

DOE Zero Energy Ready Home Policy for Solar Water Heating Systems when Used to Meet Hot Water Efficiency Requirements

May 16, 2023

The U.S. Department of Energy (DOE) Zero Energy Ready Home (ZERH) Version 1 program establishes energy efficiency levels for gas and electric water heaters as part of the program’s “water efficiency” requirement. These requirements are found under the Exhibit 1 provision titled “Water heaters and fixtures shall meet efficiency criteria.”

However, there are no energy efficiency levels in this requirement established for designs using solar water heating systems. As a result, projects pursuing ZERH compliance under this provision do not get credit for the efficiency of a solar water heating system.

To address this issue, this policy provides the following terms:

- This policy applies to all dwelling units certified under the DOE Zero Energy Ready Home National Program Requirements (Version 1, Rev. 08) and the DOE Zero Energy Ready Home California Program Requirements (Version 1, Rev. 08).
- When using the “Water heaters and fixtures shall meet efficiency criteria” option of the Water Efficiency Mandatory provision, an electric water heater with a Uniform Energy Factor (UEF) less than 2.2 or a gas water heater with a UEF less than 0.87 may be used if a solar water heating system is also installed that meets the following Solar Fraction criteria:

- **ZERH Solar Water Heating System Requirements:**

2021 IECC Climate Zone	1	2	3	4A, 4B	4C	5	6	7	8
Minimum Solar Fraction (SF)	0.80		0.64			0.47		0.28	

- The solar water heating system’s Solar Fraction (SF) must be documented by an OG-300 certification. Alternatively, projects may find an equivalent system in the [OG-300 directory](#) which contains the same OG-100 elements as the chosen system and meets or exceeds the minimum required solar fraction. In this situation, documentation of the OG-100 elements and the comparable OG-300 system must be retained by the rater of record.
- All systems must be made up of OG-100 tested components.
- This recognition for solar water heating systems does not change the program requirements for WaterSense showerhead and bathroom sink faucets or the distribution system stored water volume.

This policy is in effect and available for dwelling units permitted on or after 1/1/2022. The DOE ZERH program anticipates that this policy will be incorporated into DOE ZERH Single Family Homes, Version 2 (Rev. 1).

For questions on this policy please contact the DOE Zero Energy Ready Home program at zerh@doe.gov.