Pathways

Building the Future Skilled Workforce & Informed Public

Jen Ramos-Chavez

Project 4: Path Lead,

Post-Doctoral Research

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Project 4: Path Leadership

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Learning & Engagement

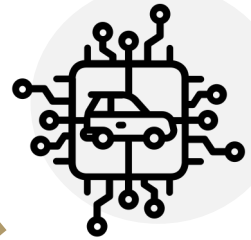
Pathways

Pathways

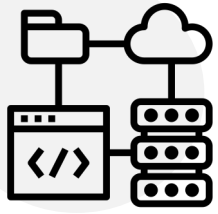
Where we've come from to get where we are:

CSoF
Research translated and demystified into informational and educational resources

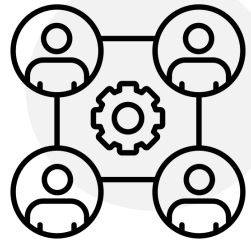
ER
Research translated and demystified into informational and educational resources



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



L&E
Partnership building, outreach, education, and reciprocal learning



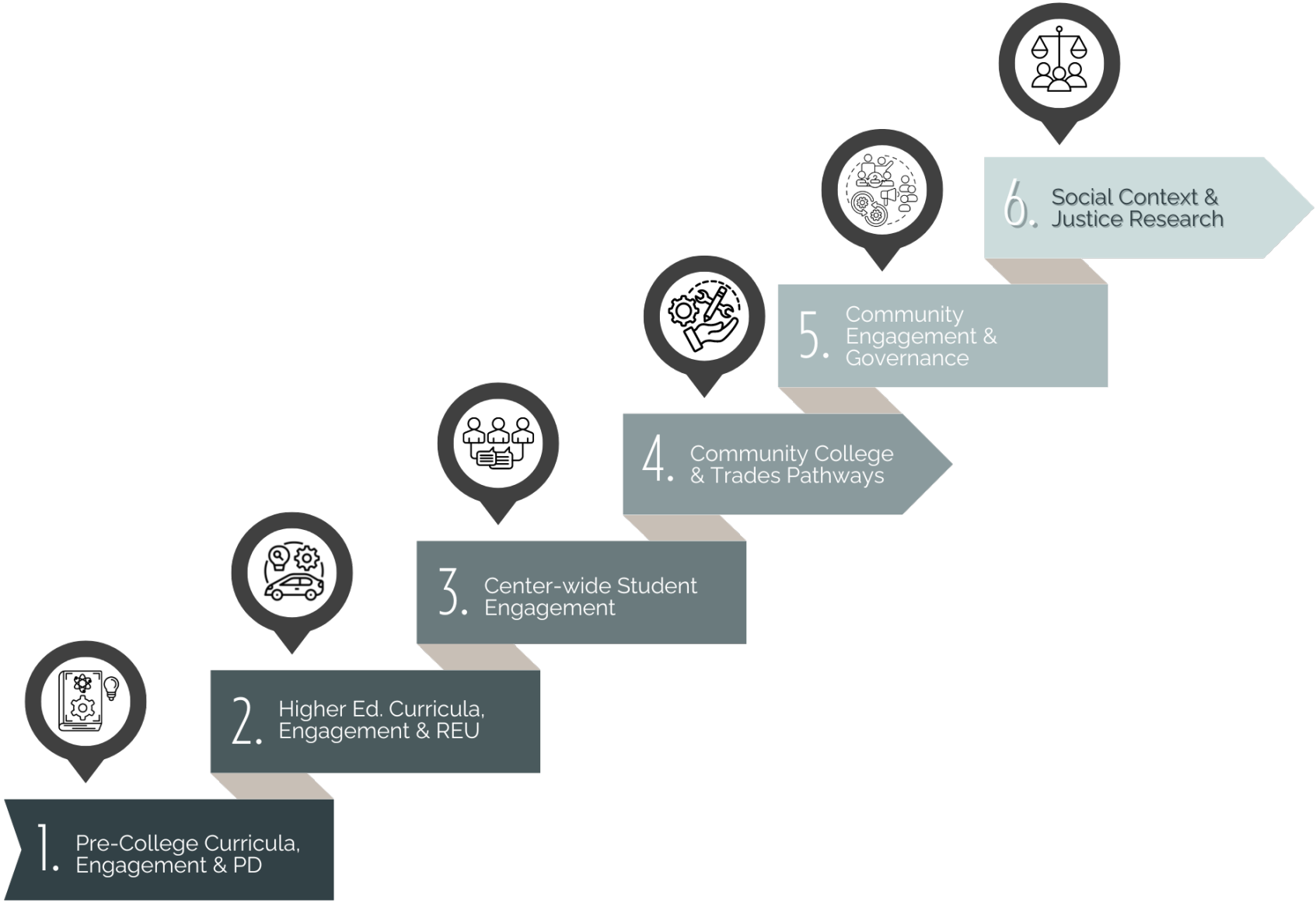
Mission

ASPIRE

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

ASPIRE



1. Pre-College Curricula, Engagement & PD

ASPIRE-Themed Curricula

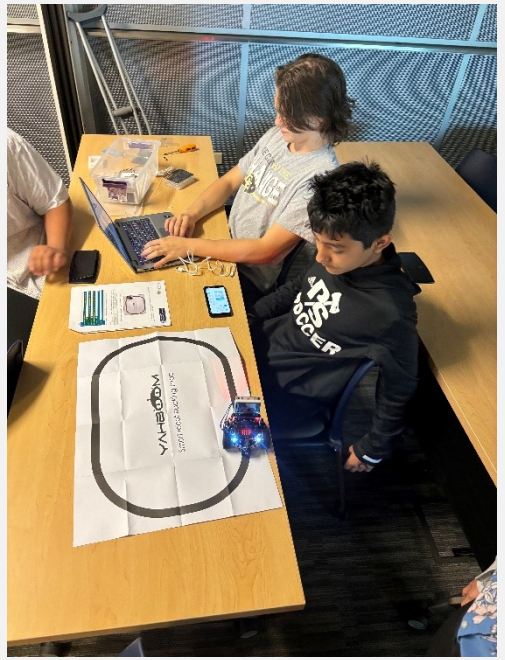
- Middle School lessons on energy and electromagnetics
- High School course with engineering skills development, design challenges, and focus on environmental justice

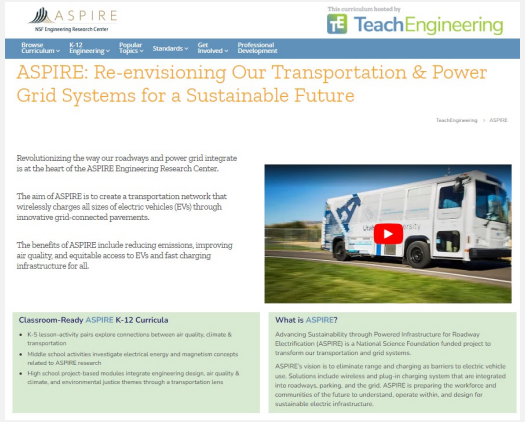
Engagement

- 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





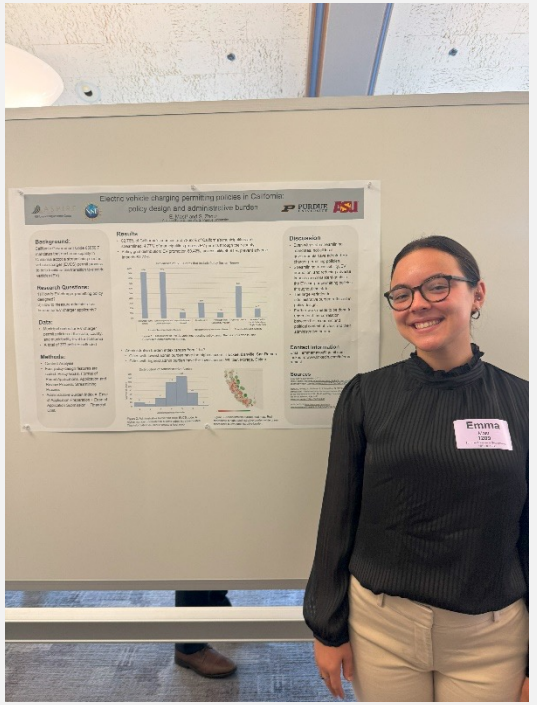
2. Higher Ed. Curricula, Engagement & REU

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

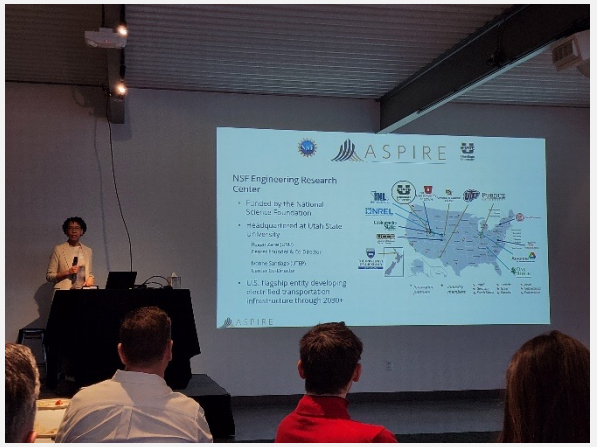
- Partnership building
- Intentional and responsive community outreach and engagement in under-resourced communities
- Community feedback exploring perceptions, concerns and expectations towards ETS and pilots

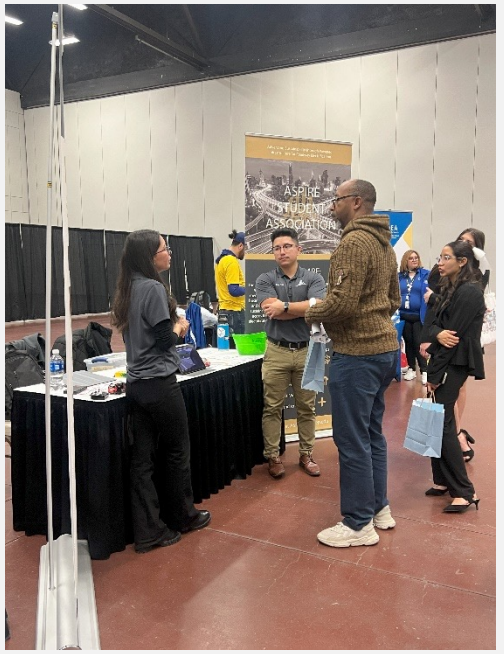
Community Education

- 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





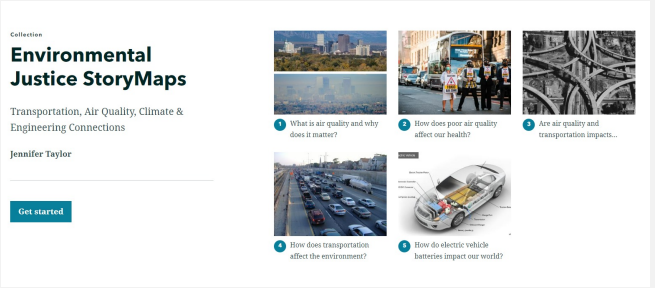
6. Social Context & Justice Research

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



Future of Pathways

ASPIRE

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

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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

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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

ASPIRE

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

Panel Questions

ASPIRE

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

ASPIRE

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?

Panel Questions

ASPIRE

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