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National Energy Education Development Project (NEED Project)

Cooperative Research and Development Final Report

CRADA Number: CRD-21-18248

NREL Technical Contact: Taylor Ryan

**NREL is a national laboratory of the U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy
Operated under Contract No. DE-AC36-08GO28308**

**Technical Report
NREL/TP-5500-94247
July 2025**

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Cooperative Research and Development Final Report

Report Date: December 18, 2024

In accordance with requirements set forth in the terms of the CRADA agreement, this document is the CRADA final report, including a list of subject inventions, to be forwarded to the DOE Office of Scientific and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

Parties to the Agreement: National Energy Education Development Project (NEED Project)

CRADA Number: CRD-21-18248

CRADA Title: National Energy Education Development Project (NEED Project)

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Sponsoring DOE Program Office(s):

Office of Energy Efficiency and Renewable Energy (EERE), Building Technologies Office

Joint Work Statement Funding Table showing DOE commitment:

Estimated Costs	NREL Shared Resources a/k/a Government In-Kind
Year 1	\$5,000
Year 2, Modification #1	\$5,000
Year 3, Modification #2	\$5,000
Year 4, Modification #3	\$.00
TOTALS	\$15,000

Executive Summary of CRADA Work:

The U.S. Department of Energy Building Technologies Office (BTO) funds student competitions that introduce students to careers in the building sciences and increase public awareness around high-performance buildings to support the goal of developing, demonstrating, and accelerating the adoption of cost-effective technologies, techniques, tools, and services that enable high-performing, energy-efficient and demand-flexible residential and commercial buildings in both the new and existing buildings markets. The U.S. Department of Energy Solar Decathlon® (DOE/SD) is a flagship, high-visibility international competition started in 2002 that advances the goals of BTO by introducing students to building science careers; educating students and the public about the latest technologies and materials in high-performance buildings; encouraging student-led projects and research centered around building science; and demonstrating to the public the comfort and savings of homes that combine energy-efficient construction, home systems, appliances and innovative design with onsite renewable energy production.

SD is a collegiate competition, comprising 10 contests, that challenges student teams to design and build highly efficient and innovative buildings powered by renewable energy. The winners will be those teams that best blend architectural and engineering excellence with innovation, market potential, building efficiency, and smart energy production. Solar Decathlon is comprised of two Challenges – Design Challenge (annual) and Build Challenge (biennial). The National Renewable Energy Laboratory (NREL) provides competition management for Solar Decathlon.

NREL and Participant establish this CRADA to enable the success of the overall Solar Decathlon program by managing sponsorship funds and creating a K12 education program. Participant is to act as an Education Partner to Solar Decathlon, which includes: 1) accepting and dispersing sponsorship funds for DOE/SD; and 2) providing K12 education program to support Solar Decathlon Competition Events in April each year.

CRADA benefit to DOE, Participant, and US Taxpayer:

- Assists laboratory in achieving programmatic scope

Summary of Research Results:

NREL and NEED Project established CRADA to enable the success of the overall Solar Decathlon program by managing sponsorship funds and creating a K12 education program. NREL and NEED Project partnered to achieve those goals.

Task 1: Sponsorship Funds Management

1. NEED Project created a unique bank account and accepted and dispersed sponsorship funds on behalf of DOE/NREL.
2. NEED Project issued sponsor invoices.
3. NEED Project adhered to budget detailed by NREL for payment of sponsorship funds and gained written approval prior to payment of any expense.
4. NEED Project paid approved expenses within 15 days of receipt.
5. NEED Project provided monthly accounting of income and expenses to NREL.

Task 2: Professional Development

NREL and NEED Project collaborated to create program supporting education of public K12 audience about high-performance buildings, renewable energy, and energy-efficient design. For example, NEED creates accessible educational resources hosted on the Solar Decathlon website for teachers and educators to download and utilize in their classrooms.

Task 3: CRADA Final Report

This report serves to meet the requirement for the CRADA Final Report with preparation and submission in accordance with the agreement's Article X.

References: None

Subject Inventions Listing: None

ROI#: None