A Statewide Stakeholder Engagement Study on Colorado's Multi-Network Resilience Plan for Electrified Transportation

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ENGINEER *a world of* DIFFERENCE

Webinar Outline (1.26.2026)

- Background on Colorado EV Infrastructure
- EV Infrastructure Resilience in Context
- Stakeholder Engagement Process
- Results and Discussion
- Key Takeaways

Questions and Discussions

1. To what extent do you agree with the following statement: EVs have transitioned from a niche alternative to a mainstream transportation technology that affects most communities.

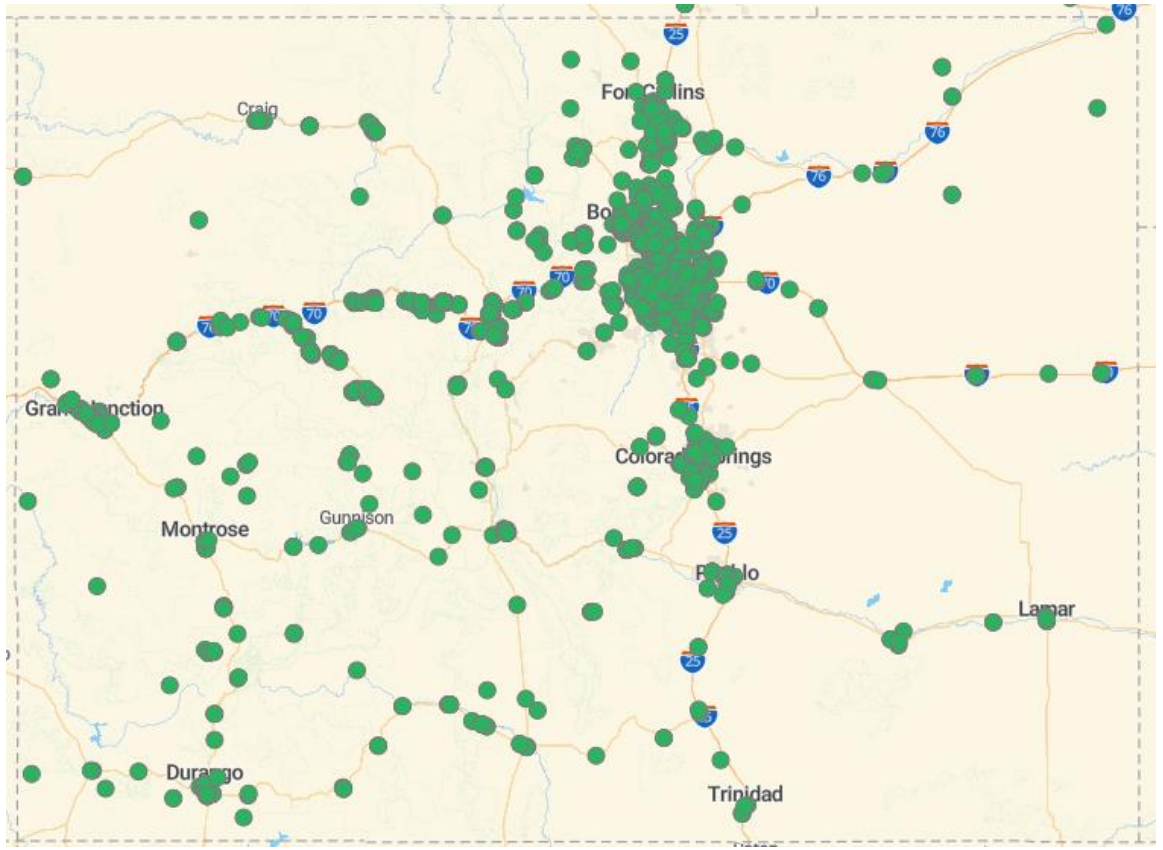
Join by Web (you can use the link or the QR code).
PollEv.com/greenbook708
Join by Text
Send **greenbook708** to **22333**

2.Were you involved in the original EV resilience or charging infrastructure conversations that informed this work?

3. How would you rate your current understanding of electric vehicle (EV) resilience and charging infrastructure in Colorado?

Background on Colorado EV Infrastructure

- Colorado is a leader in EV Infrastructure buildout
- The federal priorities to date have been to support alternative fuel corridors
- As the **personal, commercial, and public** EV fleet grows, the ***reliability*** and ***resilience*** of the infrastructure will become more important



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https://environmentamerica.org/center/resources/electric-buses-in-america-2

https://www.facebook.com/sarah.updike.5/videos/boogie-woogie-woogie-electricslide/1180287100122704

https://www.pca.state.mn.us/news-and-stories/electric-school-buses

https://www.fiercehealthcare.com/providers/docgo-jefferson-health-transport-patient-first-ever-electric-ambulance

https://coloradosun.com/2023/03/27/crested-butte-all-electric-construction/

https://www.denverpost.com/2022/03/04/colorado-electric-vehicles-trucks-heavy-duty-pollution/

EV Infrastructure Resilience in Context

https://rmi.org/wp-content/uploads/2021/01/iStock-1221447606-web.jpg.

- ***Resilient systems*** are those that can adapt, and bounce-back, and continue to ***function***, even under stresses from
  - Wildfire, power outages, floods, weather, cyber-attack, communication outages, workforce shortages, and more…
- The State of Colorado must build stronger, safer, and more ***resilient systems*** in the face of natural disasters and other shocks and stressors

EV Infrastructure Resilience in Context

https://rmi.org/wp-content/uploads/2021/01/iStock-1221447606-web.jpg.

- ***The function of the electric vehicle infrastructure is to enable electrified transportation***
- This function requires the cooperation of a variety of systems:
  - Roadways and transportation networks,
  - Communication networks (cellular data networks),
  - Electric power networks (grid or distributed),
  - EVSE installation networks,
  - Maintenance and service networks,
  - Social and community networks, and more.

DOE/DOT Joint Office of Energy and Transportation Research and Development Contract

Project Summary: Performing technical resiliency assessments, state-wide in-community outreach and engagement, and Community Resilience Planning to develop and publish an EV Charging Infrastructure Resilience Plan for the state of Colorado.

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DOE/DOT Joint Office of Energy and Transportation Research and Development Contract

- Develop a framework, metrics, and publicly facing computational tools for quantifying EV charging infrastructure resilience,
- **Incorporate community and stakeholder input** to identify their needs/opportunities and to identify risks and mitigation strategies that meet community needs, and
- **Compose and document a plan responsive to the above** that enables near-term and sustaining improvement in networked EV Infrastructure resilience that can be implemented by state agencies and their industry partners.

In-community stakeholder engagement

Goal: Incorporate community and stakeholder input to identify their needs/opportunities and to identify risks and mitigation strategies that meet community needs.

150+ participants across 14 Colorado communities

Meeting Date	Event	Region	Community Engagement Partners	Stakeholder Categories
2/27/2025	Englewood	DMA	Drive Clean Colorado	EV, WF
3/31/2025	Colorado Springs	SFR	EV Resiliency Project Members	CO, WF
4/15/2025	First Responders	SW	Drive Clean Colorado	WF
4/23/2025	Pueblo	SFR	Drive Clean Colorado	EV, R, CO
5/2/2025	Northglenn	DMA	Drive Clean Colorado	EV, WF
5/21/2025	Eagle County	CNM	EV Resiliency Project Members	EV, CO
5/22/2025	Mesa County	WS	EV Resiliency Project Members	CO, R
6/12/2025	Brush	NP	Drive Clean Colorado, ChargeWest	EV, R, J40
6/17/2025	Salida	CSM	Drive Clean Colorado, ChargeWest	EV, R
6/25/2025	Pagosa Springs	SWM	Drive Clean Colorado	EV, CO
6/30/2025	Glenwood Springs	CNM	Drive Clean Colorado Clean Energy Economy for the Region (CLEER)	EV, CO
8/19/2025	Grand Junction	WS	Energy Summit	CO, R
9/3/2025	CO EV Coalition	SW	Joint Office of Energy and Transportation	CO
11/8/2025	CSU Spur	DMA	Colorado State University Spur Campus	EV, J40

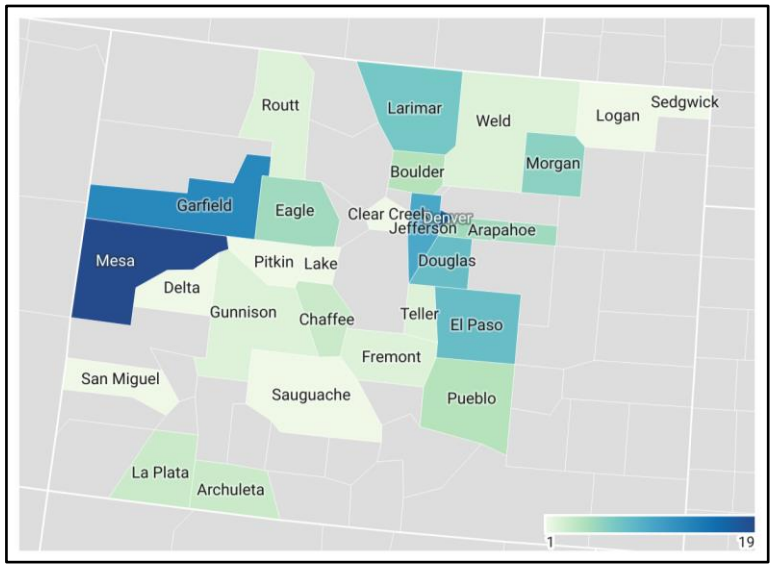
Region Legend:
WS = *Western Slope*; CNM = *Central Northern Mountains*; NEP = *Northeastern Plains*; DMA = *Denver Metro Area*; CSM = *Central Southern Mountains*; SFR = *Southern Front Range*; SWM = *Southwestern Mountains*; SW=*Statewide*
Stakeholder Legend:
EV = *EV Stakeholders*; R = *Rural Stakeholders*; CO = *Colorado Government Stakeholders*; J40 = *Justice 40 & Disadvantaged Communities*; WF = *Union & Workforce Stakeholders*

In-community stakeholder engagement

- Format of these engagements
  - PPT presentation on Introduction to EV Resilience
  - Polling Questions
    - *What EV infrastructure resilience challenges exist in Colorado and how can they be overcome?*
    - *Do you have plans identified/written in case of power outages or evacuation procedures?*
    - *What's your greatest concern of EV fleets as it relates to community resilience?*
  - Open Dialogue
    - *What does resilience mean in the context of your fleet and local EV infrastructure?*
  - Reporting and Discussion (happening now)

Results and Discussion

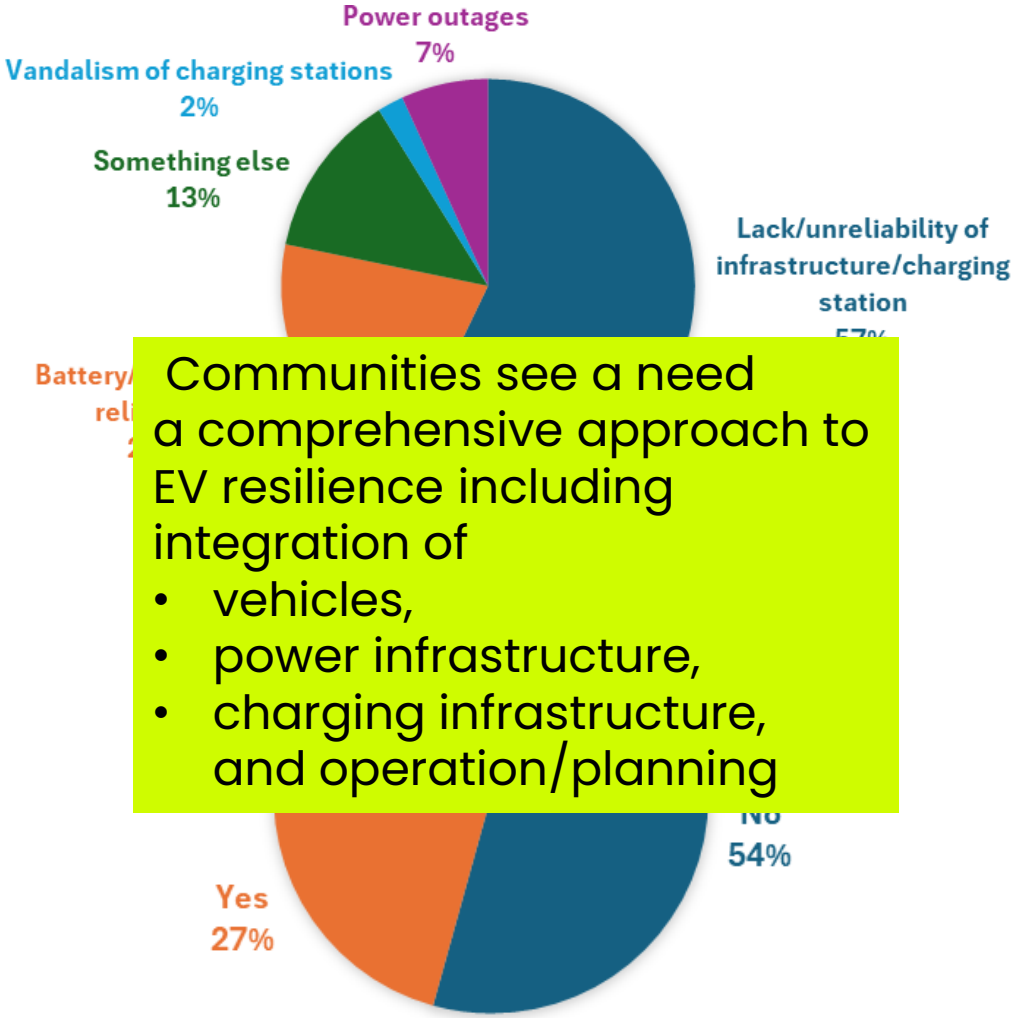
- Who attended these workshops?
  - All types of Coloradoans, geographically distributed



  - 64% of them said that they or their workplace used EVs for fleet or personal vehicles

- Results regarding resilience concerns in Colorado communities:

What is your greatest concern regarding EVs effect on community resilience? (n=147)



Does your community have a plan for EVs in case of a resilience event? (n=151)

Results and Discussion

- Thematic Analysis of
  - Doing these workshops, several key themes emerged:
    - **Local Business, Transit, and Fleet Insights**
    - **Workforce and Technical Capacity**
    - **Emergency Preparedness and Grid Dependency**
    - **Urban vs Rural Communities**
    - **Planning and Policy Readiness**

Results and Discussion

- **Local Business, Transit, and Fleet Insights**
  - **Key learnings:**
    - Small businesses, dealerships, and local fleets play a critical role in normalizing and enabling EV adoption and shaping resilient charging networks across Colorado
    - Supermarkets, visitor centers, evacuation routes, and tourism hubs can be community resilience assets for public and private EVs
    - Electrified transit agencies and electrified transit hubs are a key community resilience assets and should be recognized as such in planning
    - Rural municipal and state fleets will require more planning, infrastructure, and training to fully electrify

Our department has concerns about costs, outages, backup generators, etc. We are running several pilots and testing EVs for actual police response as the primary 'police car' vehicle. So far, it is not promising for our urban environment due to battery [range].” -Police department participant

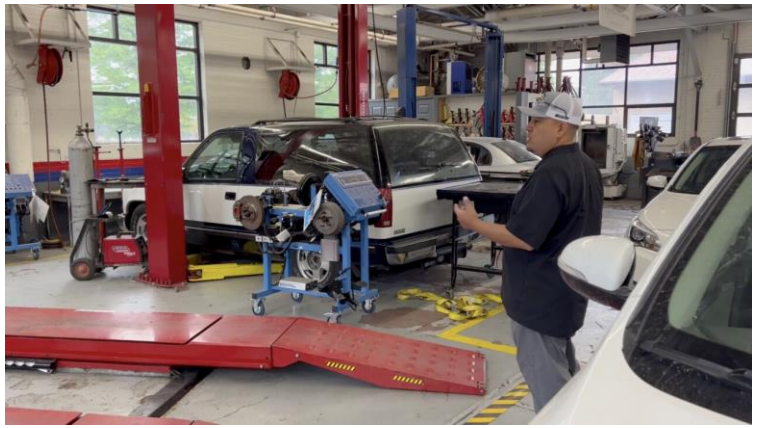
https://i0.wp.com/soprissun.com/wp-content/uploads/2025/11/RFTA-Report-scaled.jpg

https://www.koaa.com/money/consumer/pueblo-based-automotive-tech-program-provides-an-affordable-option-for-students

https://fleeteforce.com/training/.

Results and Discussion

- **Workforce and Technical Capacity**
  - A recurring theme was the lack of workforce readiness to support widespread EV adoption
    - Even in urban parts of Colorado, more EV-EVSE-trained technicians are needed. The diversity of EVSE types and networks means that parts can be delayed.
    - In rural parts of Colorado, participants recognized the need for more EVSE/utility electrician training in rural community colleges and tech schools
    - First responders told us that there is still distrust and a lack of training to deal with the dangers of EV-accident emergency response.



Results and Discussion

- **Emergency Preparedness and Transportation**
  - Stakeholders consistently raised concerns about the dependency of public and private services on EVs particularly during disasters such as wildfires, blizzards, and floods.
  - In urban and mountain resort communities like Glenwood Springs and Eagle County, stakeholders emphasized the strain that seasonal tourism places on already limited charging capacity, noting that ski season congestion often overwhelms existing public charging networks.
  - Across Colorado, the weather-dependency of EV range means that normal and resilient EV operations need to concentrate on vehicle redundancy, emergency planning, and optimization of operations

https://www.youtube.com/watch?v=-MEd_q05TJA

https://www.steamboatpilot.com/news/steamboat-students-will-ride-electric-next-school-year/

Discussion

Do any of these Themes resonate with your experiences?

Are there nuances or examples that you know that can illustrate these Themes?

Results and Discussion

- **Urban vs Rural Communities**
  - Urban areas generally expressed greater familiarity with EVs and stronger support for electrification, yet participants still emphasized that reliability and equity remain significant barriers to broader adoption. Delayed charger maintenance, undependable charging apps, and the lack of standardization across networks were their concerns about EV resilience.
  - Urban resilience concerns focused on natural disasters such as wildfires
  - Rural participants noted that EV infrastructure often bypasses disadvantaged communities, reinforcing existing geographic and socioeconomic divides. Residents expressed frustration with infrastructure seen as serving tourists rather than locals, while others worried about affordability and accessibility in multifamily housing and low-income areas.
  - Rural communities often voiced skepticism toward EVs and EV resilience with participants voicing concerns about cost, mandates, and relevance to their daily lives. These sentiments underscore the importance of framing EV infrastructure not as a pollution reduction requirement, but as a matter of fairness, local benefit, and prerequisite to resilient transportation.

Results and Discussion

- **Planning and Policy Readiness**
  - The development of resilient electric transportation infrastructure will require administrative and political capacity in the forms of Resilience Planning, EV Readiness Planning, Public Transit Planning, Emergency Preparedness, State EV Infrastructure Planning and more.
  - Policy readiness varied considerably across regions.
    - Stakeholders acknowledged that resilience costs are often seen by local officials as politically difficult to justify in any resilience context (for example water, power, eldercare)
    - Awareness of state incentives was very limited, with participants often unaware of grants and coaching services available.

Weatherization Assistance Program

Zero-Emission Vehicle Tax Credit

Charge Ahead Colorado

Federal Incentives for Homes & Buildings

https://energyoffice.colorado.gov/

https://drivecleancolorado.org/

Discussion

Do any of these Themes resonate with your experiences?

Are there nuances or examples that you know that can illustrate these Themes?

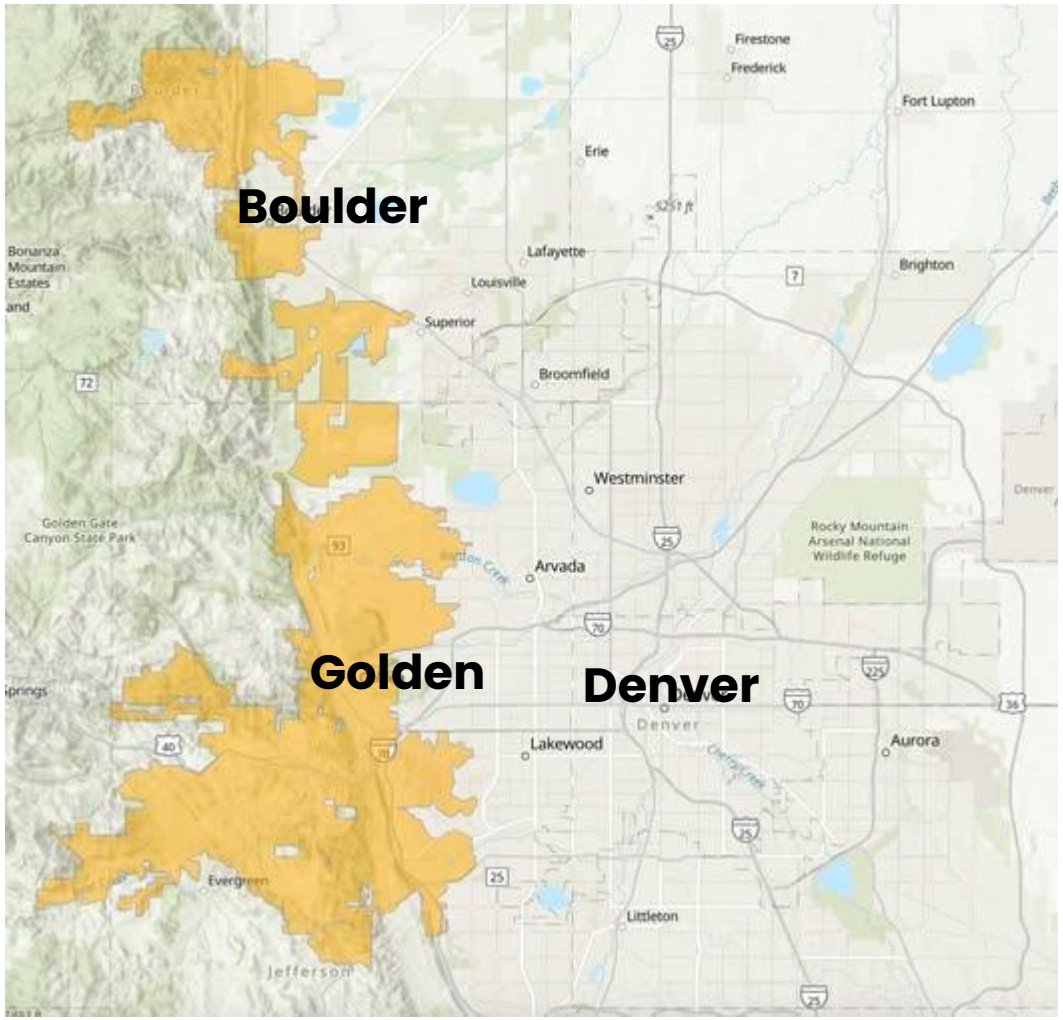
Key Takeaways

- The current Colorado Electric Transportation Systems is perceived as brittle and lacking resilience
  - Unreliable public chargers, slow repair response, and high maintenance costs undermine EV user confidence.
  - Colorado's climate, geography stresses electric vehicle systems and infrastructure
- In the context of ongoing challenges to resilience in Colorado's transportation, power, workforce, administrative capacity, electrified transportation will need to be designed for resilience

Key Takeaways

- **Resilience Challenge Beyond "Textbook" Scenarios**
  - One of the key things that we learned is that communities are concerned with resilience, beyond the scale of a single road or a single resilience event.
    - A ***rockslide*** versus a ***power outage***
  - The reality of community concerns is:
    - Larger geographic size, longer duration
    - More planning, more notice?

https://co.my.xcelenergy.com/s/outage-safety/outage-map

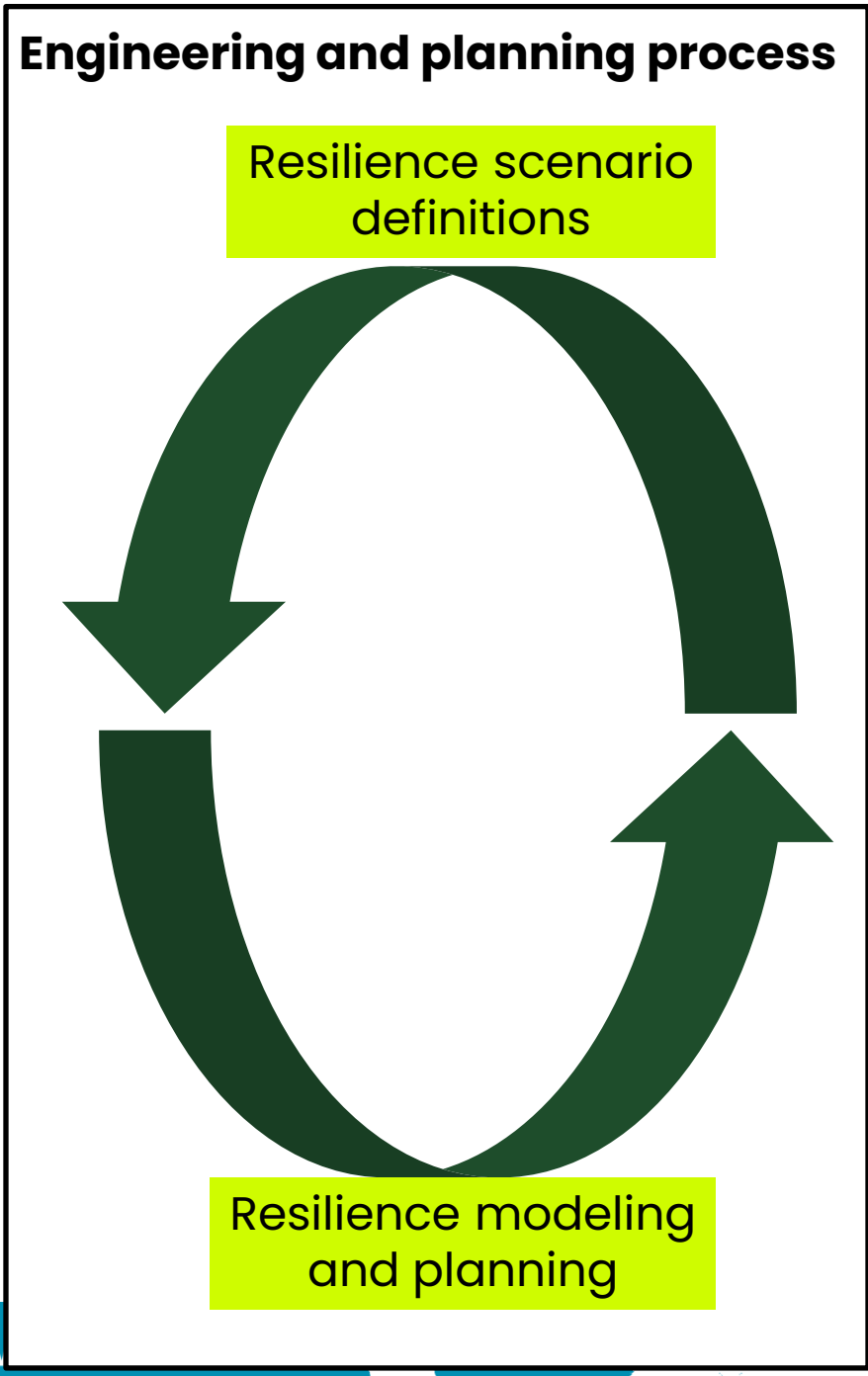


Dec. 16-17, 2025.

Key Takeaways

The extraordinary value of community input to our engineering and planning activities

- Community input across the statewide outreach sessions revealed both the promise and the challenges of Colorado's transition to electrified transportation
- New ideas came every day of these sessions including direct ideas that are now in our engineering and planning playbook:
  - Workforce training, emergency mobile charging systems, vehicle-to-grid charging, and shared community infrastructure
- Many communities across Colorado are already piloting how to operate EV-fleets and EV infrastructure of every type. They are learning Colorado-specific lessons about how to manage our infrastructure for community benefit



Key Takeaways

- The current Colorado Electric Transportation Systems is perceived as brittle and lacking resilience
  - Unreliable public chargers, slow repair response, and high maintenance costs undermine EV user confidence.
  - Colorado's climate, geography stresses electric vehicle systems and infrastructure
- **We are designing and building the infrastructure that will support EVs when they are 100% of buses, fleets, and vehicles sold**
- As a result of your input, we now have the ideas, frameworks, modeling tools to be able to design Electric Vehicle Resilience into our future

Recommended Critical Elements of Colorado's EV Resilience Planning

Redundancy and backup solutions, coordinating EV services to realize multi-objective benefits to community resilience, and new technologies such as microgrids, mobile charging, and vehicle-to-grid applications,

Workforce and knowledge development, with standardized training programs to ensure that we have the workforce to engineer, plan, maintain and restore EV systems, and that communities can plan for and realize EV infrastructure benefits

Resilience equity and trust-building, ensuring that urban and rural communities are empowered to realize electrified transportation system benefits.

Questions and Discussions

4. What does RESILIENCE mean in the context of your fleet and local electric vehicle (EV) infrastructure

5. Pin your location

6. What level of interest do you have in participating in next steps related to EV resilience (e.g., local conversations, pilot projects, policy input)?

7. Would additional sessions or discussions on EV resilience and infrastructure be valuable to your work?

8. If yes, what format would be most useful?(can choose multiple)

9. Please share anything you feel to be relevant or important as it relates to EV(SE) resilience. Open ended short reply

Join by Web (you can use the link or the QR code).
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Join by Text
Send **greenbook708** to **22333**

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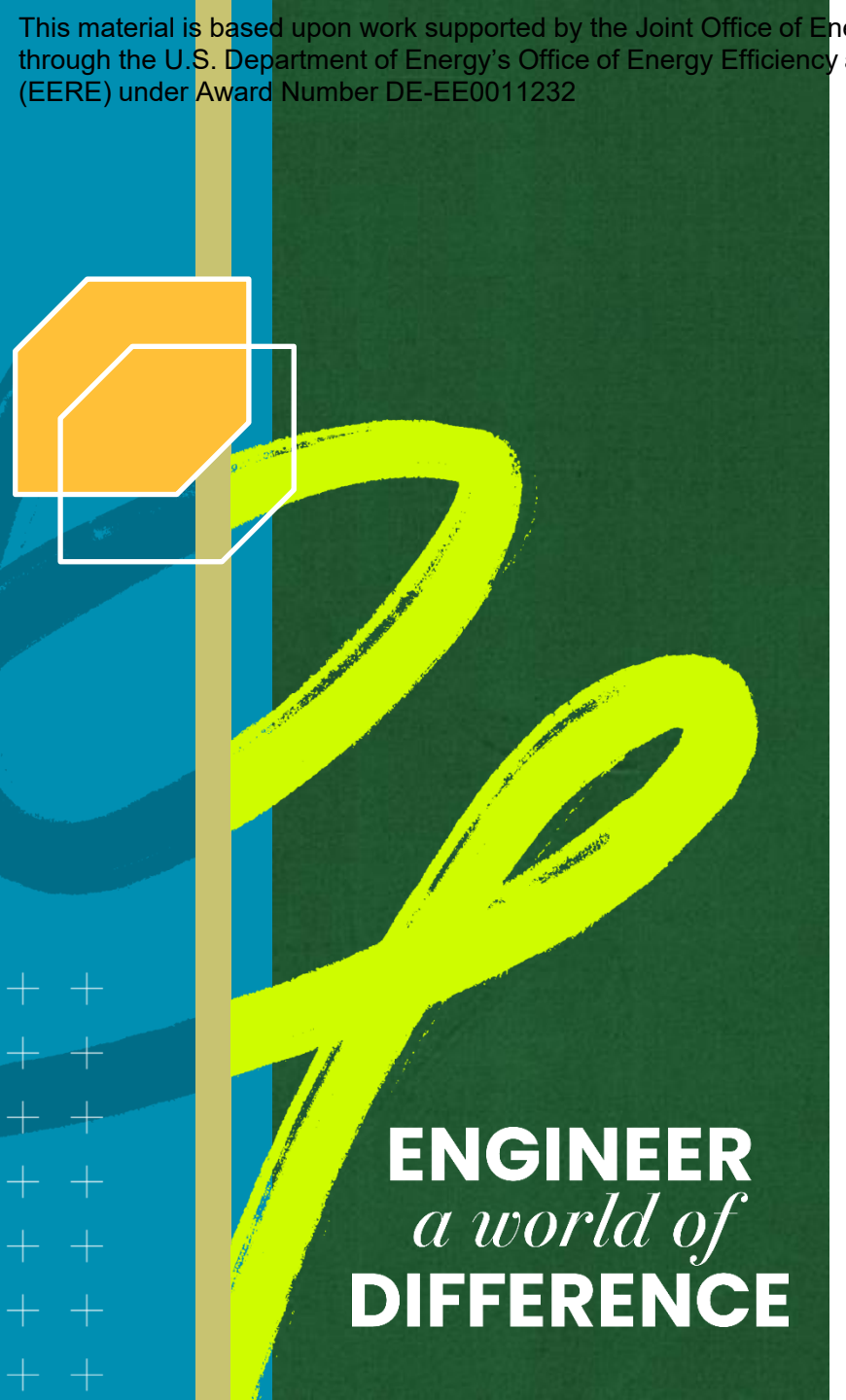

Thank you

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SYSTEMS ENGINEERING
COLORADO STATE UNIVERSITY

Direct next steps for your advisement

2025 Colorado Resiliency Framework Update (CO DOLA)

Reporting for CEO/CDOT

Dozens of EVSE and EV manufacturers

Outreach to CO Stakeholders (DCC, and CSU OEE)

Colorado's initiatives, capabilities, and Whole-of-State critical infrastructure and resilience planning (US DOW)