OAK RIDGE National Laboratory | BUILDING TECHNOLOGIES RESEARCH AND INTEGRATION CENTER

Water Heating Electrification

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Research Challenge/Need/Problem Addressed

Ecosizer

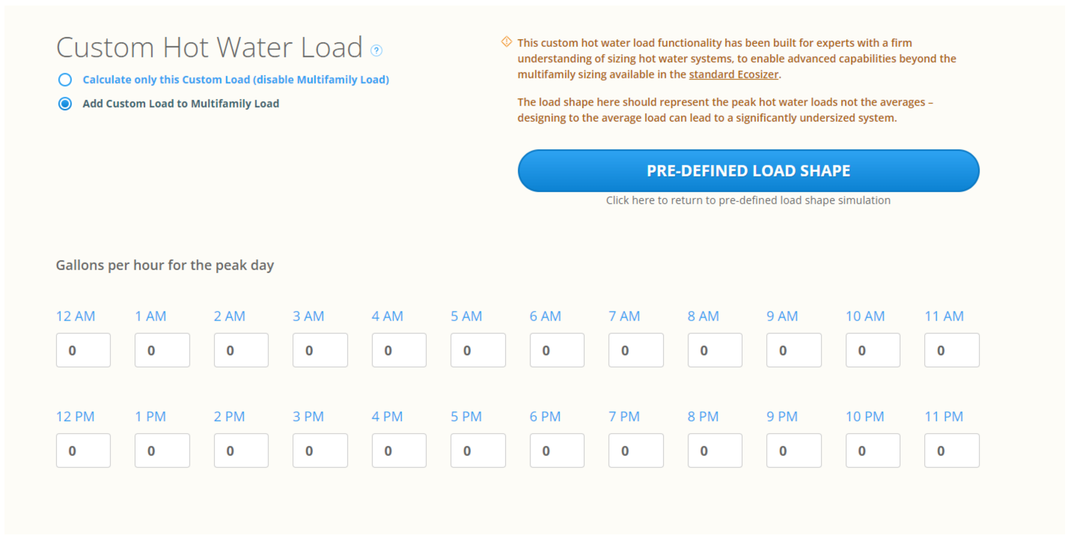
- An accurate domestic hot water sizing tool is urgently needed
- An open-source online tool (Ecosizer) is available, but continuous updates and improvement are essential to reflect the market needs

Advanced Water Heating Initiative (AWHI)

- Adapting heat pump technology in residential and commercial applications is mandated to contribute to building electrification, enhancing energy efficiency, and transforming the grid edge
- A national initiative (AWHI) streamlines the efforts of all nationwide entities working on adapting and deploying heat pump technology in water heating

Current Research

- Adding custom load shapes and load-shifting calculations to the sizing tool
- Adding multiple central heat pump water heater (CHPWH) system design options
- Increasing the end-user applications covered by Ecosizer



- Periodic meetings for a variety of task groups
- AWHI convening, 15,000+ website visits, 3,000+ participants, 4,000 newsletter reads, and 5,000 working group video views
- Multiple webinars about heat pump water heating with a total of 1,526 attendees and 2,374 recording views

Working Group	Task Groups	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Residential Working Group	Residential Working Group	87	77	101	93	116	91							565
	Home Builders Action Council		17			21								38
	Emergency Replacement	18	15	12	15	18	13							91
	Southeast Focused Group	19				22								41
	Advancing Equity through HPWH	13	15				8							36
	Installers task group				8		7							
	Total	**137**	**124**	**113**	**116**	**177**	**112**	**0**	**0**	**0**	**0**	**0**	**0**	**779**
Commercial Working Group	Working Group		97		62		89							248
	Commercial Mfr Action Council		18		25									43
	Total	**0**	**115**	**0**	**87**	**0**	**89**	**0**	**0**	**0**	**0**	**0**	**0**	**291**
Connectivity WG		45	61		55	45	38							244
Webinars		290		110	171	194	130							895
All Stakeholders				174			82							256
Total		472	300	397	429	416	451	0	0	0	0	0	0	2465

Attendees at AWHI working group meetings and webinars through June 2024

Planned/Future Research

- Accessibility of an accurate design tool for CHPWH projects
- Increasing the CHPWH technology market penetration
- Reducing the capital cost of CHPWH to the minimum possible cost (up to 200% savings compared with the conventional sizing tool)
- Adding return-to-primary system design (FY 2025)
- Hosting and maintaining Ecosizer at an ORNL server (FY 2025)

- AWHI will continue in the foreseeable future
- AWHI circle of influence is set for continuous growth by including more key players, including utilities and municipalities

YouTube Channel:
@AdvancedWaterHeatingInit-uh4in
https://www.youtube.com/channel/UCAhurVn-nbR6kPB-38bUTZg