USU Awarded $5.6M for Vehicle Technology Research | College of Engineering

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July 22, 2020 — Utah State University researchers will receive four major grants from the U.S. Department of Energy to lead advancements in vehicle and transportation technology.

On July 16, the agency announced $139 million in funding for 55 projects nationwide. Topics include battery technology, charging infrastructure, public transit and vehicle manufacturing. The USU researchers are part of the Sustainable Electrified Transportation Center, known as SELECT, an industry-partnered research organization led by USU that develops solutions for vehicle electrification.

**Award Details:**

**$1.75M, Title:** “Increasing Affordability, Energy Efficiency, and Ridership of Transit Bus Systems through Large-Scale Electrification”

Lead researcher and assistant professor of civil engineering Ziqi Song will lead a collaborative effort to break down technical barriers to large-scale transit electrification. The project addresses electric bus infrastructure planning, smart operations, energy-efficient route optimization, grid impact analysis, travel behavior study and new mobility integration. Collaborators include the National Renewable Energy Laboratory, Argonne National Laboratory, Purdue University, Utah Transit Authority, the Tri-County Metropolitan Transportation District of Oregon and PacifiCorp.

**$330,000 subaward to Dream Team Co. LLC, Title: “Resilient-Interoperable-Smart Charge Management Control Systems Architecture for EVs at scale”

Assistant professor of electrical and computer engineering Abhilash Kamineni will lead part of a broader study to develop a smart charging management control system. The goal is to better support modern electric vehicle infrastructure and distributed energy resources. The result will be improved control for grid operators. The proposed framework is designed to mitigate cybersecurity threats by addressing vulnerabilities in existing and new grid technologies. Testing and hardware validation will take place at USU’s state-of-the-art Electric Vehicle and Roadway Research Facility.

**$2M subaward to PacifiCorp, Title: “WestSmart EV@Scale: Western Smart Plug-in Regional Partnership for Electric Vehicle (EV) Adoption and Infrastructure at Scale”

Sant Endowed Professor of electrical and computer engineering Regan Zane will lead USU efforts with PacifiCorp and more than 25 partners to create an ecosystem across the Intermountain West aimed at sustaining accelerated growth in freight, business and consumer use of electric vehicles. The project addresses regional challenges in critical electric vehicle application focus areas, including destination highways, underserved regions, urban mobility, freight and port electrification and community and workplace charging. The project will provide coordinated efforts to electrify over 42,000 miles of regional interstate and state highway networks.

**$1.5M subaward to ABB Inc. Title: “e-Mosaic: Electrification Mosaic Platform for Grid-Informed Smart Charging Management”

Zane will lead a second study to conduct wide-scale demonstrations of a scalable and resilient Electrification Mosaic (eMosaic) platform. The objective is to convincingly demonstrate that the platform can be adopted by various utility operators and scaled to support EV volumes into the millions and beyond. This will be achieved through a comprehensive demonstration plan with field deployment at nine physical sites across 3 states, 425 physical chargers with over 16.8 MW of combined peak power, over 200 plug-in electric vehicle (PEV) participants.

From left: USU professors Abhilash Kamineni, Ziqi Song, and Regan Zane are leading advanced research in vehicle electrification technology.
including 99 large electric transit buses and thousands of additional virtual chargers and PEVs.

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