



ASPIRE

Pathways

Building the Future Skilled Workforce & Informed Public



Jen Ramos-Chavez

Project 4: Path Lead,

Post-Doctoral Research

✉ JCChavez10@utep.edu

Project 4: Path Leadership



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Learning & Engagement



Pathways

Pathways

Where we've come from to get where we are:

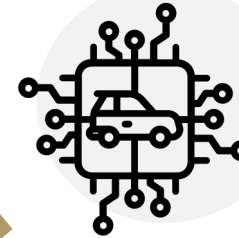
CSoF

Research translated and demystified into informational and educational resources



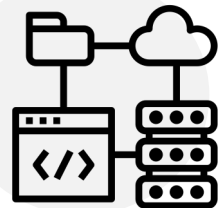
ER

Research translated and demystified into informational and educational resources



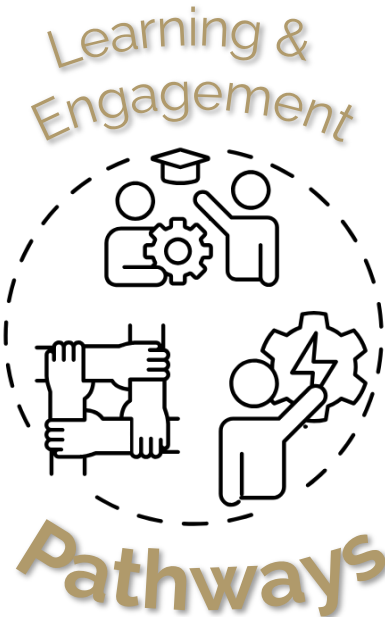
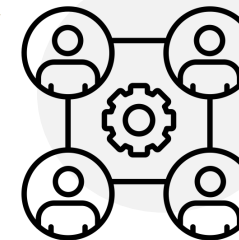
SoS

Outreach and educational resources informed by market, infrastructure and societal challenges



L&E

Partnership building, outreach, education, and reciprocal learning

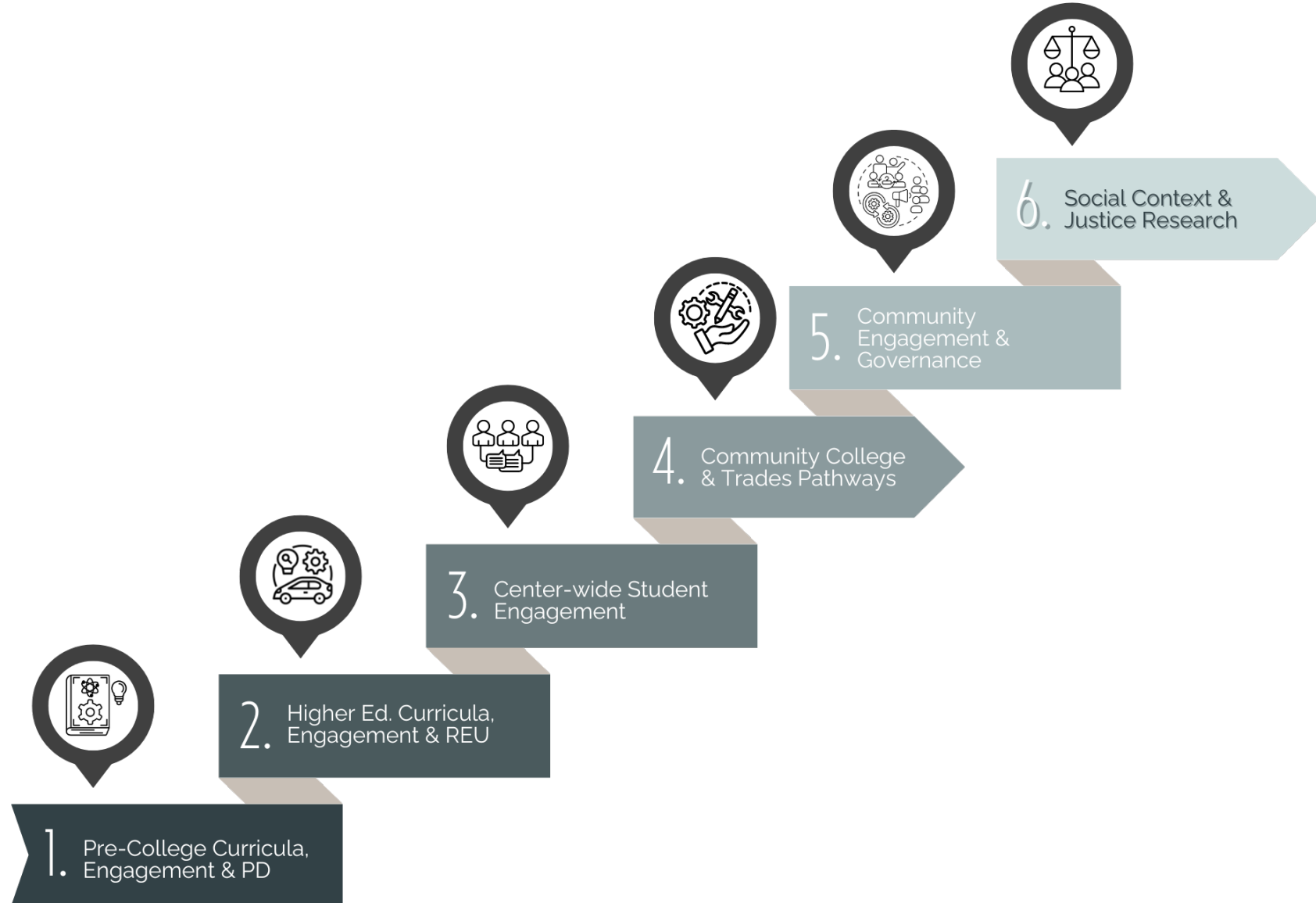


Mission



With a focus on access and inclusion, this project develops replicable and scalable K-22 pathways through education, training, research, community awareness, and industry partnerships to recruit, retain and retrain a diverse workforce in electrified transportation systems.

Mission



1. Pre-College Curricula, Engagement & PD

ASPIRE-Themed Curricula

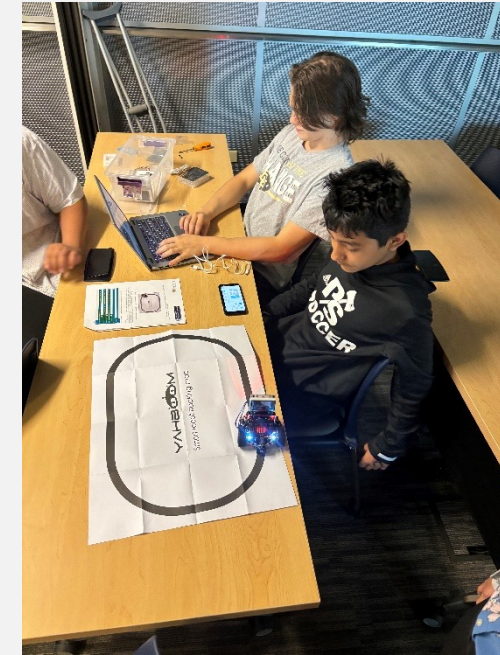
- Middle School lessons on energy and electromagnetics
- High School course with engineering skills development, design challenges, and focus on environmental justice

Engagement

- In-person and virtual EVR Tours
- Youth Engineers in the Sustainability of Electric Vehicles (YES-EV) Program
- Out-of-school workshops and summer camps
- Presentations and demos at local schools

Professional Development

- Educator PD workshops at national conferences
- Course-long PD with course piloting teachers



A screenshot of the ASPIRE website. The header includes the ASPIRE logo and navigation tabs for "Pre-college Curricula", "Engineering", "Standards", "Get Involved", and "Professional Development". The main heading reads "ASPIRE: Re-envisioning Our Transportation & Power Grid Systems for a Sustainable Future". Below this, there is a video player showing a white electric van. The page also features sections for "Classroom-Ready ASPIRE K-12 Curricula" and "What is ASPIRE?".



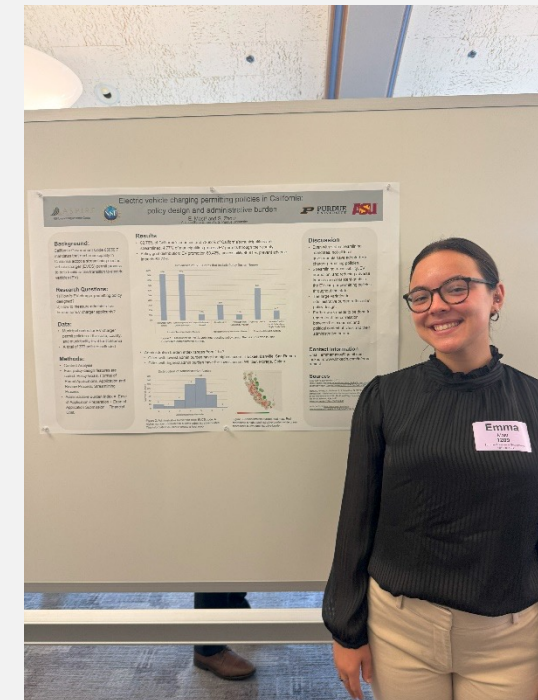
2. Higher Ed. Curricula, Engagement & REU

ETS Curricula

- Transportation Equity Course
- Electrified Transportation Systems (ASPIRE 101) Course

Summer Research Program

- Research Experiences for Undergraduates (REU) Program targeting underrepresented minorities
 - Fourth year in Summer 2024
 - Piloted an Entrepreneurship in STEM Series
 - Hosted workshops on Research Inclusive Practices Skill Building and Workforce Development
- REU participants presented their research at the University and ASPIRE Summer Research Symposium



3. Center-Wide Student Engagement

ASPIRE Student Association (ASA)

- Provides a collaborative forum for a diverse number of students enrolled at ASPIRE-core and affiliated campuses to benefit from, and support the mission of, the ASPIRE ERC

Student Leadership Council (SLC)

- Select group of student representatives who assist ASPIRE in its mission to advance opportunities for skills development and workforce preparation, doing so by sitting on a number of different committees within the Center

Cohort Travel Program

- Designed to provide the SLC with real world exposure to interdisciplinary research and operational elements within industry, government, and not-for-profit organizations, while helping students learn about challenges, innovations, and future opportunities in the field of transportation electrification



4. Community College and Trades Pathways

Partner Development

- Build an ETS Technical Workforce Consortium with CC, Tech College, Trades, and worker transition organization partners
- Create, cultivate, and connect ETS technical workforce training capabilities across partners

Pathway Credentialing

- Provide ETS industry and technology use cases (ASPIRE Pilots) for job task analyses and curriculum/training program development
- Develop a leveled credentialing model for ASPIRE ETS curriculum

Workforce Research

- Understand evolving ETS industry landscape and workforce needs and feed information back to consortium
- Identify, document, and implement promising practices for ensuring equitable and accessible ETS workforce pathways



5. Community Engagement & Governance

Community Engagement

- Partnership building
- Intentional and responsive community outreach and engagement in under-resourced communities
- Community feedback exploring perceptions, concerns and expectations towards ETS and pilots

Community Education

- Research-informed educational materials
- Information dissemination filling gaps, needs, and concerns

Community Empowerment

- Informational resources highlighting careers and local training opportunities related to electrified transportation



ASPIRE
NSF Engineering Research Center

Advancing Sustainability through Powered Infrastructure for Roadway Electrification (ASPIRE)

OUR VISION
Healthier, greener, and more resilient communities through the use of electric power.

OUR MISSION
To improve the life and quality of the communities through the development and deployment of electric power infrastructure.

OUR RESEARCH
• Power Grids
• Vehicle and Infrastructure Systems
• Transportation Infrastructure through 2025

ASPIRE ERC
ASPIRE ERC is a research center that focuses on the development and deployment of electric power infrastructure.

STUDENT OPPORTUNITIES
ASPIRE ERC offers a variety of student opportunities, including internships, research assistantships, and graduate fellowships.

CONNECT WITH US
www.aspire.usu.edu
@aspireutep

U.S. 52 DYNAMIC WIRELESS POWER TRANSFER PROJECT IN WEST LAFAYETTE

PUBLIC INFORMATION MEETING

WEDNESDAY, SEPTEMBER 4

INDOT Division of Research & Development
1205 Montgomery St.
West Lafayette, IN 47906

Doors open at 5:30 p.m.
Presentation at 6 p.m.

Join us to learn more about the U.S. 52 Dynamic Wireless Power Transfer Project!

ASPIRE
NSF Engineering Research Center

PURDUE UNIVERSITY

6. Social Context & Justice Research

Community Perceptions Research

- Explores community perceptions, concerns, and expectations on transportation, electrification, jobs, economic, education, governance, and health disparities
- Results inform community outreach and engagement and are integral for planning and policy-making

Pre-College Impacts

- Explores high school students' engineering career identity and how ASPIRE-themed lessons and activities may influence their choice
- Examines how students' understandings and enactments of environmental justice change after partaking in ETS lessons with Environmental Justice focus

INDOT SPR 4856 STUDY


Receiver, Vehicle, and Roadway Systems for a Dynamic Wireless Power Transfer Roadway Testbed

Researchers at Purdue University are looking for adult residents in Indiana, specifically the Greater Lafayette area, to participate in a research study.

We are interested in understanding public perceptions and expectations regarding electric vehicles (EVs), EV charging, and a dynamic wireless power testbed project.


Visit Our Survey Link
https://purdue.ca1.qualtrics.com/jfe/form/SV_aaZrsQ7fDEZgSYC

Scan Our QR Code



This study has been reviewed by Purdue University's Institutional Review Board (IRB) under protocol number 08-2022-796. If you have questions, comments, or concerns about this project, you can talk to one of our researchers.

Contact Us: Konstantina Gkritza, Ph.D. nadia@purdue.edu



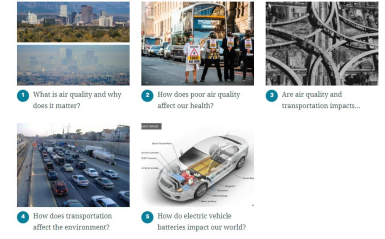
Collection

Environmental Justice StoryMaps

Transportation, Air Quality, Climate & Engineering Connections

Jennifer Taylor

Get started



Future of Pathways



Partnerships/Industry Engagement

Schools: Logan High School, Cathedral High School, Purdue Polytechnic High School (Inglewood & North), DSST Elevate, Spring Creek Middle School, InTech Charter High School, Weber Ogden Technical College, Utah State University Eastern, El Paso Community College, Lake Sumter State College, Arapahoe Community College, Vincennes University, Weber State University

NGOs: Insights Science Discovery, NW Energy Coalition, Westside Coalition, NeighborWorks Salt Lake, Utah Women in Trades

Industry & Innovation Board (IIB)



Unions: AFL-CIO, LiUNA!, IBEW

Industry: Washington State Ferries, Amazon, Lewis County Transit, TransAlta – First Mode, Pacific Northwest Center of Excellence for Clean Energy, University of Michigan Battery Lab, Legacy EV

Future of Pathways



Plans for Yr 5, 6-10 & Beyond

1. Develop innovative K-12 curriculum & outreach projects to enhance **ETS literacy**
 - i.e. CO DoT-funded Pre-College Explorations Into Electric Vehicles and Wireless Charging curriculum & outreach projects
2. Grow enrollment and breadth of **Higher Ed** initiatives
 - i.e. international Research Experiences for Undergraduate (REU) Program with the University of Auckland in Transportation Equity course
3. Spearhead and submit **NSF ATE Level Consortium Grant** with strategic 2-yr college and trades partners to support targeted pathways for a diverse and prepared ETS workforce
4. Collaboratively curate and initiate a comprehensive, all-ages career exploration and recruitment initiative highlighting **Registered Apprenticeship** and **scholarship** opportunities across ETS-relevant trades
5. Continue to lead responsive **community engagement** efforts that foster two-way dialogue around the electrification transition



Jen Ramos-Chavez

Project 4: Path Lead

Post Doctoral Researcher

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Thank You!

Questions?

Panel Discussion



Building the Future Skilled Workforce & Informed Public



MODERATOR:
Bruno César Krause Morás
*Graduate Research Assistant,
Civil Engineering
Purdue University*



Darren Erickson
*Technical School Program
Manager,
Kenworth Truck Company*



Jen Ramos-Chavez
*Project 4: Pathways Lead,
University of Texas at El
Paso*



Fawn Groves
*Education & Community
Engagement Specialist
Utah State University*



Polly Parkinson
*Graduate Research Assistant,
Cultural Studies
Utah State University*

Panel Questions



Within the Pathways Project, what has been developed and how did it come together in terms of workforce development?

What insights have you gained about effective approaches for creating and connecting accessible/equitable pathways for electrified transportation systems (ETS) occupations for all potential workers?

Workers, meaning those who require re-/up-skilling in new technology areas, and those on existing pathways in STEM fields?

Panel Questions



With the shared goal of achieving genuine innovation and real-world impact, what practical steps can we take to build a workforce that brings broad perspective, creative approaches, and diverse skillsets?

What insights would you offer to the IIB community about the relevance of engaging the community, even when time and expense may be involved?