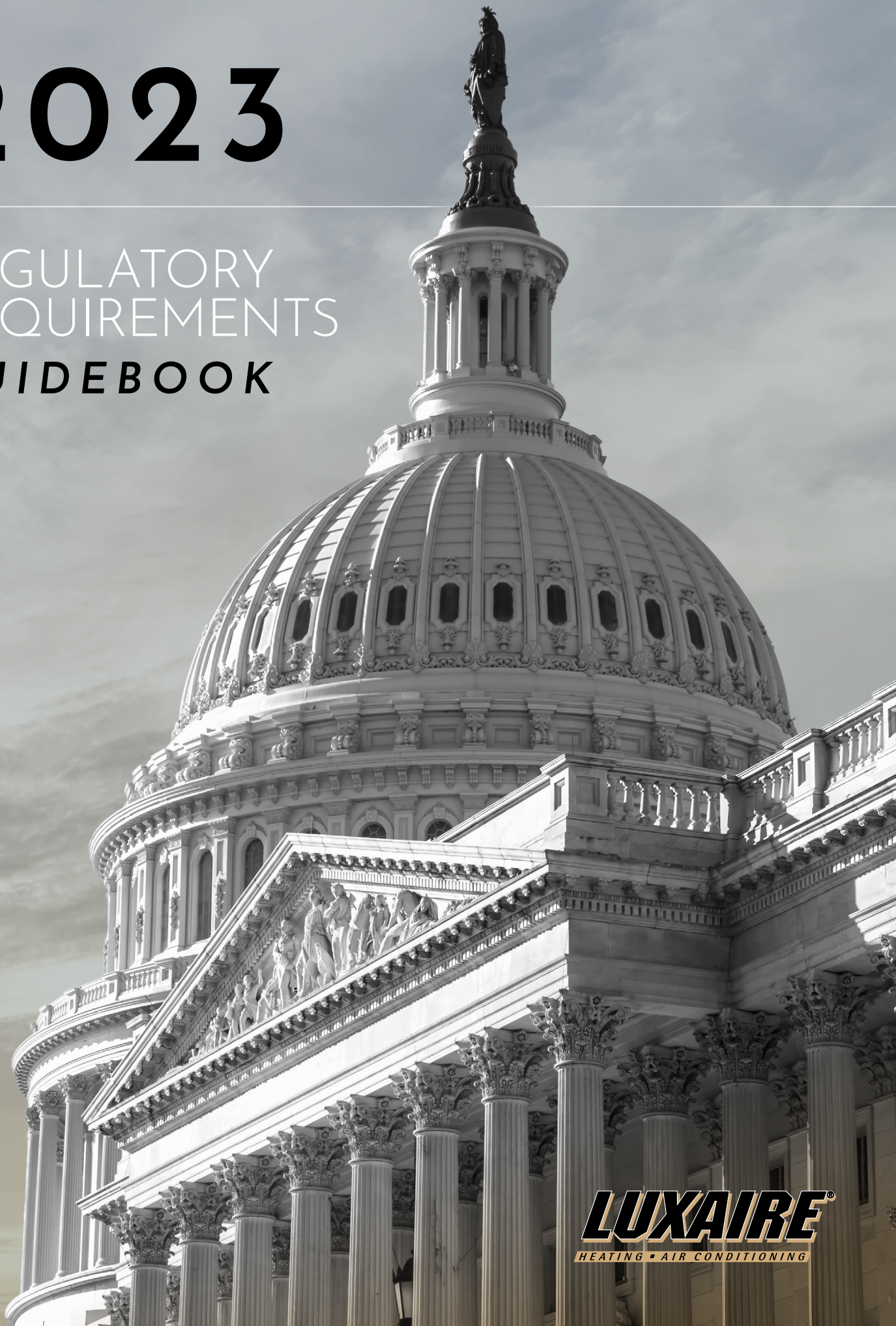


2023

REGULATORY
REQUIREMENTS
GUIDEBOOK



LUXAIRE[®]
HEATING ■ AIR CONDITIONING



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January 2022

Dear Luxaire® distributors, dealers, contractors and partners:

On January 1, 2023, the Department of Energy (DOE) will enact new minimum cooling energy efficiency requirements for residential and commercial HVAC equipment. The purpose of these new regulations is to continue ongoing efforts to reduce energy consumption in the United States. These changing requirements will present a unique challenge for our business, and we're getting ready to meet it.

The regulatory changes coming in 2023 will not only affect the minimum efficiency of residential and commercial HVAC products but also how residential and 3-5 ton light commercial, single-phase products are tested. At Johnson Controls, we are already making changes to Luxaire® products to meet the new requirements so you can continue to sell world-class products.

As a leader in HVAC, we know how valuable it is to make this transition as smooth as possible. This guidebook will help explain the changes coming in 2023 and what it means for both the industry and your business. As always, we're here to answer your questions and to work alongside you to prepare for this change.

Sincerely,

Philip Smyth

Executive Director, Commercial Product Management
Johnson Controls

Casey Yates

Vice President, Ducted Systems Sales
Global Products National Accounts
Johnson Controls

Chris Forth

Vice President, Regulatory Codes & Environmental Affairs
Johnson Controls

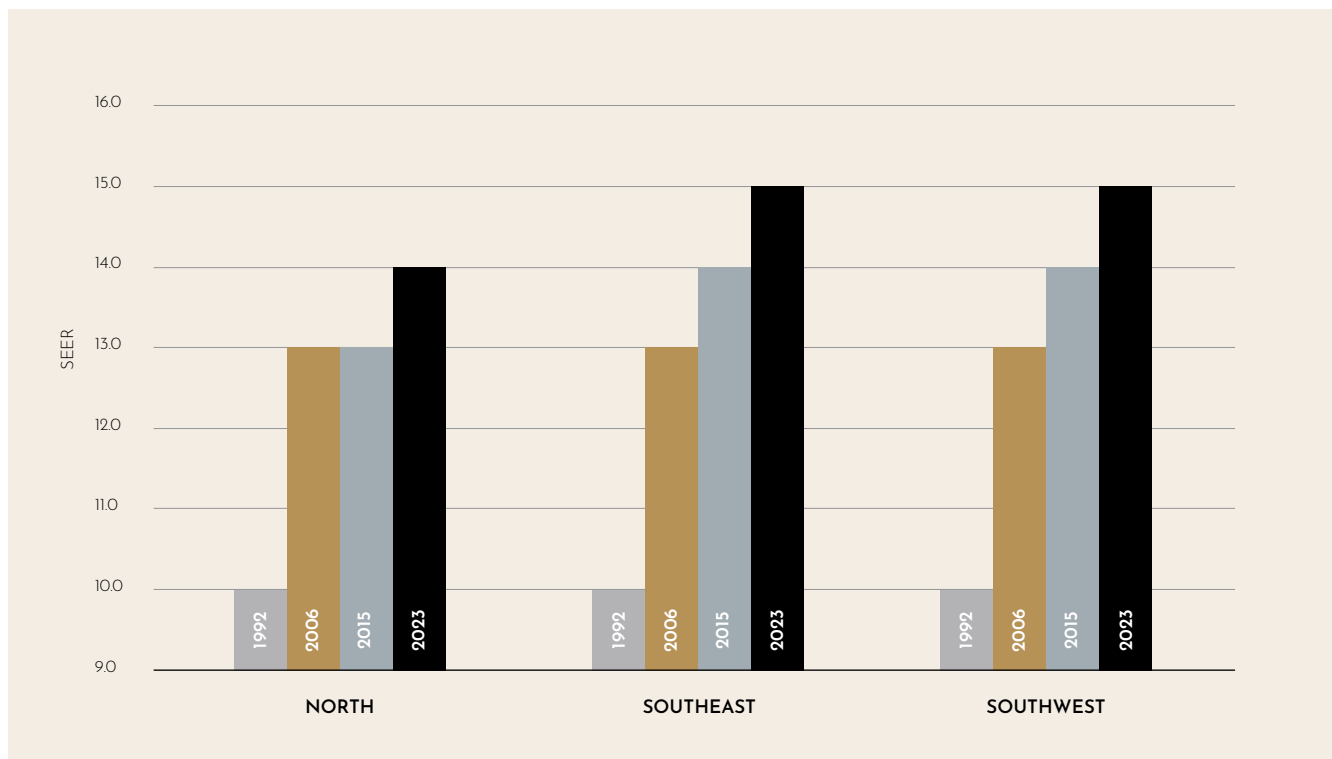
WHAT'S CHANGING IN 2023

NEW MINIMUM EFFICIENCY REQUIREMENTS ARE TAKING EFFECT

THE BIG PICTURE

The U.S. Department of Energy (DOE) has mandated new energy efficiency requirements for all newly manufactured residential and commercial air conditioners and heat pumps, which will take effect on January 1, 2023. Alongside the new efficiency requirements are more stringent testing requirements for all residential and 3-5 ton light commercial, single-phase equipment manufactured on or after January 1, 2023.

HISTORICAL SEER EFFICIENCY REQUIREMENTS FOR RESIDENTIAL SPLIT AIR CONDITIONERS

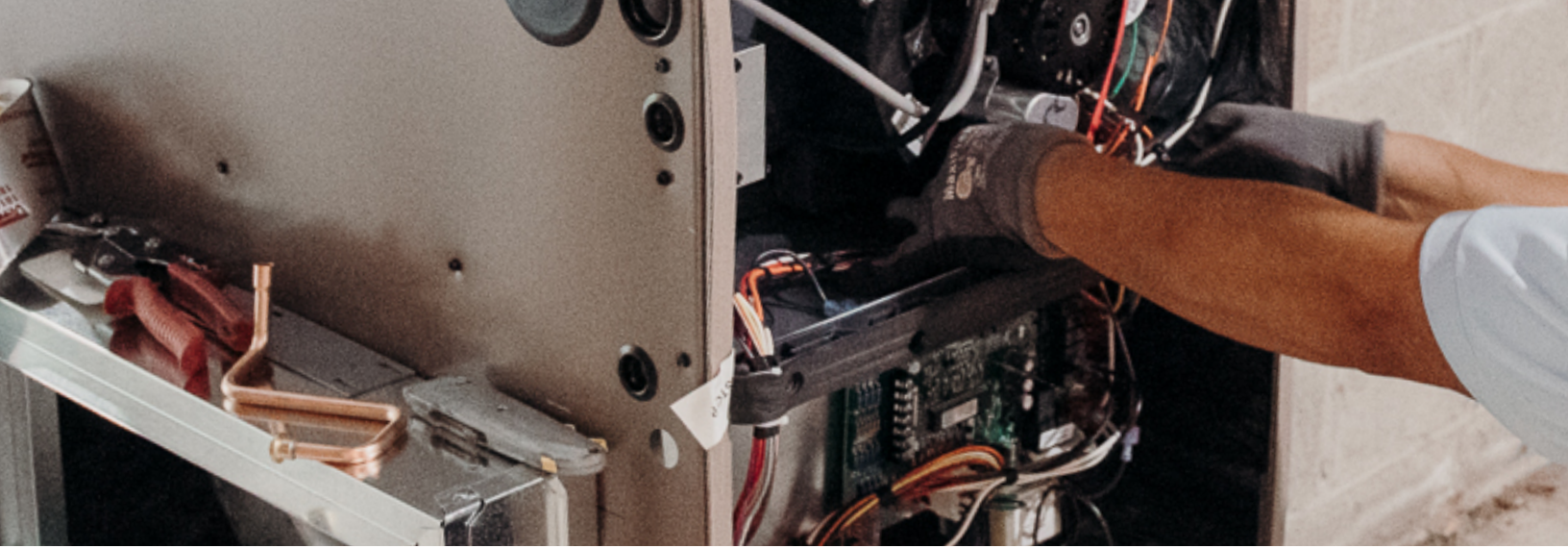


THE DETAILS

In 2023, the DOE-adjusted minimums for both residential split air conditioners and heat pumps will take effect:

- Split air conditioners installed in northern climates must achieve a 14.0 SEER rating (up from 13.0 SEER) and in the southeast and southwest regions must achieve a 15.0 SEER* rating (up from 14.0 SEER). Both measurements can be reached using current (pre-2023) SEER test procedures.
- Split heat pumps, regardless of location, must achieve a minimum efficiency of 15.0 SEER (up from 14.0 SEER).

*15.0 SEER if < 45k BTU, or 14.5 SEER if ≥ 45k BTU, EER requirements also apply in the southwest region:
122 EER < 45k BTU or 11.7 EER ≥ 45k BTU, if SEER > 16 then EER minimum is 10.2



NEW TESTING AND MEASUREMENT PROCEDURES ARE REQUIRED

As part of the new, minimum energy efficiency ratings for 2023, a revised testing procedure will determine energy efficiency ratings for residential and 3-5 ton light commercial, single-phase products. This new testing procedure will more accurately account for field conditions by increasing external static pressure, or ESP, from 0.3 to 0.5. Because the new testing procedures will result in reduced (but more accurate) efficiency ratings under the current SEER, EER and HSPF ratings, new metrics and nomenclature were developed.

MINIMUM EFFICIENCY REDUCTION

Because the new, SEER2, EER2 and HSPF2 ratings will be determined through more rigorous testing procedures, minimum efficiency requirements will be reduced for SEER2, EER2 and HSPF2 ratings versus the 2023 SEER, EER and HSPF minimum efficiency ratings for each region. For instance, the northern region's current minimum requirement is 13.0 SEER. In the future, the minimum requirement will be 14.0 SEER or 13.4 SEER2.

RETESTING

Every product tier will need to be retested, reoptimized and relaunched in accordance with the new DOE test procedures. This will be a large undertaking by manufacturers compared to previous efficiency requirement changes.

NOTE: these changes apply ONLY to equipment with single-phase power supply in 2023. Equipment with three-phase power supply will be addressed in 2025.

TEST PROCEDURE CHANGES

A 66% increase in external static pressure will result in increased blower motor watt usage, which will reduce energy efficiency ratings.

ADDITIONAL CHANGES

The new DOE testing requirements will also result in changes to the airflow set point on indoor blowers, including fan coils and furnaces.

NEW EFFICIENCY STANDARDS

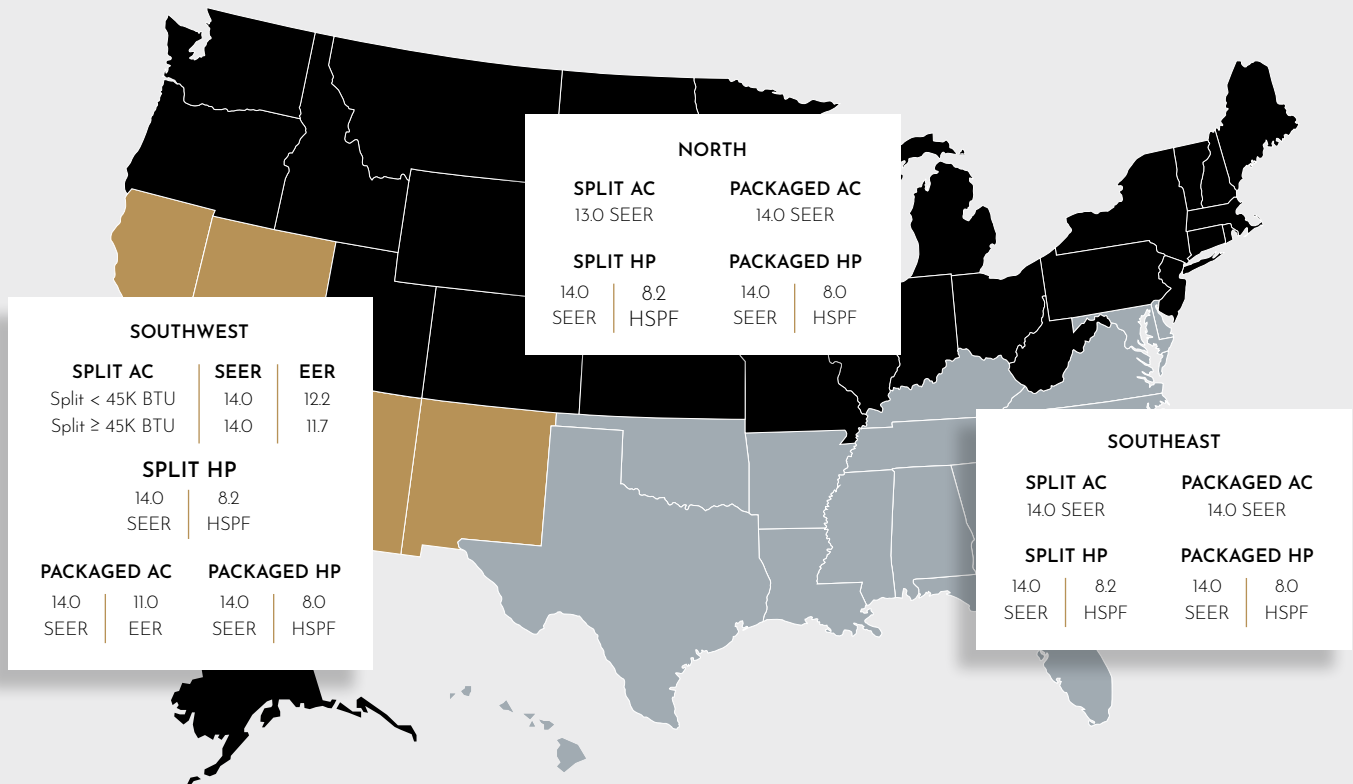
Changes are as follows:

SEER	➔	SEER2
EER	➔	EER2
HSPF	➔	HSPF2

CURRENT RESIDENTIAL MINIMUM STANDARDS

Below are the current minimum efficiency standards, effective since January 1, 2015.

2015 REGIONAL EFFICIENCIES FOR SPLIT AC, SPLIT HP AND PACKAGED UNITS



EFFECTIVE DATES 1/1/2015 TO 12/31/2022

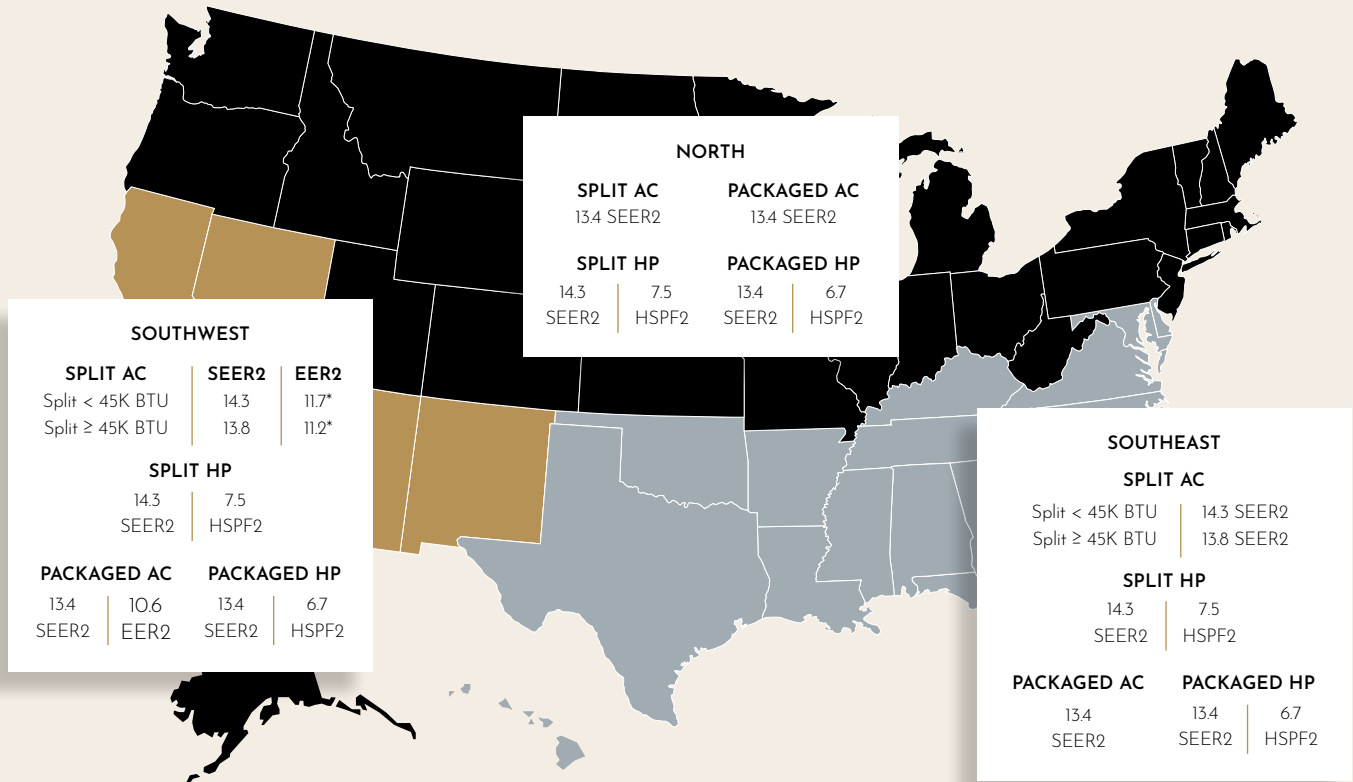
Product Type	Region	Governing Date for Change	Capacity Splits (BTU)	SEER	EER	HSPF
Split AC	North	Manufactured on or after		13.0		
	Southeast	Installed on or after		14.0		
	Southwest	Installed on or after	< 45K	14.0	12.2	
≥ 45K			14.0	11.7		
Split HP	All	Manufactured on or after		14.0		8.2
Packaged AC	North/Southeast	Manufactured on or after		14.0		
	Southwest	Installed on or after		14.0	11.0	
Packaged HP	All	Manufactured on or after		14.0		8.0

From ECFR.gov 10 CFR 430.32.c.5 & 10 CFR 430.32.c.6

2023 RESIDENTIAL MINIMUM STANDARDS

Below are the future minimum efficiency standards, effective January 1, 2023.

2023 REGIONAL EFFICIENCIES FOR SPLIT AC, SPLIT HP AND PACKAGED UNITS



EFFECTIVE DATES 1/1/2023 AND AFTER

Product Type	Region	Governing Date for Change	Capacity Splits (BTU)	SEER2	EER2	HSPF2
Split AC	North	Manufactured on or after		13.4		
	Southwest	Installed on or after	< 45K	14.3	11.7*	
	Southwest		≥ 45K	13.8	11.2*	
Split HP	All	Manufactured on or after		14.3		7.5
Packaged AC	North/Southeast	Manufactured on or after		13.4		
	Southwest	Installed on or after		13.4	10.6	
Packaged HP	All	Manufactured on or after		13.4		6.7

*9.8 EER2 if SEER2 ≥ 15.2 These changes apply ONLY to single phase in 2023. Three phase will be addressed in 2025.

2023 COMMERCIAL MINIMUM STANDARDS

Below are the future minimum efficiency standards, effective January 1, 2023.

COMMERCIAL PRODUCT MINIMUM EFFICIENCY REQUIREMENTS BEFORE 1/1/2023 AND AFTER Package and Split ACs and Heat Pumps

	Equipment	Capacity (BTU)	Subcategory	Before 2023 Minimum Rating		January 1, 2023 Minimum Rating	
AC Units	Package	< 65,000	All types	14.0	SEER →	13.4	SEER2
	Split & Package	≥ 65,000 < 135,000	Electric heat, cooling only	11.2/12.9	EER/IEER →	14.8	IEER
	Split & Package	≥ 65,000 < 135,000	All others	11.0/12.7	EER/IEER →	14.6	IEER
	Split & Package	≥ 135,000 < 240,000	Electric heat, cooling only	11.0/12.4	EER/IEER →	14.2	IEER
	Split & Package	≥ 135,000 < 240,000	All others	10.8/12.2	EER/IEER →	14.0	IEER
	Split & Package*	≥ 240,000 < 760,000	Electric heat, cooling only	10.0/11.6	EER/IEER →	13.2	IEER
	Split & Package*	≥ 240,000 < 760,000	All others	9.8/11.4	EER/IEER →	13.0	IEER
	Split & Package**	≥ 760,000	Electric heat, cooling only	9.7/11.2	EER/IEER →	12.5	IEER
	Split & Package**	≥ 760,000	All others	9.5/11.0	EER/IEER →	12.3	IEER
Heat Pumps	Package	< 65,000	All types	14.0	SEER →	13.4	SEER2
	Package	< 65,000	Heating mode	8.0	HSPF →	6.7	HSPF2
	Split & Package	≥ 65,000 < 135,000	Electric heat, cooling only	11.0/12.2	EER/IEER →	14.1	IEER
	Split & Package	≥ 65,000 < 135,000	47°F dB/ 43°F wB Outdoor	3.3	COP →	3.4	COP
			17°F dB/ 15°F wB Outdoor	2.25	COP →	2.25	COP
	Split & Package	≥ 135,000 < 240,000	47°F dB/ 43°F wB Outdoor	3.2	COP →	3.3	COP
			17°F dB/ 15°F wB Outdoor	2.05	COP →	2.05	COP
	Split & Package	≥ 240,000	47°F dB/ 43°F wB Outdoor	3.2	COP →	3.2	COP
			17°F dB/ 15°F wB Outdoor	2.05	COP →	2.05	COP

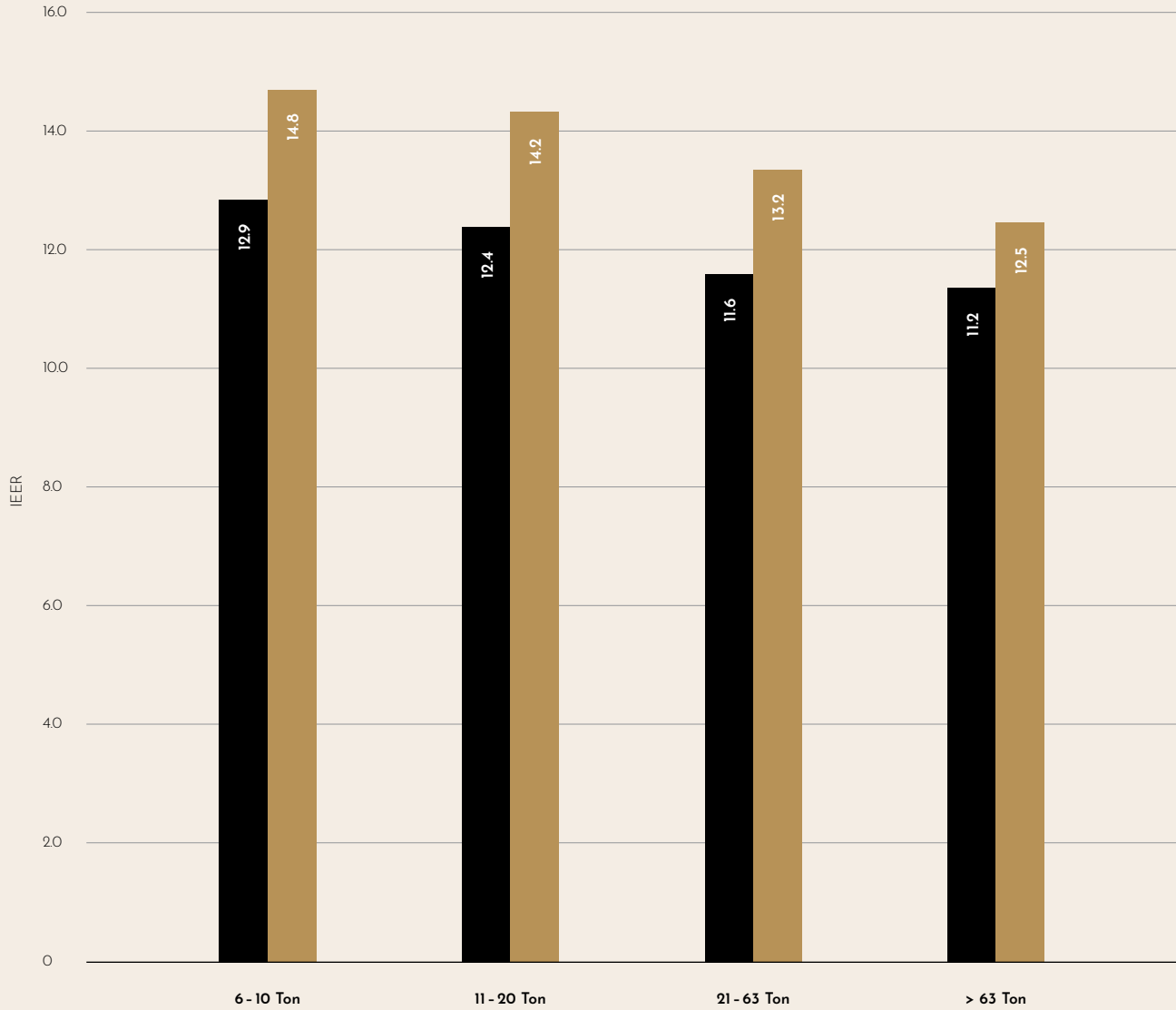
*AHRI Certification program does not apply to splits in this size, and DOE does not mandate these efficiencies for 2023, but is mandated by ASHRAE 90.1-2019.

**AHRI Certification program does not apply to splits and packaged units in this size, and DOE does not mandate these efficiencies for 2023, but is mandated by ASHRAE 90.1-2019.

Three-phase packaged air conditioners and heat pumps < 65,000 BTU do not have an established conversion date, while ASHRAE 90.1-2019 has been updated to the values shown above. DOE has not yet established an effective date for amended energy conservation standards.

2023 COMMERCIAL MINIMUM STANDARDS (CONTINUED)

IMPACTS OF 2023 DOE EFFICIENCY INCREASES



DOE 2018
 DOE 2023

Based on electric heat or cooling only units

2018 = Loss of standard efficiency constant volume

- Rise of VFD-equipped units

2023 = Loss of standard efficiency tiers: +15% increase required

- Almost all equipment will require VFDs
- **Gas furnaces above 225K BTU are required to meet 81% Steady State Efficiency**



DOE ENFORCEMENT

Non-compliance with new, 2023 standards will likely be similar to non-compliance with 2015 standards. Infractions include:

- Dealers and contractors installing non-compliant equipment
- Distributors supplying non-compliant equipment to contractors
- Manufacturers knowingly selling non-compliant equipment

The consequences of non-compliance may include:

- Replacing non-compliant equipment at violator's own cost and inclusion on a national, "no-sell" list for repeat violators
- Prohibition from purchasing any of the seven classes of products identified in the Code of Federal Regulations (10-CFR-430.32)
- Heavy fines (the DOE may assess penalties up to \$440 per violation against manufacturers, private labelers or distributors)*

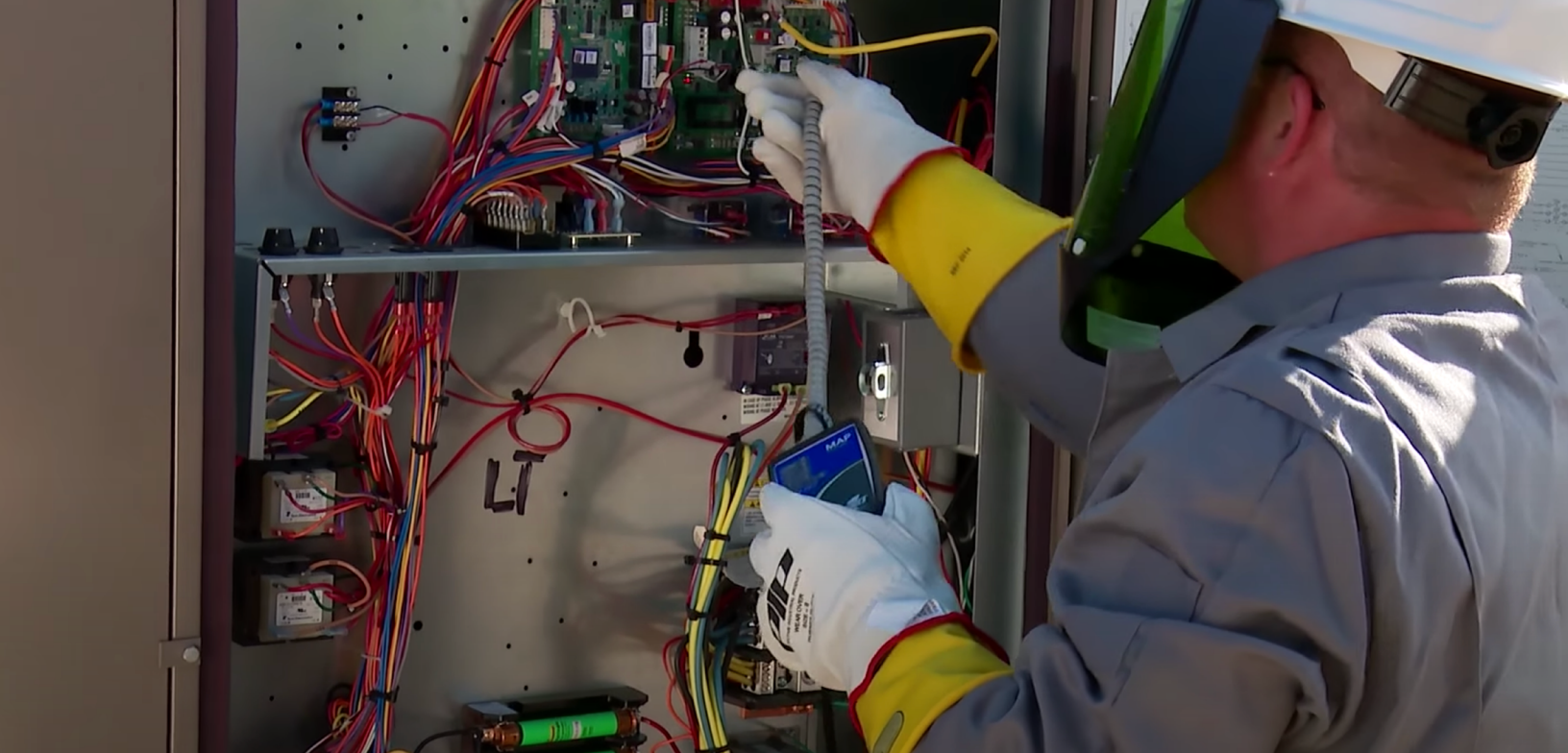
HOW TO AVOID NON-COMPLIANCE

The first step in avoiding accidental non-compliance is education. Make sure your employees understand what the new, 2023 minimum efficiency requirements are, how they are determined and what products meet these requirements.

Learning the efficiency standards for your region and making sure they are communicated is valuable, especially in the first few months of 2023.

It's also important to keep accurate, up-to-date records of products sold. Dealers, contractors, distributors and manufacturers will be required to track the model and serial numbers of products that are sold and installed, including the locations of those installations. These records should be kept for at least 60 months.

*<https://www.energy.gov/gc/legal-resources/office-assistant-general-counsel-enforcement/regional-standards-enforcement>



HOW JOHNSON CONTROLS IS PREPARING FOR THE 2023 EFFICIENCY REQUIREMENTS

We are committed to helping our dealers, contractors and partners meet the challenges these new regulations bring. To make the transition to these regulatory updates as smooth a transition as possible, we are:

- Updating all HVAC products to meet minimum requirements for air conditioners, heat pumps and affected furnace sizes manufactured in 2023 or later
- Updating testing procedures to be compliant with upcoming regulations
- Making other essential improvements to increase performance and efficiency while keeping costs low
- Offering ongoing webinars and training on new regulatory changes through 2022
- Providing 2023 regulatory training included for each future product update and launch

BE READY FOR THE CHANGE

Transitioning to 2023 requirements may seem like a challenge, but we believe preparation and planning can help ease the transition and minimize any disruptions to your business. Your local distributor can also help you understand and prepare for the 2023 minimum efficiency change and answer any questions you may have.

FAQ

AFTER JANUARY 1, 2023, CAN I INSTALL A NEW AIR CONDITIONER OR HEAT PUMP IF IT IS RATED TO THE “OLD” SEER METRIC?

All products that were legally compliant on the day that they were manufactured are considered legal to distribute, sell and install in the majority of U.S. states, though there are different requirements based on “regional standards states.”

WHAT ARE “REGIONAL STANDARDS STATES?”

Southeast Region	Southwest Region
Alabama, Arkansas, Delaware, Florida, Georgia, Hawaii, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, District of Columbia and U.S. Territories	Arizona, California, Nevada, New Mexico

All other U.S. states not listed above will follow the National Standard.

WHAT ARE THE DIFFERENT SELL-THROUGH REQUIREMENTS BY REGION?

DOE Product Class	New Standards Effective By	Exception
Residential north/national AC	Date of mfrg - sell-through allowed	N/A
Residential southeast AC	Date of install - see exception	Products > 2023 minimums can be sold and installed after 1/1/2023
Residential southwest AC	Date of install - see exception	Products > 2023 minimums can be sold and installed after 1/1/2023
Residential national HP	Date of mfrg - sell-through allowed	N/A
Commercial, all products	Date of mfrg - sell-through allowed	three-phase < 65K BTU delayed until 2025 (pending DOE final rule)

Notes: Outdoor AC units built prior to 1/1/2023 which have an approved DOE Energy Guide label (aka “hang tag”) with a published efficiency rating that meets or exceeds the new 2023 minimum efficiency ratings for their given region (see Split System Air Conditioners - 2023 Regional Standards table, page 13) can continue to be sold and installed as “condensers only” or “entire system” replacements on or after 1/1/2023.

Outdoor AC units built prior to 1/1/2023 for the southeast and southwest regions whose Energy Guide labels (hang tags) show ratings less than the new 2023 minimums for a given region can only be installed in the north region.

2023 VALUES APPLICABLE TO SEER, HSPF-RATED AC AND HP

Product	National All US states not otherwise listed as “regional standards states”		Southeast Regional Standards States Alabama, Arkansas, Delaware, Florida, Georgia, Hawaii, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas or Virginia or in the District of Columbia and U.S. Territories	Southwest Regional Standards States Arizona, California, Nevada or New Mexico	
	SEER	HSPF	SEER	SEER	EER
Split AC < 45K BTU	14.0		15.0	15.0	12.2/10.2*
Split AC ≥ 45K BTU	14.0		14.5	14.5	11.7/10.2*
Split HP	15.0	8.8	15.0	15.0	

*The lower EER requirement is for equipment at or above 16.0 SEER using the M test method (or 15.2 SEER2 using the M1 test method)

FAQ (CONTINUED)

The following charts help clarify regional standards for residential split system air conditioners, split system heat pumps and residential packaged equipment. These charts don't apply to commercial products.

SPLIT SYSTEM AIR CONDITIONERS - 2023 REGIONAL STANDARDS

The new, 2023 minimum efficiency standards will maintain regional borders established in 2015. SEER and EER are used when testing follows pre-2023 test procedures, while SEER2 and EER2 will be used when testing follows the 2023 test procedure.

For northern regions, any 13.0 SEER air conditioner built before January 1, 2023, can still be installed on or after January 1, 2023. **In southeast and southwest regions, air conditioners that don't meet the below requirements cannot be installed on or after January 1, 2023, unless they meet the new 2023 minimum efficiencies listed in SEER.**

System Type	North Region			Southeast Region			Southwest Region		
	2015 Minimum Rating 13.0 SEER	New SEER	New SEER2	2015 Minimum Rating 14.0 SEER	New SEER	New SEER2	2015 Minimum Rating 14.0 SEER and 12.2 EER/ 11.7 EER***	New SEER	New SEER2
Split System ACs (AC < 45K BTU)		14.0 SEER	13.4 SEER2		15.0 SEER	14.3 SEER2		15.0 SEER and 12.2 EER*	14.3 SEER2 and 11.7 EER2**
Split System ACs (AC ≥ 45K BTU)		14.0 SEER	13.4 SEER2		14.5 SEER	13.8 SEER2		14.5 SEER and 11.7 EER*	13.8 SEER2 and 11.2 EER2**

*10.2 EER if SEER ≥ 16.0 ** 9.8 EER2 if SEER2 ≥ 15.2 ***12.2 EER if < 45K BTU, 11.7 EER if ≥ 45K BTU

SPLIT SYSTEM HEAT PUMPS - 2023 NATIONAL STANDARDS

Regardless of region, heat pump minimum efficiency requirements will increase to 14.3 SEER2. Split system heat pumps must also meet a minimum of 7.5 HSPF2. **Any 14.0 SEER heat pump built before January 1, 2023, can still be installed on or after January 1, 2023.**

System Type	National Efficiency Standard	
	2015 SEER and HSPF Minimum Rating	New SEER2 and HSPF2
Split System HPs	14.0 SEER and 8.2 HSPF	14.3 SEER2 and 7.5 HSPF2

PACKAGED UNITS - 2023 NATIONAL STANDARDS

Single-phase packaged unit minimum efficiency requirements will be 13.4 SEER2 and 6.7 HSPF2.

System Type	National Efficiency Standard	
	2015 SEER and HSPF Minimum Rating	New SEER2 and HSPF2
Packaged Units	14.0 SEER and 8.0 HSPF	13.4 SEER2 and 6.7 HSPF2

These changes apply ONLY to single-phase equipment in 2023. Applicable three-phase packaged air conditioners and heat pumps are required to convert to the new SEER2 levels effective January 1, 2025.

FAQ (CONTINUED)

WHY DID THE DEPARTMENT OF ENERGY MAKE THIS CHANGE?

The Department of Energy Appliance and Equipment Standards Program is tasked with reviewing the energy use of certain home appliance and mechanical systems **every six years** by law. If the Department determines that an increase in energy efficiency requirements for these products is cost justified, then the Department will set higher, more stringent requirements. In 2017, the Department of Energy determined that an increase in energy efficiency standards was cost justified, and the Department set the requirements accordingly. Manufacturers, distributors and contractors need several years to design, build, test and certify equipment to the updated standards, which is why the new rule isn't effective until 2023.

WHY ARE THE REQUIREMENTS DIFFERENT FOR MY STATE?

When the Department evaluates the cost effectiveness of energy efficiency for air conditioners, the climate matters. In hotter climates, consumers use their air conditioners more often; therefore, a higher efficiency product presents a greater opportunity for energy savings – and a corresponding cost savings opportunity for the homeowner.

ADDITIONAL RESOURCES



U.S. DEPARTMENT OF ENERGY
([ENERGY.GOV](https://www.energy.gov))



U.S. ENVIRONMENTAL PROTECTION AGENCY
([EPA.GOV](https://www.epa.gov))



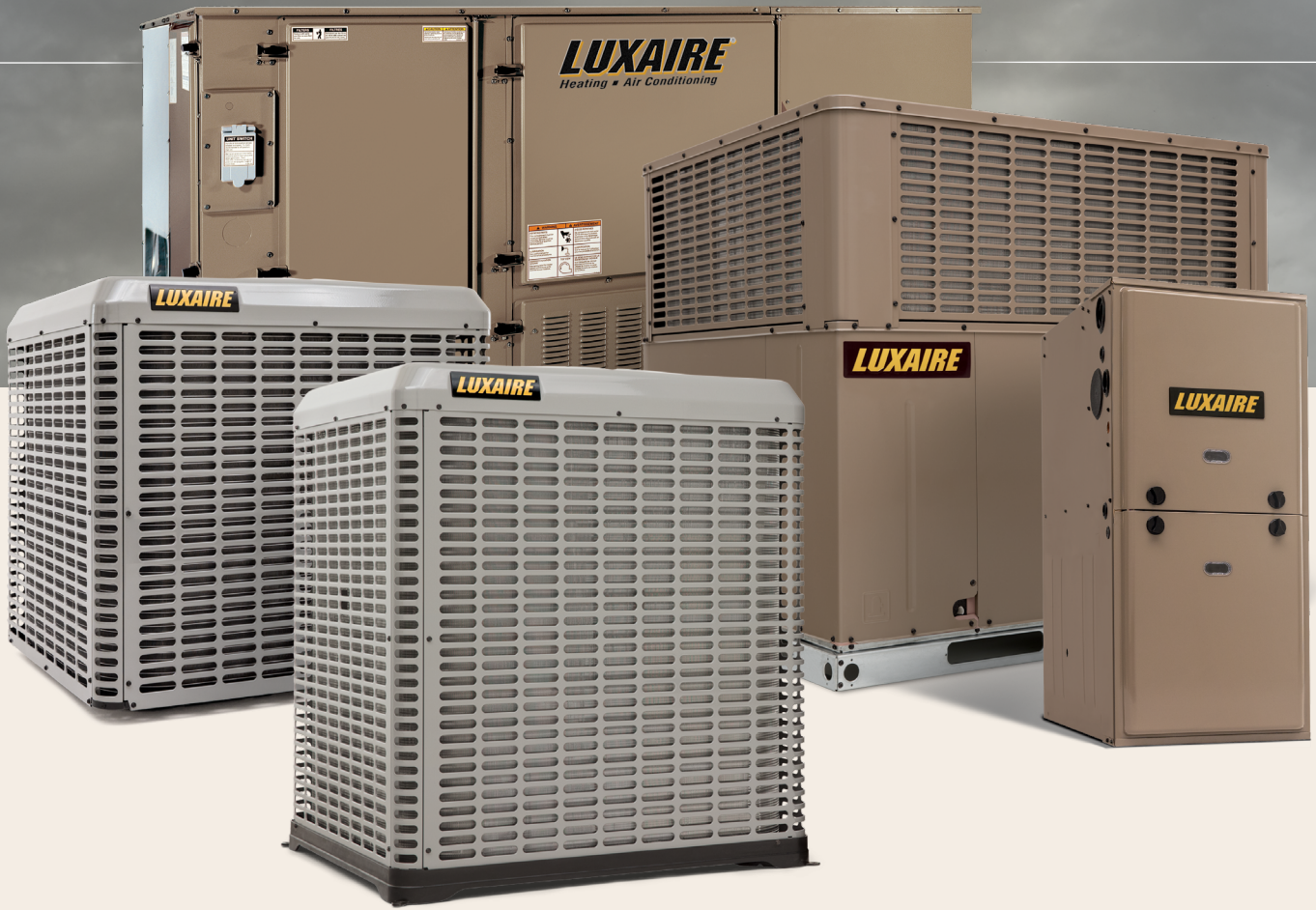
EPA AND DOE ENERGY EFFICIENCY
([ENERGYSTAR.GOV](https://www.energystar.gov))



U.S. GOVERNMENT'S NATIONAL ARCHIVES
([FEDERALREGISTER.GOV](https://www.federalregister.gov))

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