

CEVC Update

Colorado EV R&D Stakeholder Engagement

Maury Dobbie | Colorado Energy Research Collaboratory

Michael Somers | CSU Department of Systems Engineering

June 24, 2021



Colorado Energy Research Collaboratory
Securing a Sustainable & Resilient Energy Future



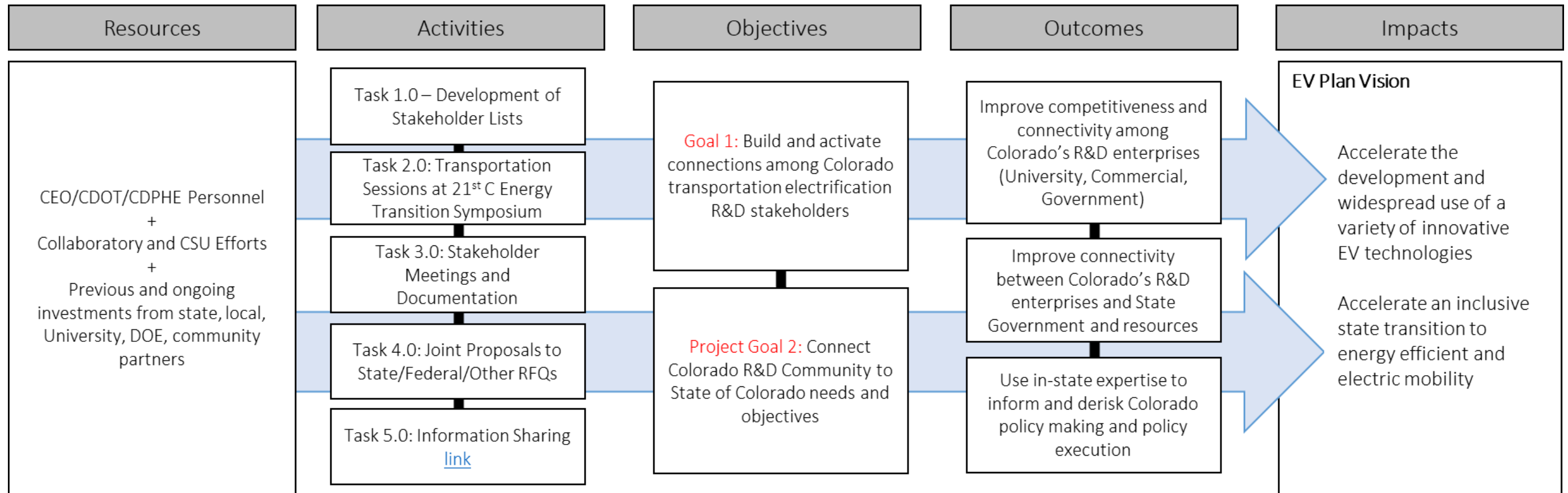
Colorado State University

Charge

Real and permanent reductions in the energy consumption and emissions impacts of transportation will require the adoption and proliferation of advanced technologies, policies, and collaborations in which Coloradoans must play an important role.

To enable Colorado electric vehicle (EV) research and policy, the Colorado Energy Research Collaboratory and Colorado State University were tasked by Colorado Energy Office and the 2020 EV Plan to build networks and collaboration potential among stakeholders (Universities, Labs, industry, NGOs, policy makers, and state government) to help accomplish the transition to electrified transportation in the state.

Strategy



21st Century Energy Transition Symposium

- April 2020 event was forced to reschedule
 - Planned second day focused on “Colorado Transportation Electrification Forum”
- May 2020 Collaboratory pivoted to webinars – hosted free EV-focused series
- Co-hosted three-part series of EV-focused discussions
 - Batteries
 - Components
 - Systems Integration and Policy



EV Stakeholder Meetings

Goals of hosting a 3-part discussion series:

1. Connect and foster information exchange between researchers, industry, government and those working on EV topics
2. Enable rapid collaboration between interested experts to work on EV-related proposals

Topics: Batteries, Components, Systems Integration and Policy

Participants: CEO, Prieto Battery, Volta Charging, Tri-State, CDPHE, University of Denver, United Power, Toyota North America, NREL, Chargepoint, Drive Clean Colorado

Batteries: Key Takeaways

- Current batteries are not good enough and charging infrastructure is lacking
- Developing batteries takes a lot of money develop the chemistry and to scale production
- Customers do not currently want to change behavior and expect comparable performance to ICE vehicles
 - Longer range, faster charging, improved safety, expanded operating temperature range, lower cost and longer life
- US (and CO) could do more to incentivize domestic manufacturing
 - Skilled workforce
 - Just transition for those losing their jobs

Components: Key Takeaways

- For EVs to achieve mass market they must reach *purchase* cost parity (move away from TCO)
 - Primarily need to decrease cost of batteries, but also the electric motors and power electronics
 - ICEVs will get more expensive (emissions controls, fuel economy regulations)
- Future of hybrids and plug-in hybrids?
 - Not included in long-term visions
 - Long-range
- Colorado has an opportunity to be a leader in battery R&D and production
 - Rail system, skilled workforce and training, research, industry
- Charging access is still challenging (at-home, public, DC fast-charging, multi-family housing, etc.)

Systems and Policy: Key Takeaways

- Integration with the grid (and renewable energy resources)
 - Opportunity for V2G / bi-directional charging / demand responsive charging
 - Incentives for utilities and customers
- Cybersecurity and resilience challenges
 - Utilities and vehicles are both susceptible to attacks
 - Other disruptions (grid outages due to weather events, natural disasters)
- Government and policy
 - Adapt rules for CO rather than adhering to CA
 - Setting standards

Contact

Maury Dobbie | Executive Director, Colorado Energy Research Collaboratory

Maury.Dobbie@coloradocollaboratory.org

Michael Somers | Research Associate, CSU Department of Systems Engineering

Michael.Somers@colostate.edu

Dr. Tom Bradley | Department Head, CSU Department of Systems Engineering

Thomas.Bradley@colostate.edu

More Info and Recordings: <https://www.coloradocollaboratory.org/colorado-electric-vehicle-stakeholders/>