



Time to Update Your TRM: Residential Water Heaters Now Use UEF

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Bradford White



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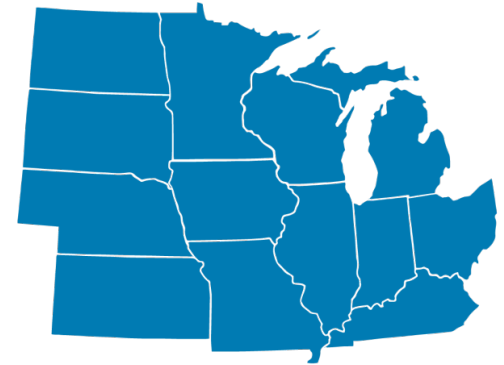
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- Utilities
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As the key resource and champion for energy efficiency in the Midwest, MEEA helps a diverse range of stakeholders understand and implement cost-effective energy efficiency strategies that provide economic and environmental benefits.





**Time to Update Your TRM:
Residential Water Heaters
Now Use Uniform Energy Factor or “UEF”**

MEEA Webinar Series
Presented by Bradford White Corporation
Wednesday, August 28th



Outline

- Bradford White Intro – Ryan Kiscaden
- Introduction of “UEF” – Eric Truskoski
- Technical and Legal Aspects of the Change – Eric Truskoski
- What We are Doing About This Communication – Ryan Kiscaden
- The “Ask” of Utility Program Managers – Ryan Kiscaden
- Q&A



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American Pride has Always Been in Everything We Do.

Bradford White began over 135 years ago with a simple vision, to deliver high quality, superior products made by American craftspeople. This vision continues to guide us today as we look toward the future.

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We are an American-owned company and all of our manufacturing facilities are located in the United States of America. Bradford White proudly employs over 1,500 people at our manufacturing operations in Middleville and Niles, Michigan, and Rochester, New Hampshire.

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Introduction of Uniform Energy Factor (“UEF”) Metric

What is UEF?

Uniform Energy Factor (UEF) is the Department of Energy’s (DOE) new metric for the energy efficiency of a residential water heater. This type of water heater was formerly rated in terms of Energy Factor (EF). UEF has replaced that metric as of June 2017. A higher UEF means the water heater should be more energy efficient, which should lead to a lesser operating cost (**when compared to similar products in the same bin**).

What is First Hour Rating (FHR)?

FHR is the amount of hot water that can be delivered in its first hour of operation (fully recovered). After the First Hour Rating (FHR) is conducted, that product will fall into one of the following categories also known as Bins per DOE:

- Very-Small-Usage
- Low-Usage
- Medium-Usage
- High-Usage



Introduction of Uniform Energy Factor (“UEF”) Metric

- Similar to the previous residential water heater test method but will produce different resultants.
- Consists of:
 - A maximum Gallons Per Minute test (Max GPM) or First-Hour Rating (FHR) test for determining delivery capacity
 - A 24-hour simulated use test (SUT) for determining UEF
 - Thermostat is set based on delivery temp. Must be 125 +/-5°F
- To determine UEF, water heater is tested to one of four possible draw patterns
 - Draw patterns vary in length, flow rate, number of draws
 - Result of the Max GPM or FHR test is used to determine the appropriate draw pattern for the UEF test



Introduction of Uniform Energy Factor (“UEF”) Metric

It is important to only compare models that are in the same Bin. This allows for an apples to apples comparison.

First Hour Greater than or equal to:	...and first hour rating less than:	Bin	Total Volume Drawn per Bin
0 Gallons	18 Gallons	Very-Small-Usage	10 Gallons
18 Gallons	51 Gallons	Low-Usage	38 Gallons
51 Gallons	75 Gallons	Medium-Usage	55 Gallons
75 Gallons	No upper limit	High-Usage	84 Gallons



Technical and Legal Aspects of the Change

- Prior Dept. of Energy (DOE) regulations for water heaters:
 - Residential water heaters were rated using Energy Factor and tested using Appendix E to Subpart B of 10 CFR 430
 - Certain commercial water heaters were rated using Thermal Efficiency and/or Standby Loss using 10 CFR 431.106 (Subpart G of 10 CFR 431)
- American Energy Manufacturing and Technical Corrections Act
 - Required DOE to establish a uniform efficiency descriptor (UED) and test method for residential and commercial water heaters
- Allowed DOE to exclude certain water heaters from UED if they:
 - Do not have a residential use
 - Are effectively rated using existing metrics
- On June 12, 2017, DOE required the water heater industry to move from Energy Factor (EF) metric for efficiency to an entirely new metric called Uniform Energy Factor (UEF).



Technical and Legal Aspects of the Change

- Models now required to be rated in terms of UEF.

Product Type	Fuel Type	Input Range
Storage	Gas	105,000 Btu/hr and less
Storage	Electric	12 kW and less*
Storage	Oil	140,000 Btu/hr and less
Instantaneous	Gas	200,000 Btu/hr and less
Instantaneous	Electric	58.6 kW and less
Instantaneous	Oil	210,000 Btu/hr and less

*Except certain water heaters that fall under DOE Enforcement Policy



What We are Doing About this Communication

- Proactively reviewing all state existing TRM's
 - Pennsylvania 2021 TRM updated with our recommendations.
 - Letters and requests for meetings sent.
- Submitting comments and asking TRM committees to make this change.
- Asking industry partners to incorporate this as a discussion at conferences, webinars, etc.
- Updating TRM's is necessary because manufacturers are only allowed to state efficiency and deliverability in the current metrics.



The “Ask” of Utility Program Managers

- Review existing rebate programs to ensure the proper water heater energy efficiency metric is being used.
- Proactively make changes in program design.
- Consult with water heater manufacturers if you have questions.



***Thank you for your time.
Questions?***

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Thank you!

Anna Connelly

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