Infrastructure Programming, Reliability, and Stakeholder Engagement

October 12, 2022

COLORADO
Energy Office

State Electric Vehicle Goals

Increase adoption of EVs in the light-duty sector to approximately 940,000 vehicles by 2030

- 2018 Colorado Electric Vehicle Plan

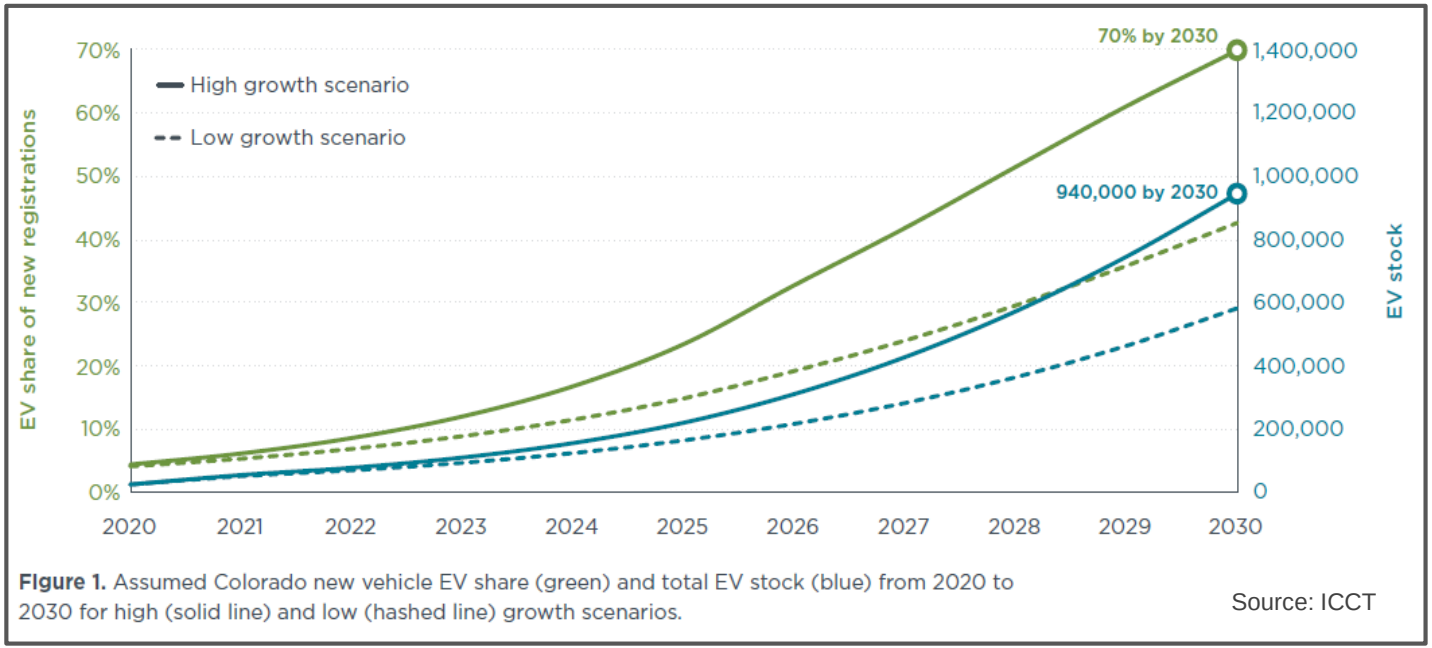


Figure 1. Assumed Colorado new vehicle EV share (green) and total EV stock (blue) from 2020 to 2030 for high (solid line) and low (hashed line) growth scenarios.

Source: ICCT

Clean Energy Goals

Xcel Energy

- Filed a Clean Energy Plan
- Reduce GHG emissions by about 85% by 2030
- Retire Hayden 1 by 2027 and Hayden 2 by 2028 without layoffs
- Retire all coal plants by start of 2031

Holy Cross Energy

- Filed a Clean Energy Plan
- Reduce GHG 90% by 2030
- 100% carbon free electricity by 2030
- 100 MW new wind
- 110 MW new solar
- 80 MW storage

Black Hills Electric

- Filed a Clean Energy Plan, PUC process beginning
- Reduce GHG 90% by 2030
- 79% of electricity sales generated from renewable energy by 2030

Colorado Springs Utilities

- Filed a Clean Energy Plan
- Reduce GHG 80% by 2030
- 32% renewable energy by 2030
- Close all coal plants by 2030

Platte River Power Authority

- Filed a Clean Energy Plan
- Reduce GHG 87% by 2030 levels
- Close all coal plants by 2030
- Add 300 MW solar, 200 MW wind, 200 MW storage by 2030

Tri-State G&T

- Filed ERP to Reduce in-state GHG 84% by 2030
- Close CO coal plants by 2030
- Add 300 MW of wind, 1050 MW of solar, 400 MW of wind+storage, & 100 MW of solar+storage (not all in CO)

Six utilities that operate 99% of the fossil power plants will close all coal plants by 2031 and will reduce GHG 87% by 2030.

Infrastructure Need

Table 3. Projected charging infrastructure needed in Colorado in 2025 and 2030.

EV growth scenario	Year	Detached home	Attached home	Multi-family housing	Workplace	Public Level 2	DC fast (non-corridor)	DC fast corridor
High growth	2025	90,495	9,415	4,976	10,772	5,882	1,287	412
	2030	369,021	42,325	25,626	46,686	19,291	3,771	1,070
Low growth	2025	67,960	7,017	3,663	7,995	4,620	1,030	345
	2030	228,632	26,076	15,591	28,776	12,597	2,621	760

Table 4. Number of electric medium- and heavy-duty trucks in 2025 and 2030 and the associated infrastructure needs and costs.

	Number of electric trucks		Number of ultra-fast chargers		Number of depot chargers		Average infrastructure cost per truck		Estimated cumulative infrastructure cost ($ million)	
Truck type	2025	2030	2025	2030	2025	2030	2025	2030	2025	2030
Medium-duty (class 4–6)	102	2,021	14	85	113	1,570	$82,000	$40,000	$8.3	$80.9
Heavy-duty (class 7 and 8)	113	2,480	38	598	132	2,350	$189,000	$114,000	$21.4	$282.7

Source: ICCT

Colorado's Infrastructure Funding

- Colorado Electric Vehicle Fund
- Community Access Enterprise
- National Electric Vehicle Infrastructure Program
- Other State Funding

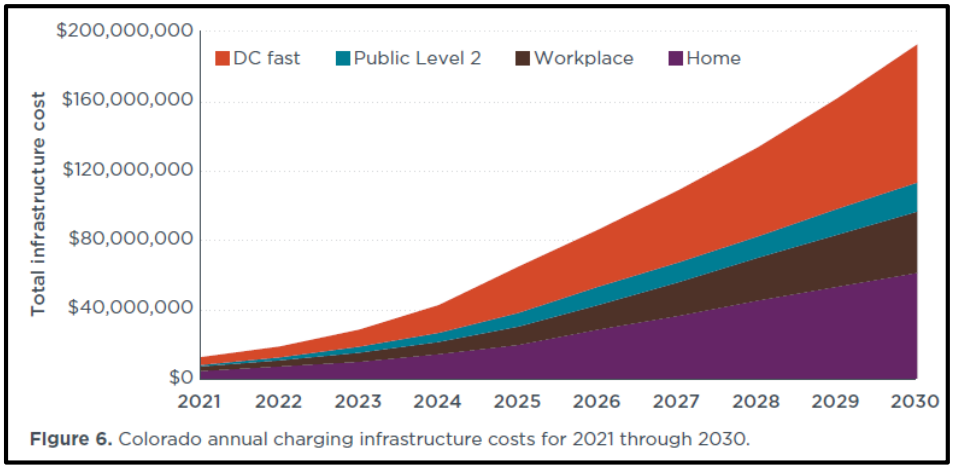


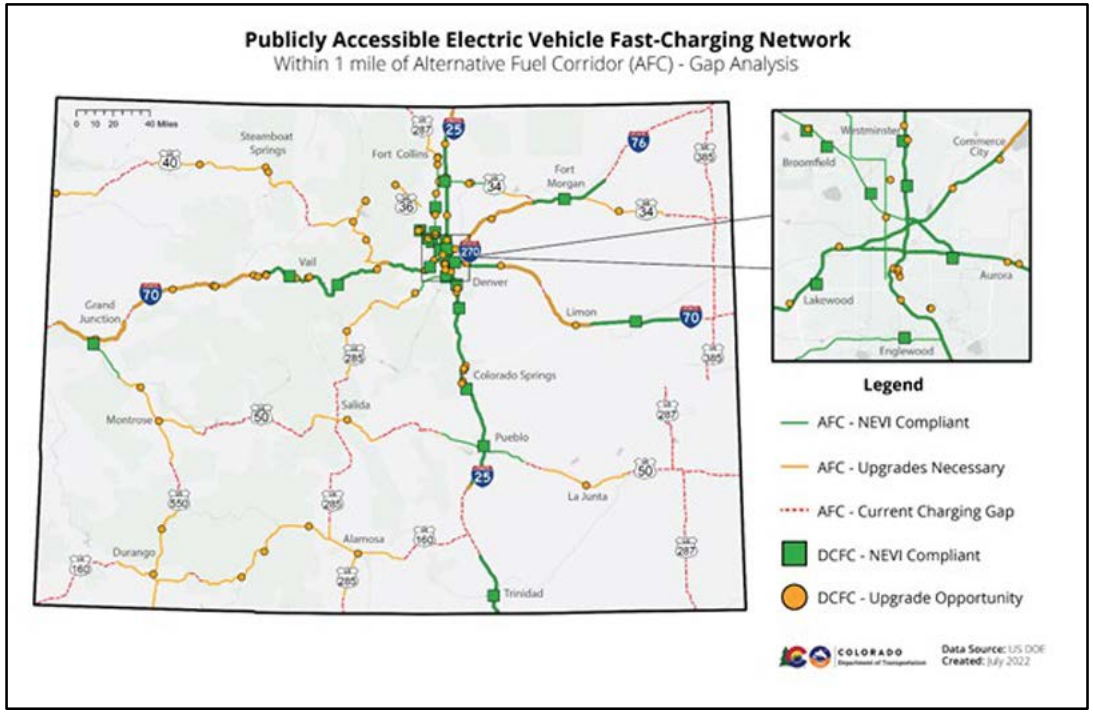
Figure 6. Colorado annual charging infrastructure costs for 2021 through 2030.

Source: ICCT

Colorado's Charging Infrastructure Programs

- Charge Ahead Colorado: Community-based Level 2 and DC Fast-Charging (DCFC) stations
- DCFC Corridors: High-speed charging stations along Colorado's major transportation corridors
- DCFC Plazas: High-speed charging stations for public users and high-mileage fleets
- Medium and Heavy Duty: Public and depot charging for M/HD fleets (in planning)

Planning for NEVI



- Charging gaps along Colorado's federally designated Alternative Fuel Corridors, prioritizing those locations serving disproportionately-impacted communities.
- Expansion of existing stations along Colorado's federally designated Alternative Fuel Corridors.
- Additional charging in areas where infrastructure exists but is insufficient to meet market demand.
- Charging infrastructure needed to support the electrification of the medium and heavy duty vehicle market.

Planning for Reliability

- CEO retains a portion of project budget to ensure timely completion of reporting, required uptime, and continuous operation
- Multiple stations initially, and future proofing for higher speeds, more chargers as demand grows
- 97% uptime at corridor, plaza DCFC
- 5 years of networking, warranty, maintenance, and reporting for all stations

Colorado's Balancing Act

- Setting incentive levels so that they stimulate private investment without overinvesting
- Ensuring programs are responsive to the market while also directing investment where it's most needed
- Designing programs that can be accessed by those traditionally left out of competitive grant programs
- Collecting meaningful feedback from a wide variety of stakeholders

Location	DCFC Output	#DCFC	Incentive Per Charger	Funding Percentage Up To
Seven County Denver Metro Area	150kW+	2+	$80,000	50.00%
Front Range Urban	150kW+	2+	$105,000	65.00%
Rural	150kW+	2+	$125,000	80.00%

Engaging With Stakeholders

- Regular engagement with EV stakeholders through the Colorado EV Coalition and Subgroups and EV events
- Targeted engagement for EV Planning – NEVI, Community Access Enterprise Ten Year Plan, new and existing programming
- Focused community engagement
  - Direct engagement and relationship-building with disproportionately-impacted communities and community members
  - Direct support for participation in CEO's grant programs

Engaging With Stakeholders

- Utilities
  - Ongoing engagement through Beneficial Electrification Subgroup, regular stakeholder meetings, EV events
  - Close partnership with many utilities focused on delivering complementary programming, creating an enabling environment for adoption
  - Providing support to coops and munis as they determine their role in transportation electrification including charging station grants
  - Participate in all transportation-related filings at PUC (CEO has intervention by right)

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