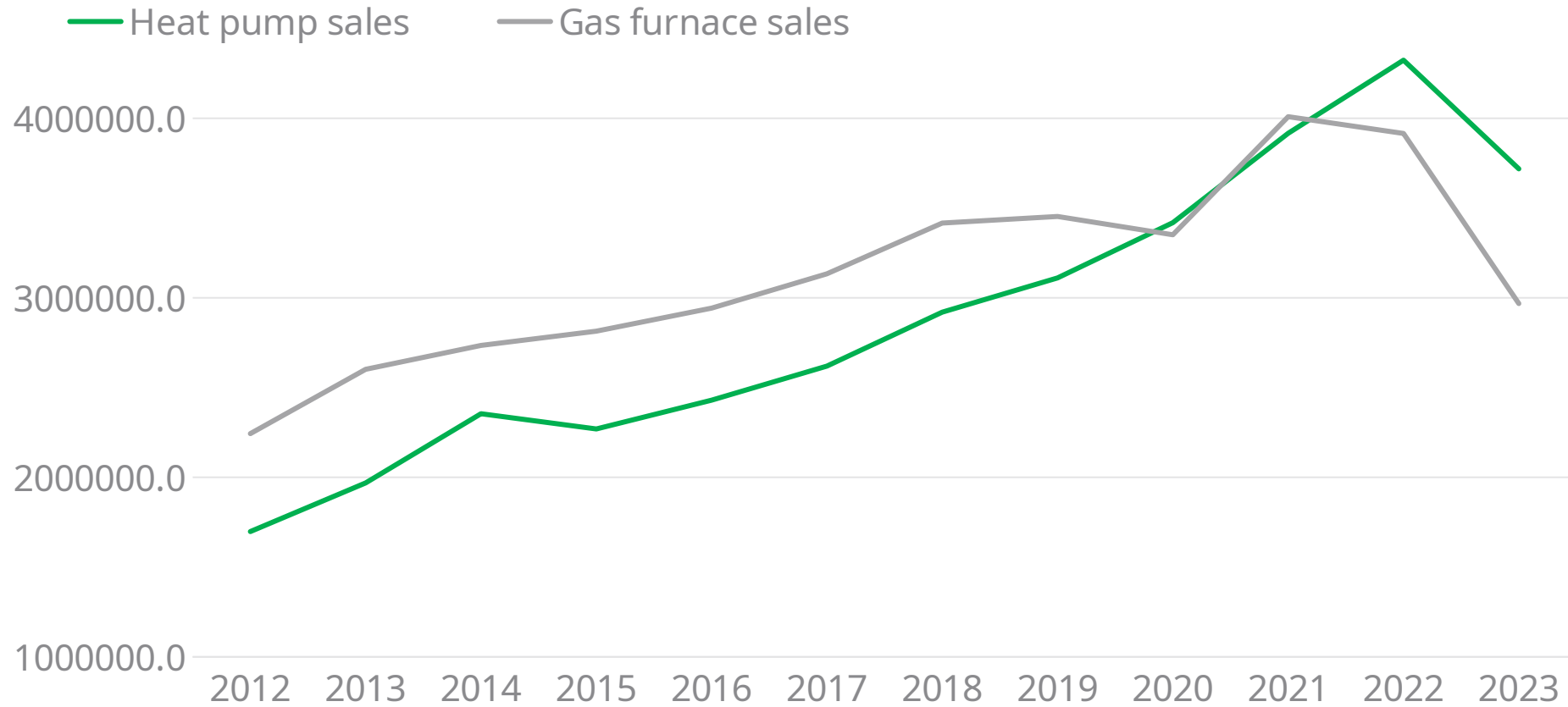


A man with a grey beard and glasses is sitting in a chair by a large window. He is wearing a plaid shirt and tan pants, and is looking down at a white smartphone in his hands. The window behind him shows a view of trees and a balcony railing. A green plant is visible in the foreground on the left.

ENERGY STAR Certified Multi-Speed Heat Pumps

ENERGY STAR NextGen homes and apartments allow you to take control of your comfort with a quiet and responsive heating and cooling system

Heat Pump Sales Now Outpace Gas Furnaces



Source: [Monthly Shipments | Air-Conditioning, Heating and Refrigeration Institute](#)

#3. Certified Heat Pump Water Heaters



- a) ENERGY STAR certified heat pump water heater that meets EPA 'connected' criteria

#3. Certified Heat Pump Water Heaters



- b) Each heat pump water heater located within occupiable space has a sound rating < 55 dBA

#3. Certified Heat Pump Water Heaters



- c) Each heat pump water heater is 208/240 volts, with minimum tank capacity as follows:

Bedrooms	0-1	2	3	4+
Tank Capacity	36	45	59	72

- For more information, download our [technical guide](#) on heat pump water heaters.

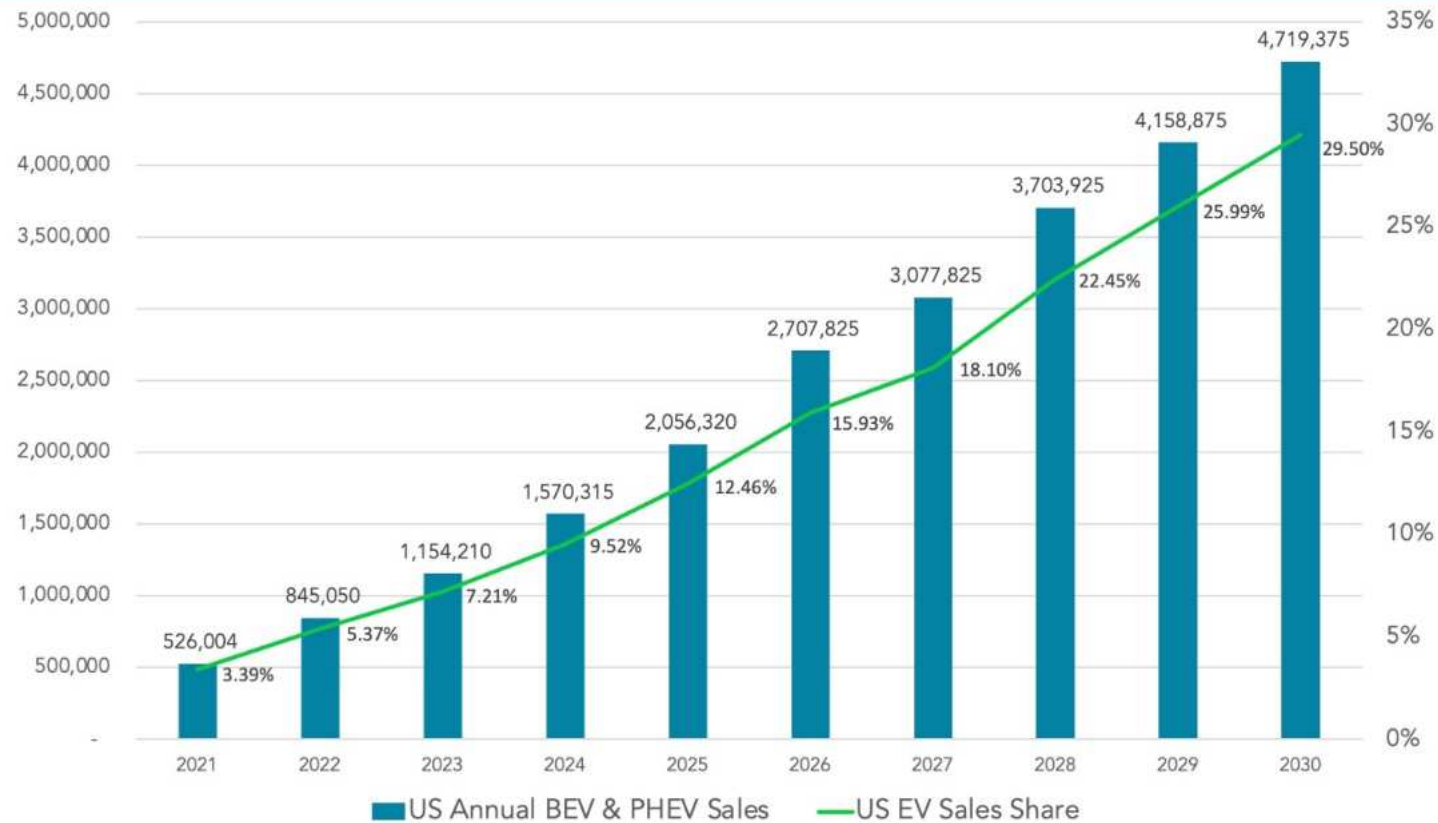
#4. Electric Cooking



- Cooktops and ovens are electric.
- ENERGY STAR cooktops and induction ranges are recommended, but not required.
- Benefits of induction: “Optional induction cooktops have precise temperature control, boil water quickly, and have cooktop surfaces that remain cool to the touch, making them easier to clean.”

#5. Electric Vehicle Charging Capability

US EVs (BEV & PHEV) Sales & Sales Share Forecast: 2021-2030



#5. Electric Vehicle Charging Capability



For one- and two-family dwellings with dedicated parking

- **EV-Ready:** One parking space is provided per dwelling unit that includes:
 - A powered 208/240 receptacle installed in garage or within 3 feet of driveway or dedicated parking space
 - The electric service panel includes a 40-amp (or greater) breaker and panel directory identifies the branch circuit as “Electric vehicle charging”

#5. Electric Vehicle Charging Capability



For all other dwellings

- Comply with **EV-Ready** requirements on prior slide, or, both of the following:
 1. **EV Charger:** Install (at a minimum) the following number of ENERGY STAR certified EV-Chargers that meet EPA's 'connected' criteria as follows:

Parking Spaces	1-10	11-20	21-30	31-40	41+
EV-Capable EV Chargers	1	2	3	4	5

2. **EV-Capable** electrical panel to a junction box that terminates within 3 feet of at least 20% of the development's parking spaces

Electric Vehicle Charging Capability

A young boy with dark, curly hair, wearing a light blue collared shirt, is shown in profile from the chest up. He is looking intently at a red electric vehicle (EV) that is partially visible on the left side of the frame. His hands are near the vehicle, suggesting he is interacting with it. The background is a blurred outdoor setting with green foliage and a white fence.

In homes with private parking, a heavy-duty power outlet is wired and ready to charge an electric vehicle.



How to Get Started

How to Get Started

ENERGY STAR NextGen Certified Homes & Apartments National Rater Field Checklist, Version 1.0 (Rev. 0)			
Home/Building Address: _____ City: _____ State: _____ Permit Date: _____			
1. ENERGY STAR Certification Baseline	Must Correct	Rater Verified ¹	N/A ²
1.1 Home or building certified under one of the following ENERGY STAR New Construction programs (check box): Single Family New Homes (SFNH) Multifamily New Construction (MFNC) <input type="checkbox"/> SFNH National Version 3.2 <input type="checkbox"/> MFNC National Version 1.2 California Only: <input type="checkbox"/> SFNH California Version 3.4 <input type="checkbox"/> MFNC California Version 1.4	<input type="checkbox"/>	<input type="checkbox"/>	-
2. Dwelling Unit Space Heating			
2.1 ENERGY STAR certified heat pump(s) installed and sized in accordance with the HVAC Design Report.	<input type="checkbox"/>	<input type="checkbox"/>	-
2.1.1 For each air-source heat pumps, blower fan volumetric airflow, blower fan watt draw, and refrigerant charge are Grade I per ANSI / RESNET / ACCA Std. 310. ³	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.1.2 In CZ 5-8, installed air-source heat pumps are ENERGY STAR certified for Cold Climate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 Each heat pump is controlled by a wifi thermostat or ENERGY STAR certified smart thermostat, or meets EPA's 'connected' criteria.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3 Each air-source heat pump has two-speed or variable-speed blower fan & two-speed or variable-speed compressor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Dwelling Unit Water Heating			
3.1 ENERGY STAR certified heat pump water heater that is 208/240 volts is installed. ⁴	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2 Each heat pump water heater has minimum rated storage volume ⁵ as follows: Bedrooms ⁶ : 0-1 2 3 4+ Minimum Tank Capacity: 36 45 59 72	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3 Each heat pump water heater located within occupiable space has a manufacturer-rated sound level ≤ 55 dBA. ^{7,8}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4 Each heat pump water heater meets EPA's 'connected' criteria or has an ANSI / CTA-2045 port (EcoPort).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cooking			
4.1 Cooktops and ovens are electric. ⁹ Induction ranges are recommended, but not required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Electric Vehicle Charging Infrastructure - For one and two-family dwellings with a private driveway or garage, comply with Item 5.1. For all other dwellings and dwelling units, comply with either Item 5.1 or 5.2.			
5.1 EV-Ready: One parking space is provided per dwelling unit that includes all of the items below. ¹⁰	-	-	<input type="checkbox"/>
5.1.1 A powered 208/240 receptacle installed in garage or within 3 feet of driveway or dedicated parking space. ¹¹	<input type="checkbox"/>	<input type="checkbox"/>	-
5.1.2 The electric service panel includes a 40-amp breaker (or greater), and panel directory identifies the branch circuit as "Electric vehicle charging."	<input type="checkbox"/>	<input type="checkbox"/>	-
5.2 EV Chargers and EV-Capable parking spaces are installed, including all of the items below:	-	-	<input type="checkbox"/>
5.2.1 EV Charger: The following minimum number of ENERGY STAR certified EV Chargers installed that meet EPA's 'connected' criteria. ^{12, 13} Parking Spaces: 1-10 spaces 11-20 spaces 21-30 spaces 31-40 spaces 41+ spaces EV Chargers: 1 2 3 4 5	<input type="checkbox"/>	<input type="checkbox"/>	-
5.2.2 EV-Capable: Conduit is installed that runs continuously from the electrical panel to a junction box that terminates within 3 feet of at least 20% of the development's parking spaces. ^{13, 14, 15}	<input type="checkbox"/>	<input type="checkbox"/>	-
Rater Name: _____ Rater Inspection Date: _____ Rater Initials: _____			

1. Take mandatory ANSI 310 training from your HCO.
2. Take optional ENERGY STAR NextGen training
3. Become an expert on NextGen technologies

Source: [ENERGY STAR NextGen Program Requirements](#)



How to Get Started – Local Incentives

- Colorado - Xcel Energy
- Maryland - EmPOWER Maryland, including Baltimore Gas and Electric (BGE), Potomac Electric Power Company (Pepco), and Potomac Edison (PE)
- Massachusetts – Mass Save
- Minnesota - Xcel Energy
- Utah - Utah Clean Energy
- Virginia – Dominion Energy
- Washington - Snohomish County Public Utility District No. 1

Overlap with DOE Zero Energy Ready Homes



Overlapping DOE ZERH v2 Requirements

- ✓ ENERGY STAR v3.2
- Heat Pump Space Heating Ready
- Heat Pump Water Heating Ready
- ✓ Electric Vehicle Ready
- (Nothing on electric cooking)

Early Adopters

- Across the country, several builders have already begun to certify homes:
 - Beazer Homes (Maryland)
 - GreenSmith Builders (Minnesota)
 - New Tradition Homes (Washington)
 - Quantum Equities, LLC (Washington)
 - Thrive Home Builders (Colorado)

ENERGY STAR Residential New Construction

Program website & email:

Single Family: www.energystar.gov/newhomesrequirements

Multifamily: www.energystar.gov/mfnc

Email: energystarhomes@energystar.gov

Direct contact info:

Dean Gamble
gamble.dean@epa.gov



THANK YOU!