EARTH Environmentally Applied Refrigerant Technology Hub

The Environmentally Applied Refrigerant Technology Hub (EARTH) is working to create sustainable, accessible refrigeration and air conditioning innovations that will improve the quality of life for all Americans as well as secure U.S. leadership in workforce development and manufacturing.

ABOUT

The Environmentally Applied Refrigerant Technology Hub (EARTH) – funded through a $26 million National Science Foundation Engineering Research Center grant – is the only national research center dedicated to modernizing the heating, air conditioning and refrigeration (HVACR) industry, which affects every American's well-being. The Center's primary goals are to improve technologies and systems and upskill the workforce to meet employers' needs.

EARTH unites 70 partners representing the federal government, universities, community colleges, national labs, nonprofits and the private sector around these goals. Indeed, the HVACR industry affects every aspect of life, from preserving food and storing medicine to cooling homes. EARTH researchers are also collaborating with major companies to help them determine new ways to cool large data centers, which are proliferating in the age of AI. EARTH's research could not be more timely or more essential.

RETURN ON INVESTMENT AND IMPACT

The research that is currently underway is working to create new technological innovations that can:

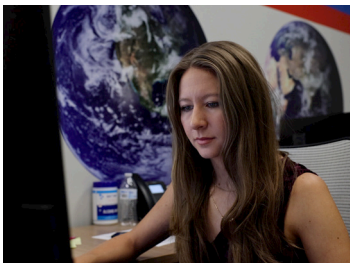
- help American families and businesses trim their heating and cooling costs,
- open new markets for HVACR systems designed and made in the U.S., and
- fortify America's global economic competitiveness.

With the NSF's investment in this research area, EARTH aims to increase U.S. manufacturing by $39 billion and generate 150,000 U.S. jobs.

RESEARCH HIGHLIGHTS

EARTH is working to create a new refrigerant lifecycle that tackles industry challenges reflecting national research priorities and the importance of chemical research to the U.S. economy. Such challenges include antiquated, inefficient equipment and leaking refrigerant, which is the substance used to absorb and transfer heat that enables the cooling or freezing of objects and spaces. Both problems drive up cooling costs for American households and businesses.

Researchers are already identifying entirely new product lines, to be designed and manufactured in the U.S. The discoveries and innovations led by the EARTH team have the potential to positively transform how U.S. households and businesses approach heating, cooling, and refrigeration.



BUILDING HUMAN CAPACITY FOR THE FUTURE ENGINEERING WORKFORCE

As the United States strengthens its manufacturing capabilities, the private sector will continue to seek technologically prepared and hard-working employees in ever-increasing numbers. As such, EARTH's Engineering Workforce Development program contributes to a globally competitive, and team-oriented engineering workforce that has experience in convergent research, technology advancement, industrial practice, and innovation.

To that end, EARTH researchers are working with more than 25 industry partners and community and technical colleges to create and expand workforce development initiatives to increase not only the number of HVACR researchers but also technicians and engineers who are highly skilled and ready to work in advanced manufacturing. From teacher preparation to postdoctoral training, EARTH is committed to addressing the current HVACR skill gaps in the U.S. to support reshoring of American manufacturing and drive innovation in this critical space.

LEARN MORE:

https://erc-earth.ku.edu

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