USU Launches NSF-funded Engineering Research Center for Electrified Transportation | College of Engineering

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News Release and Media Advisory — Aug. 4, 2020 — The National Science Foundation has awarded Utah State University a five-year, $26 million grant, renewable to 10-year, $50.6 million, to develop an international research center dedicated to advancing sustainable, electrified transportation. The center is expected to raise more than $200 million over the next decade in government and industry support.

News Conference Recap

• Watch the News Conference on YouTube
• ASPIRE Press Kit

The grant establishes an Engineering Research Center focused on developing new infrastructure that facilitates widespread adoption of electric vehicles. The center is named ASPIRE — Advancing Sustainability through Powered Infrastructure for Roadway Electrification.

USU Professor and ASPIRE director Regan Zane is a pioneer in power electronics and electrified roadway technology.

"Now is the time to move past century-old mindsets and rethink how roadways and electric grid infrastructure can be co-designed to support low-cost, sustainable solutions for vehicle electrification and decarbonization of the electric grid," said USU Professor and ASPIRE center director Regan Zane.

Since joining USU in 2012, Zane has raised more than $30 million in research funding. The 10-year ASPIRE award brings the total to more than $80 million. In 2015, he launched the multi-institutional, industry-sponsored Center for Sustainable Electrified Transportation, known as SELECT. That same year, USU unveiled the world’s first electrified test track. The solar-powered track is equipped with power transfer coils embedded in the roadway, which enable properly-equipped electric vehicles to charge while in motion. Wireless charging reduces the need for heavy battery packs and numerous charging stations.

ASPIRE builds on the success of the SELECT center and incorporates the test track complex as a fundamental ASPIRE research facility.

Utah State’s ability to cultivate a diverse and innovative workforce ready to address complex challenges such as air quality and sustainability.”

The center launches at a critical moment in U.S. history. Nationwide, transportation and electric utility infrastructure are in need of extensive renovation. At the same time, vehicle emissions have serious impacts on public health and the environment, and fluctuating oil prices affect household budgets and economic stability. Electric vehicles play an important role in transforming the future of transportation, yet challenges remain to achieve sustainable and widespread adoption. Key to this new model of electric vehicle use is the development of charging technology that is built into roadways and parking facilities. ASPIRE researchers are developing holistic solutions that eliminate range and charging as obstacles to the broader electrification of all vehicles, including passenger cars and long-haul, heavy-duty trucks.

The ASPIRE Engineering Research Center will play a critical role in transforming the nation’s transportation and electric utility industries.

“ASPIRE represents the very best of what a research university brings to the state and community,” said USU President Noelle E. Cockett. “The center will provide unprecedented opportunities for students and further
State leaders have long praised USU’s electrified transportation research as a means to improve Utah’s air quality. Earlier this year, the state committed $3 million to expand SELECT and help attract NSF funding for the new center.

ASPIRE has a deep commitment to students, inclusion and community. The center will create new opportunities for community engagement and provide undergraduates unprecedented access to industry mentors.

“Our mission is to improve health and quality of life by catalyzing sustainable and equitable electrification across the transportation industry,” said Zane. “We have organized a phenomenal team with proven dedication to students, community and engagement, and we intend to have a lasting positive impact on the state of Utah, our partner states and the nation.”

ASPIRE will be headquartered at USU and operated through strategic partnerships with Purdue University, University of Colorado Boulder, University of Texas at El Paso and the University of Auckland New Zealand. Additional partners include researchers at Colorado State University, University of Colorado Colorado Springs, Virginia Tech and Cornell University and four national laboratories. Global industry partnerships include more than 40 companies and organizations across the transportation and electric utility industries.

ASPIRE is designated as an Engineering Research Center, the National Science Foundation’s flagship program for transformative multi-institutional research. It is one of four new Engineering Research Centers announced Aug 4. It is the first in Utah in over 30 years and the only one dedicated to advancing sustainable transportation. After 10 years, ASPIRE will achieve graduated status and will continue as a self-sustaining research center.

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**ASPIRE Contacts:**

**Dr. Regan Zane**, ASPIRE Center Director, regan.zane@usu.edu, 435-797-9118

**Matt Jensen**, ASPIRE Communications Director, matthew.jensen@usu.edu, 435-797-8170

**Campus Directors:**

**Grant Covic**, University of Auckland, ga.covic@auckland.ac.nz, 64-9-923-8102

**Chris Fawson**, Utah State University, christopher.fawson@usu.edu, 435-797-2320

**Nadia Gkritza**, Purdue University, nadia@purdue.edu, 765-494-4597

**Qin (Christine) Lv**, University of Colorado Boulder, qin.lv@colorado.edu, 303-492-8821

**Soheil Nazarian**, University of Texas at El Paso, nazarian@utep.edu, 915-747-6911

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