COLORADO MUNICIPAL LEAGUE

CML Special Conference

September –22-24, 2021 • Westminster, CO

Colorado's Transportation Transformation

Contents of this presentation reflects the view of the presenter, not of CML.

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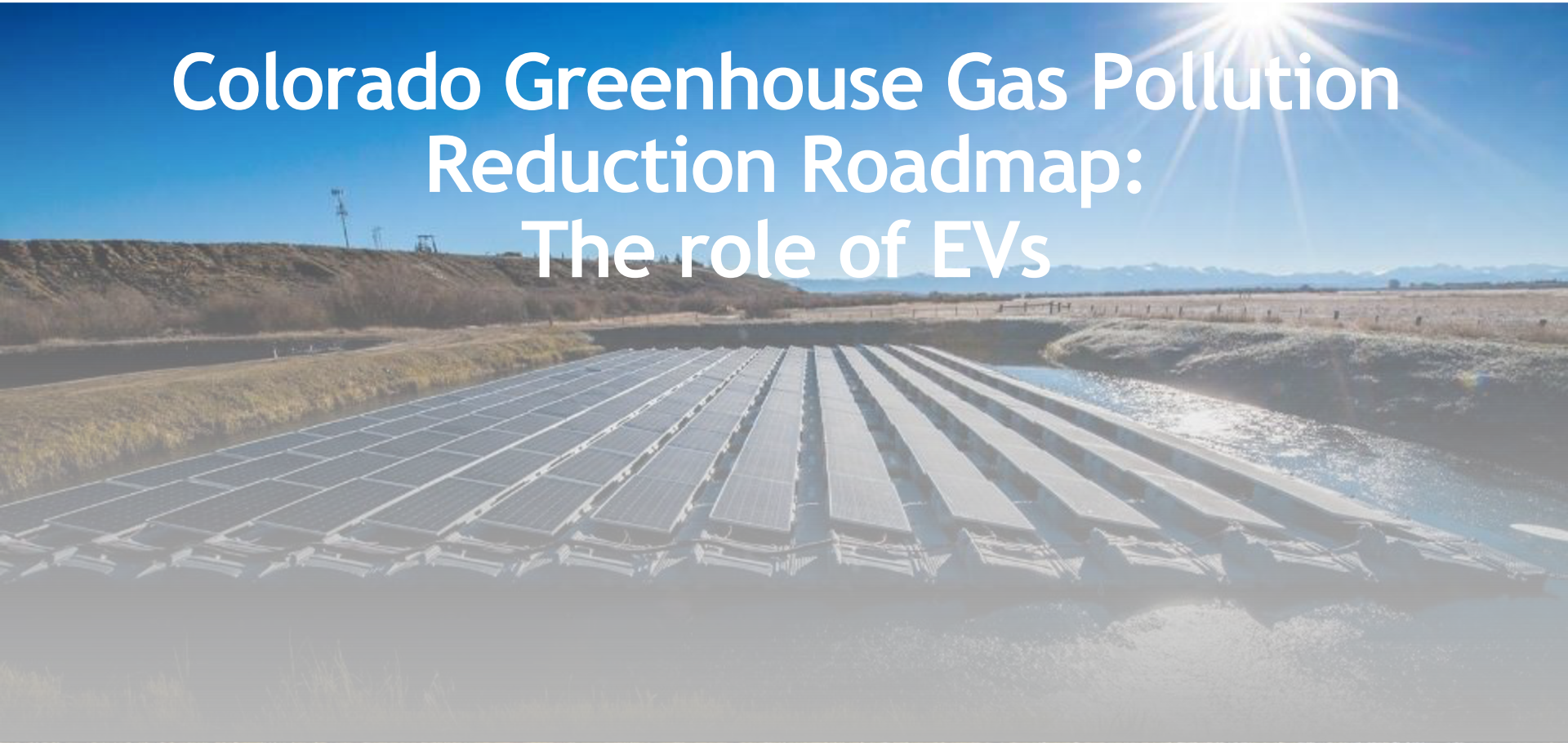
Colorado Greenhouse Gas Pollution Reduction Roadmap: The role of EVs

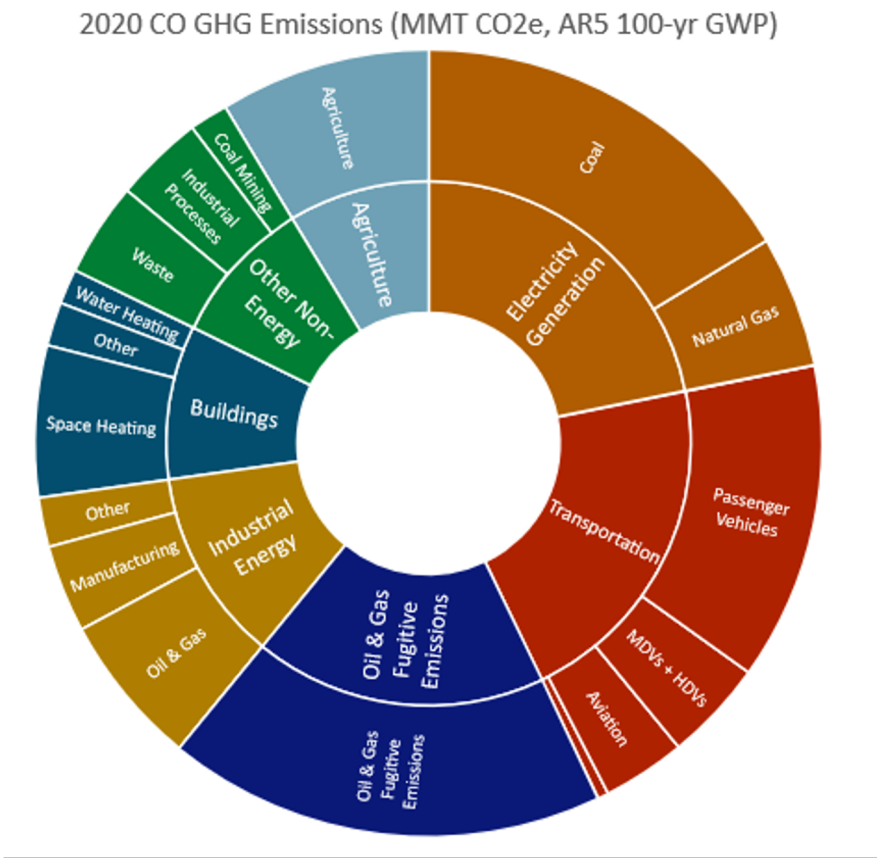


September 2021

Largest GHG Emissions Sources

2020 Largest Emissions Sources

1. Transportation
2. Electric power
3. Oil & Gas
4. Industry
5. Buildings



Near Term Actions: Transportation

Reduce pollution ~12.7 million tons by 2030

6 MMT reduction

Low and Zero Emission Vehicle rules

2 MMT reduction

Utility and public investment in fleet turnover and infrastructure for light-duty zero emission vehicles (SB19-077, electrification investments from SB21-260)

Collectively, the other strategies will target remaining 4.7 million tons

~4.7 MMT reduction

GHG Pollution Standards for transportation plans	In progress - CDOT TC Rulemaking - hearing 11/ 2021
Incentivize land use to increase housing near jobs and reduce VMT and pollution	HB 21-1271, HB 21-1117; CDOT stakeholder process; interim affordable housing committee
Clean trucking strategy - infrastructure, fleet incentives, consider regulatory tools such as advanced clean trucks and fleet rules	In progress - Study to be released October 2021 Stakeholder Engagement - Summer/Fall 2021; fleet investments from SB21-260
Participate in developing post 2025 vehicle standards (state and federal)	Federal and CARB processes
AQCC evaluation of indirect source rules	RAQC has convened committee to start developing proposals
Expansion of public transit, including setting the stage for Front Range Rail	In progress - SB21-238, SB 21-260, Main Streets investments, on-going multimodal emphasis

Transportation 2030 goal: 1 million light duty EVs

- Supported by existing policies + recent utility and public investment plans
- Key factor: federal infrastructure and budget reconciliation packages addressing EV tax credits, technology development, charging investments
- Achieving goal is now aligned with strategies of major automakers such as General Motors, Ford, Stellanti
- Biden admin has set target of 50% market share by 2030, setting stage for future rulemaking
- $17.5 billion for EV charging in infrastructure package; reconciliation proposes $12,000 tax credit (plus eBike credits)
- Achieving goal will reduce GHG approximately 2 million tons in 2030 beyond meeting existing LEV/ZEV standards
- EV Equity Study and 100% light duty ZEV study are both kicking off

Transportation: Electrification Investments (SB 21-260)

$733 million of new fee revenue supports 3 new electrification and charging infrastructure Enterprises:

Charging Infrastructure & Electric Vehicle Equity

- New 'Community Access' Enterprise in Colorado Energy Office (CEO).
- Build charging infrastructure in communities across the State, and support electric vehicle and eBike adoption in low and moderate income communities.
- **$310 million** investment
- Paired with existing CO EV Infrastructure Fund - $115 million + potential federal $

Fleet Electrification Incentives

- New 'Clean Fleet' Enterprise in CO Department of Public Health and Environment (CDPHE)
- Support fleet replacement (delivery trucks, TNCs, school buses, and other light/medium/heavy duty vehicles) with incentives to meet climate and air quality goals
- **$289 million** investment

Public Transit Electrification

New enterprise in Colorado Department of Transportation (CDOT).

- Support electrification of public transit through electrification planning efforts, fleet replacement and associated charging infrastructure.
- **$134 million** investment

Transportation: Utility Electrification Plans

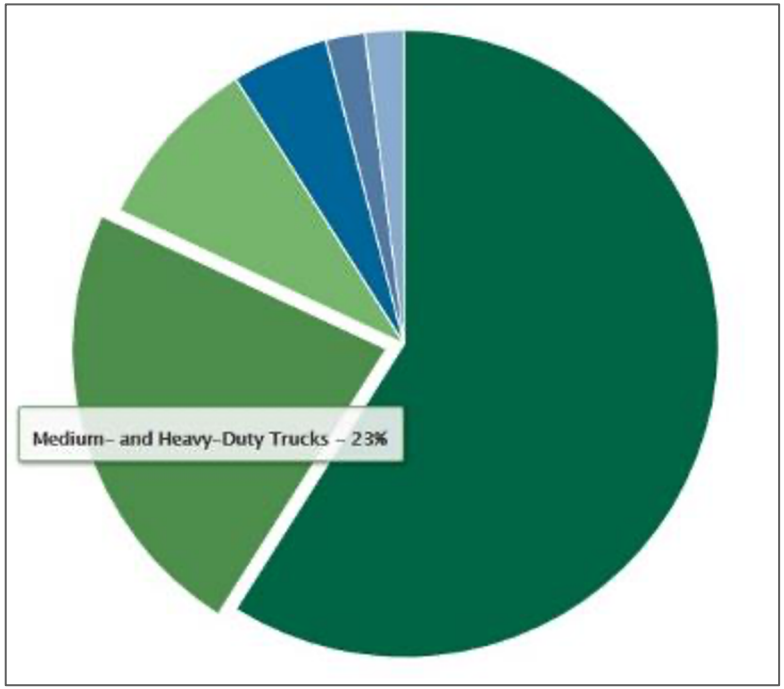
- Xcel and Black Hills file plans every 3 years
- Xcel's first plan approved in January to invest roughly $105 million over 3 years
  - 15% of budget on equity programs including $5 million for income qualified EV rebates
  - Support for residential, workplace, and MFH charging
  - $2.2 million for electric school buses
- Black Hills first plan before the PUC for a final decision
- Two more full TEP cycles before 2030; statute allows scale of TEPs to increase as EV revenue increases, so may be significant investments

Post Model Year 2025 car standards

- In August, US EPA/US DOTissued proposed standards for MY 2023-2026; Biden EO calls for 50% ZEV by 2030
- Anticipate proposal for at least MY 2027-2030
- Clean Air Act (CAA) also allows CA to adopt standards; other states can stick with federal standard or opt in to CA standard using Section 177 of CAA; CARB developing proposal (Advanced Clean Cars II) for 100% ZEV new vehicles by 2035; adoption likely in late 2022
- State will provide input to both federal and CA processes, to maximize likelihood that one or the other will meet Colorado's needs

Medium and Heavy-Duty Vehicle Impacts

2018 US Transportation GHG Emissions by Source



Source: United States EPA

Zero Emission Vehicle Phase-In

ZEVs are likely to be adopted in multiple "waves", but we need to prepare our policies and investments now in order to maximize the benefits in future years.

Wave 1: Transit

Multiple vehicles available and actively operating in many regions

Wave 2: Delivery

Some vehicles available, pilot deployments and limited fleet usage underway

Wave 3: Medium Freight & Service

Pilots, demonstration projects, and announcements of future models

Wave 4: Heavy Regional Freight

Demos and announcements, but require more infrastructure to scale up

Wave 5: Corridor Long-Haul

Aspirational, requiring major infrastructure investments nationwide

2020 ? ? 2050

Source: CALSTART

Clean Truck Strategy

- MJ Bradley analysis almost complete; release target is early October
- Stakeholder process mid October-Thanksgiving to take input on next steps
- SB 260 provides $ for ZEV trucks, buses, school buses + charging and hydrogen fueling infrastructure
- Federal infrastructure package + reconciliation include significant investments
- Regulatory options to consider include Advanced Clean Trucks, NOx omnibus rule, and fleet ZEV adoption rules

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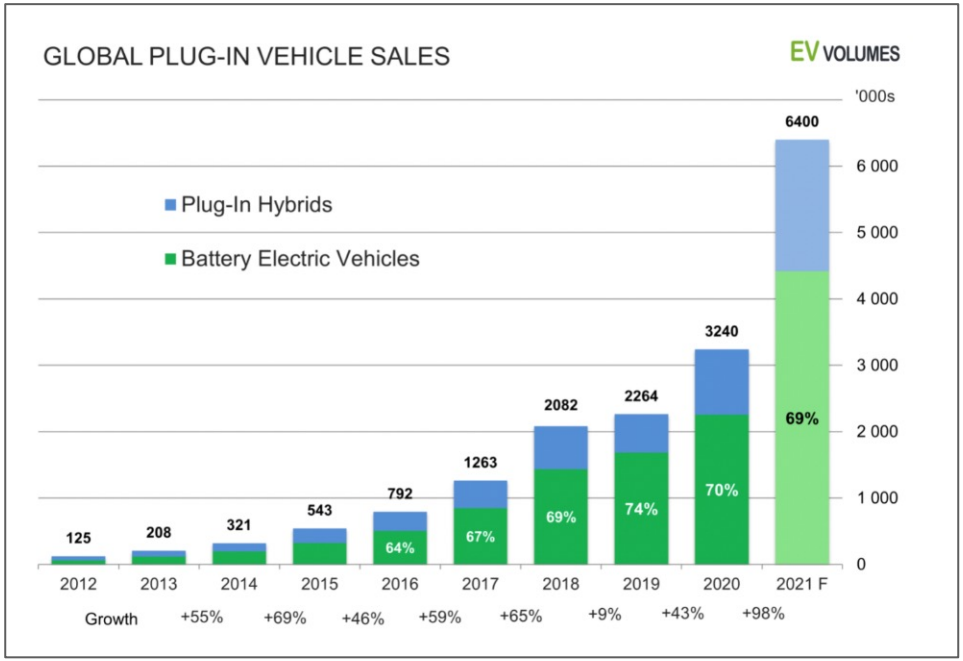
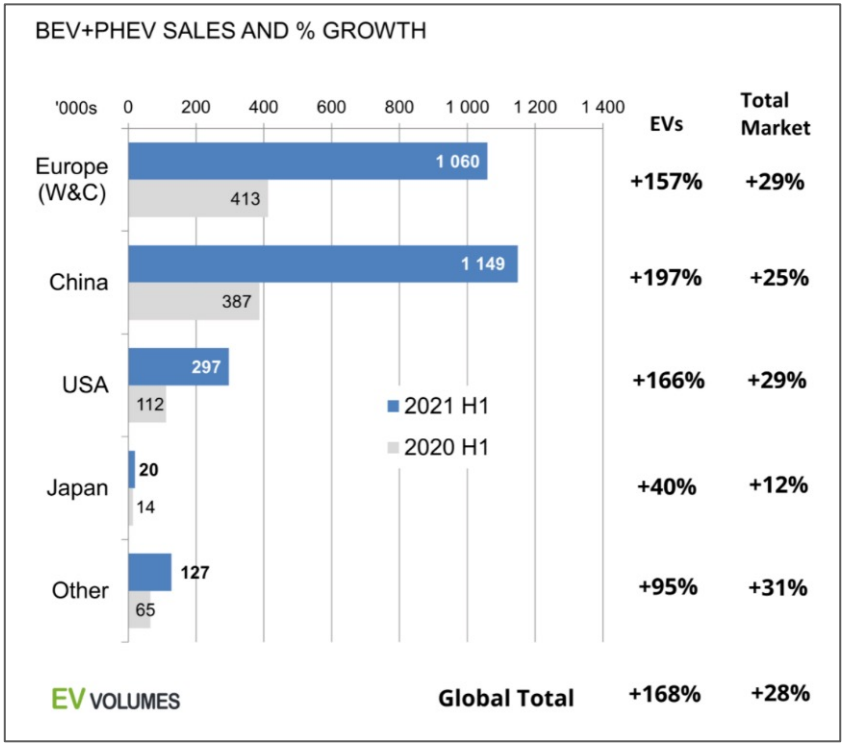
State of Fleet Electrification

Mary Till, Sawatch Labs

Global EV Sales Growth

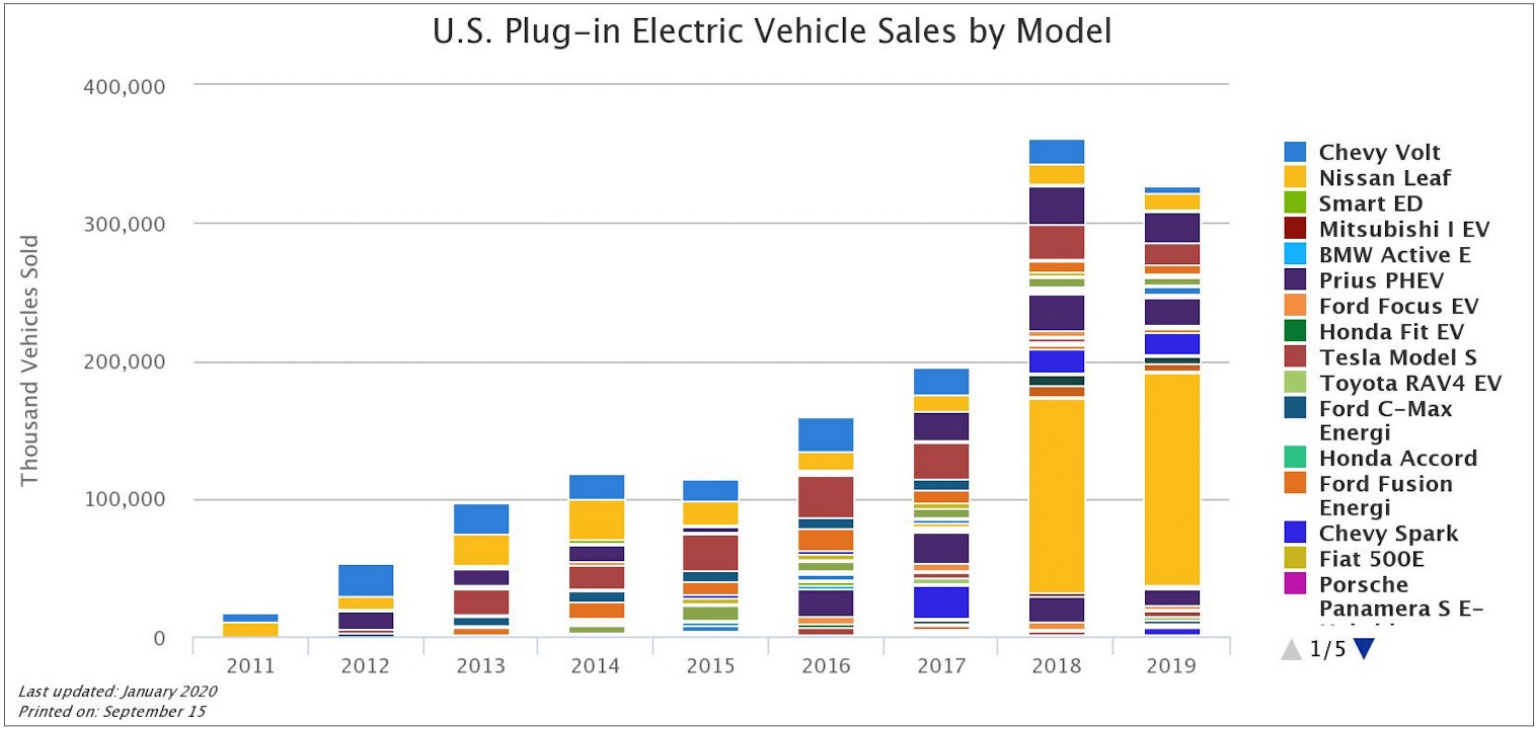
Electric car sales drive cost reductions in batteries, which boosts deployment across all road vehicle categories





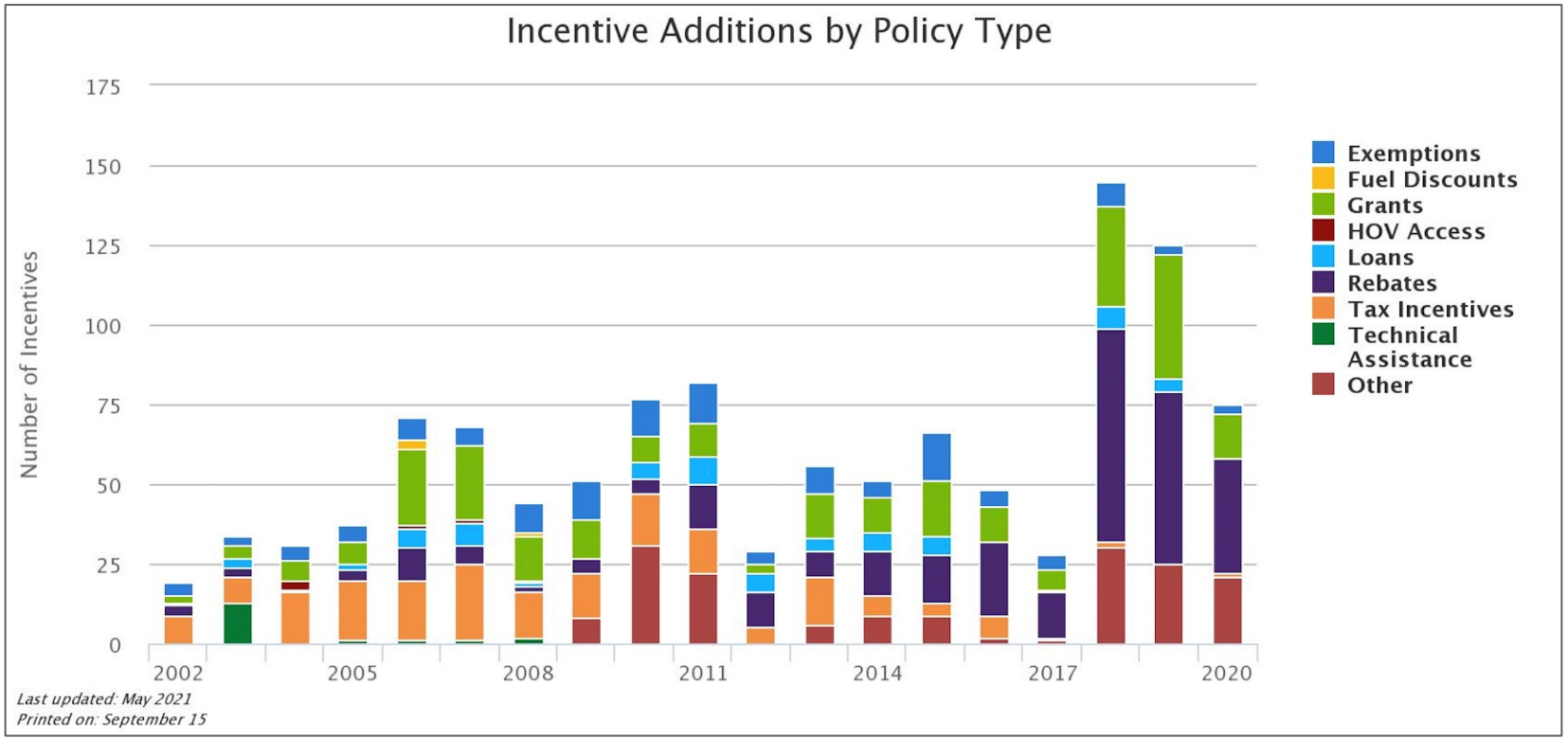
Source: ev-volumes.com The Electric Vehicle World Sales Database

U.S. EV Sales Growth



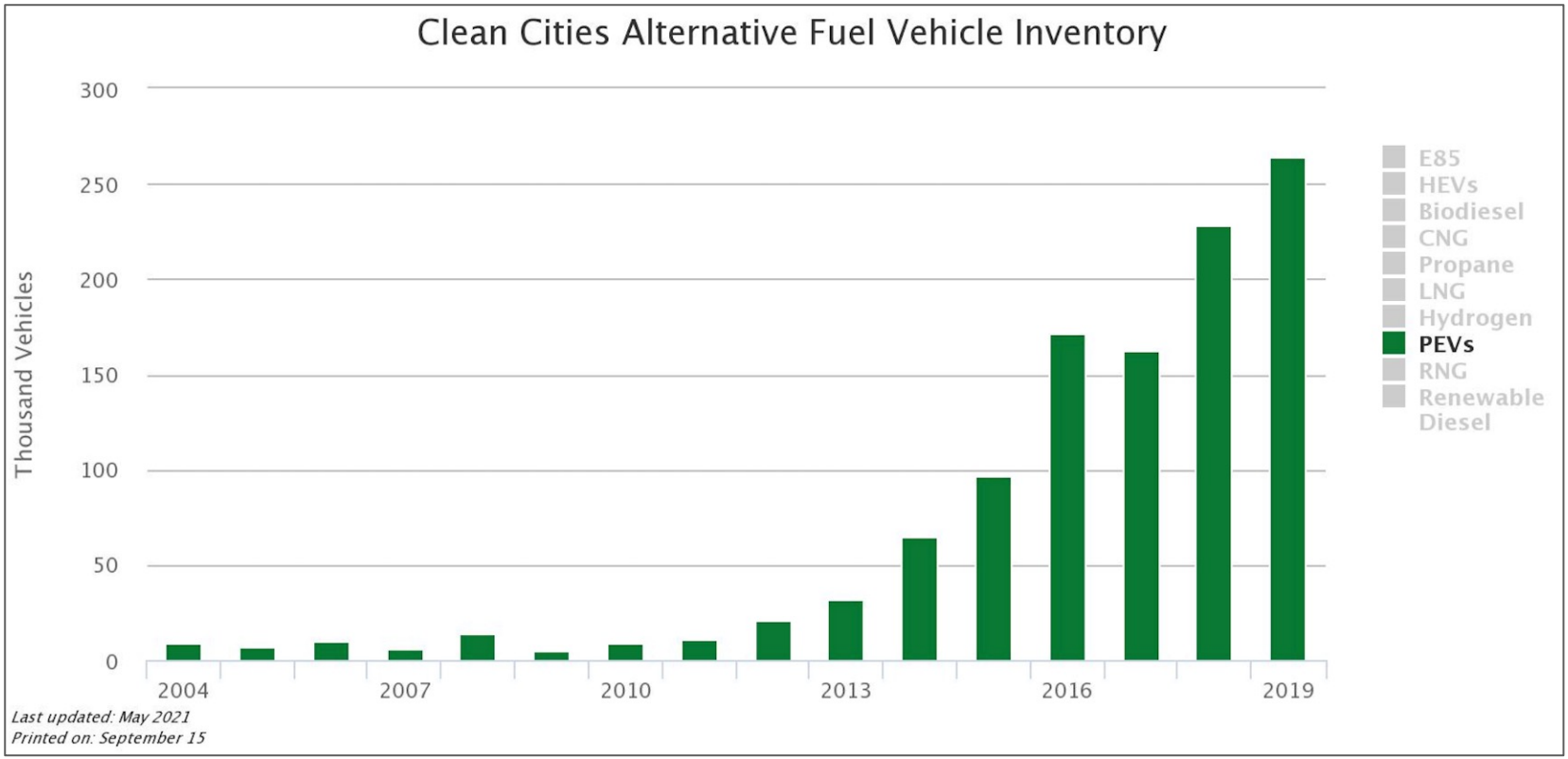
U.S. DOE Alternative Fuels Data Center https://afdc.energy.gov/

Policy Driven Electrification



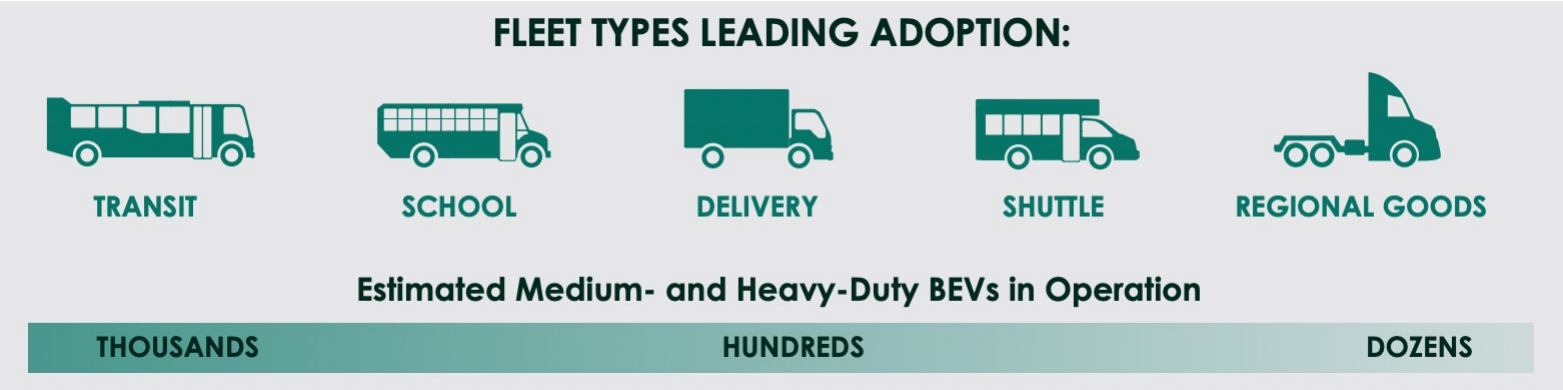
U.S. DOE Alternative Fuels Data Center https://afdc.energy.gov/

Clean Cities Coalition Influence on EV Adoption



U.S. DOE Alternative Fuels Data Center https://afdc.energy.gov/

EV applications in Fleet

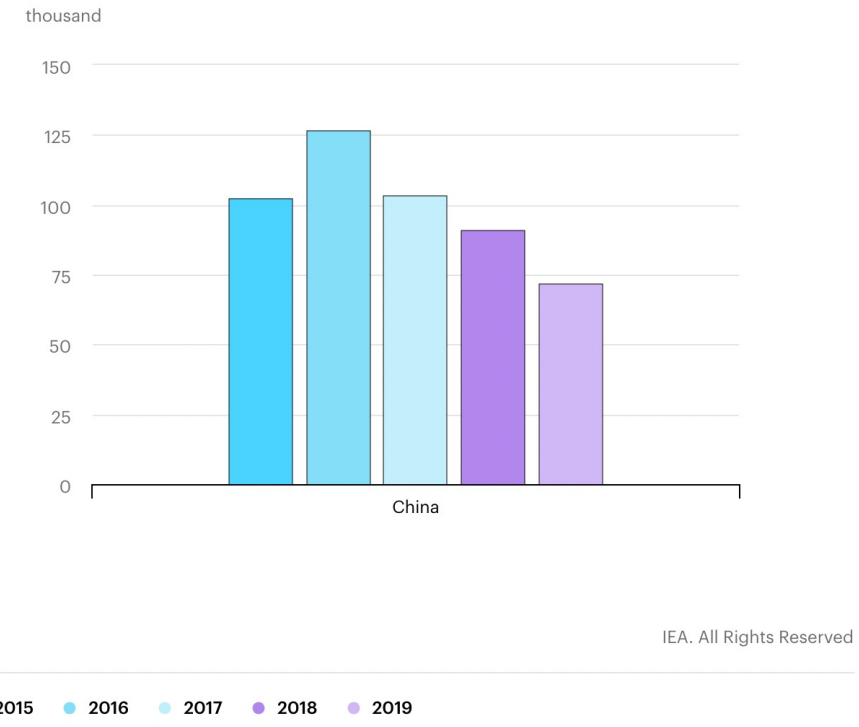


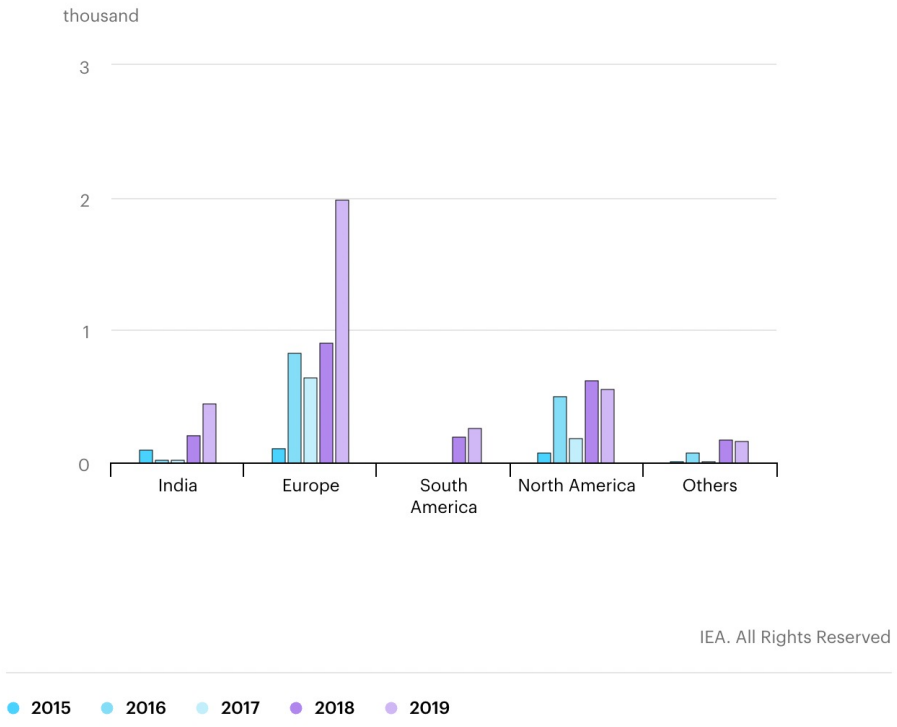
- Increasing adoption in MD/HD. Growth driven by increased model availability
- Steady light-duty adoption will continue

"More than two-thirds (69%) of surveyed fleets that have used BEVs plan to either pilot or purchase them in the next 12 months. State of Sustainable Fleets 2021 survey"

Image and quote : State of Sustainable Fleets 2021 survey

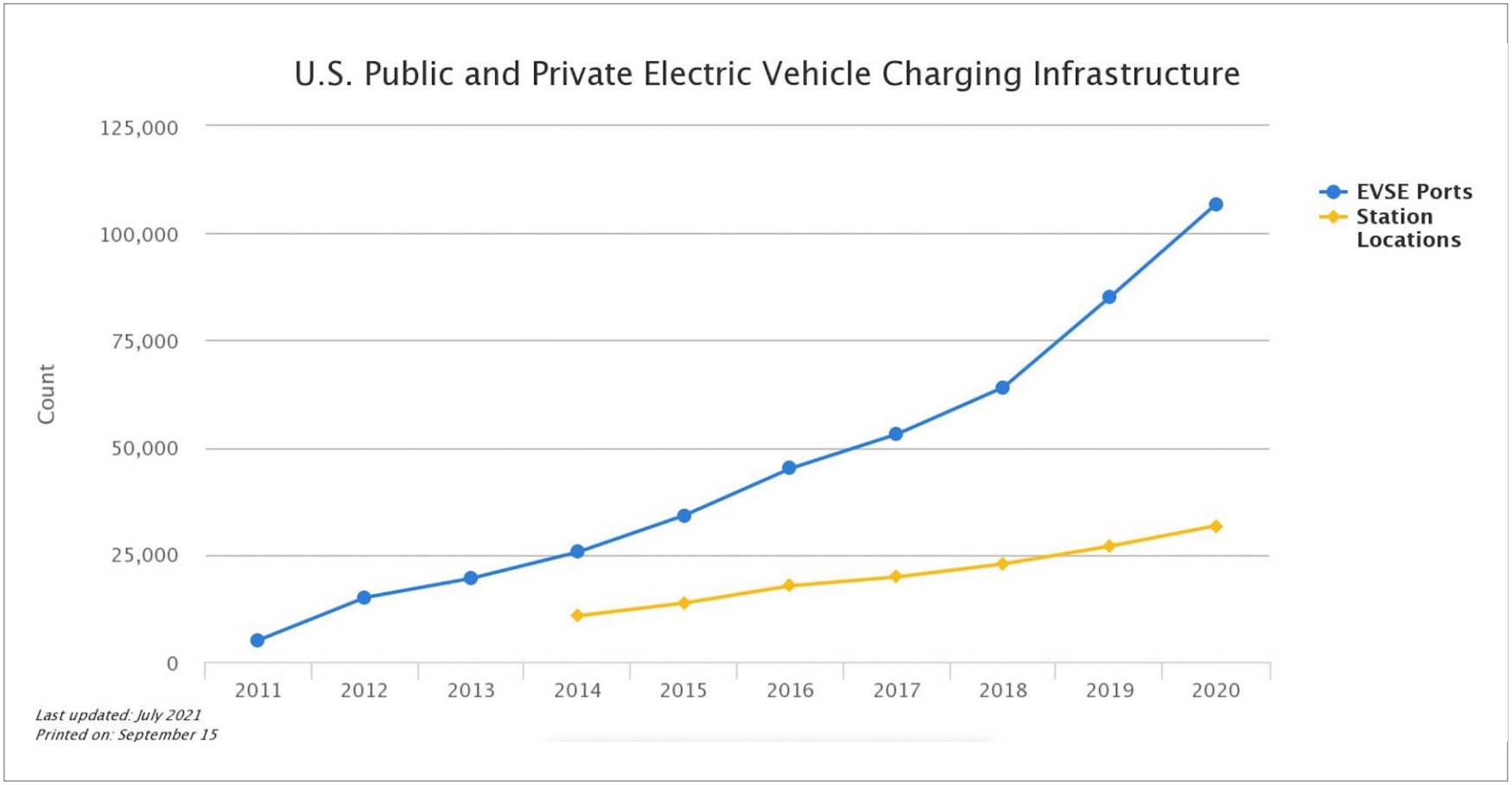
New Electric Bus Registrations





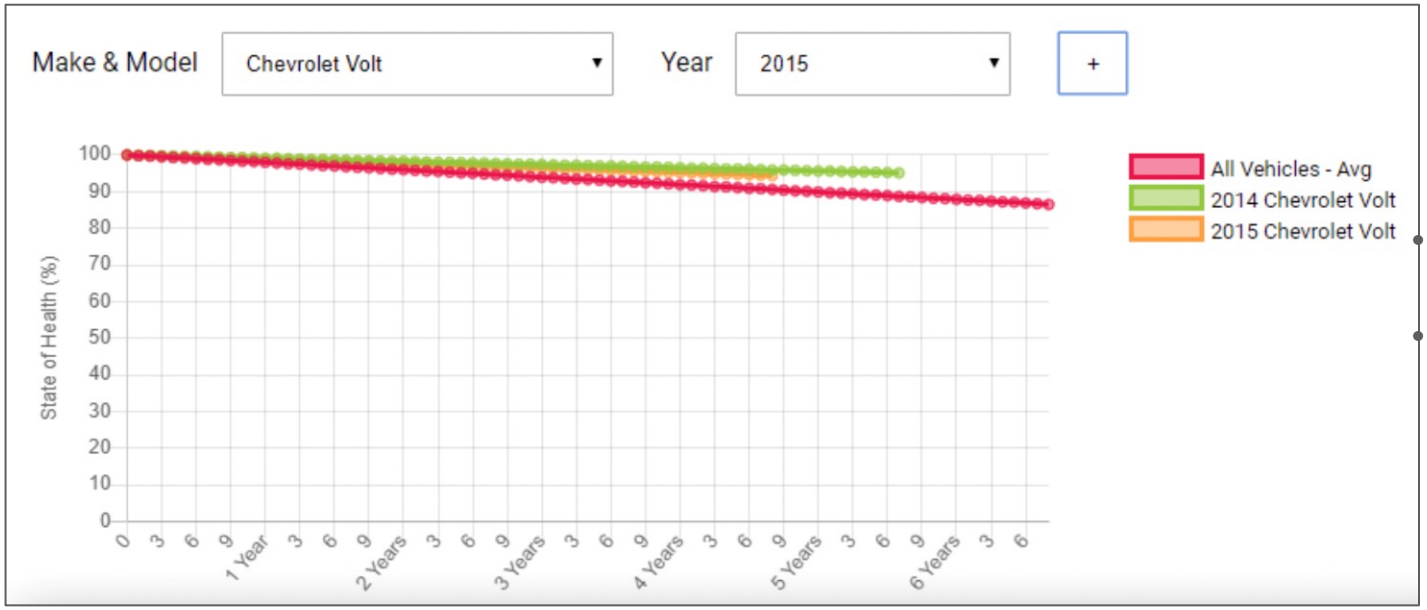
IEA, Global electric car stock, 2010-2019, IEA, Paris https://www.iea.org/data-and-statistics/charts/global-electric-car-stock-2010-2019

Steady U.S. EVSE Growth



https://afdc.energy.gov/

Battery Life Increasing

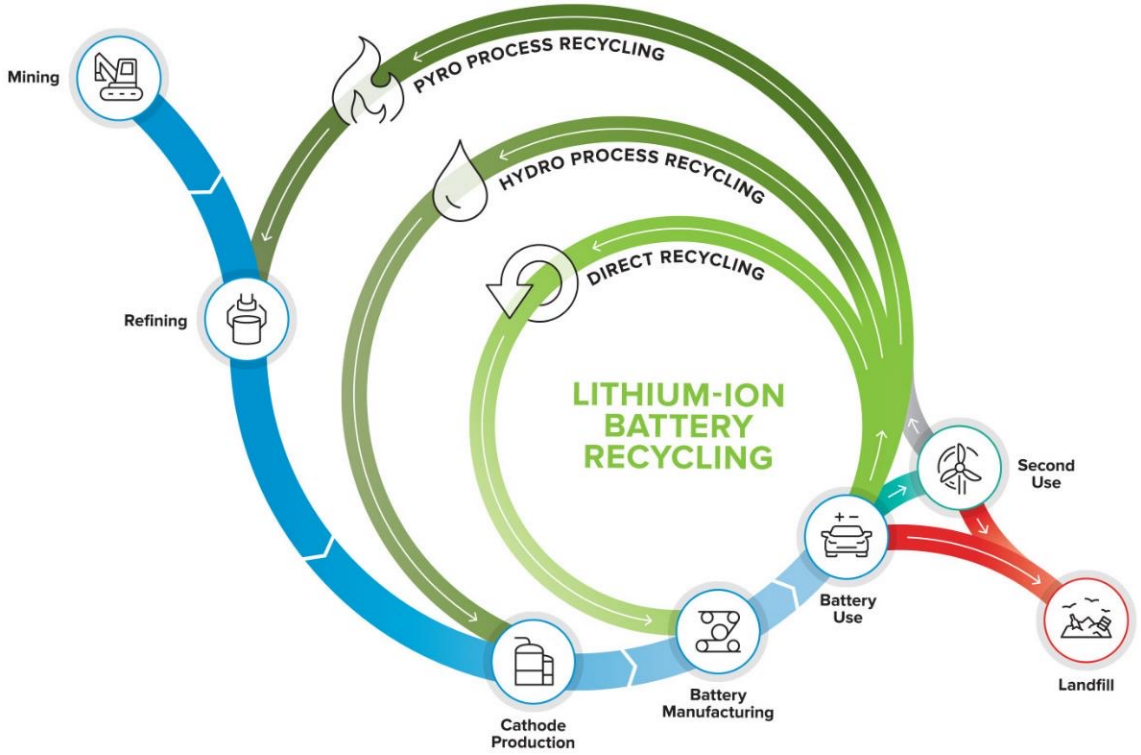


- Improving battery composition
- Improving battery cooling systems

There are programs actively gathering real-world EV data

https://www.geotab.com/blog/ev-battery-health/

Growing Markets for used batteries



- Secondary uses
- Recycling centers are growing in number and scale, and costs are decreasing

(Image by Argonne National Laboratory.)

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Xcel Energy's 2021-2023 Transportation Electrification Plan

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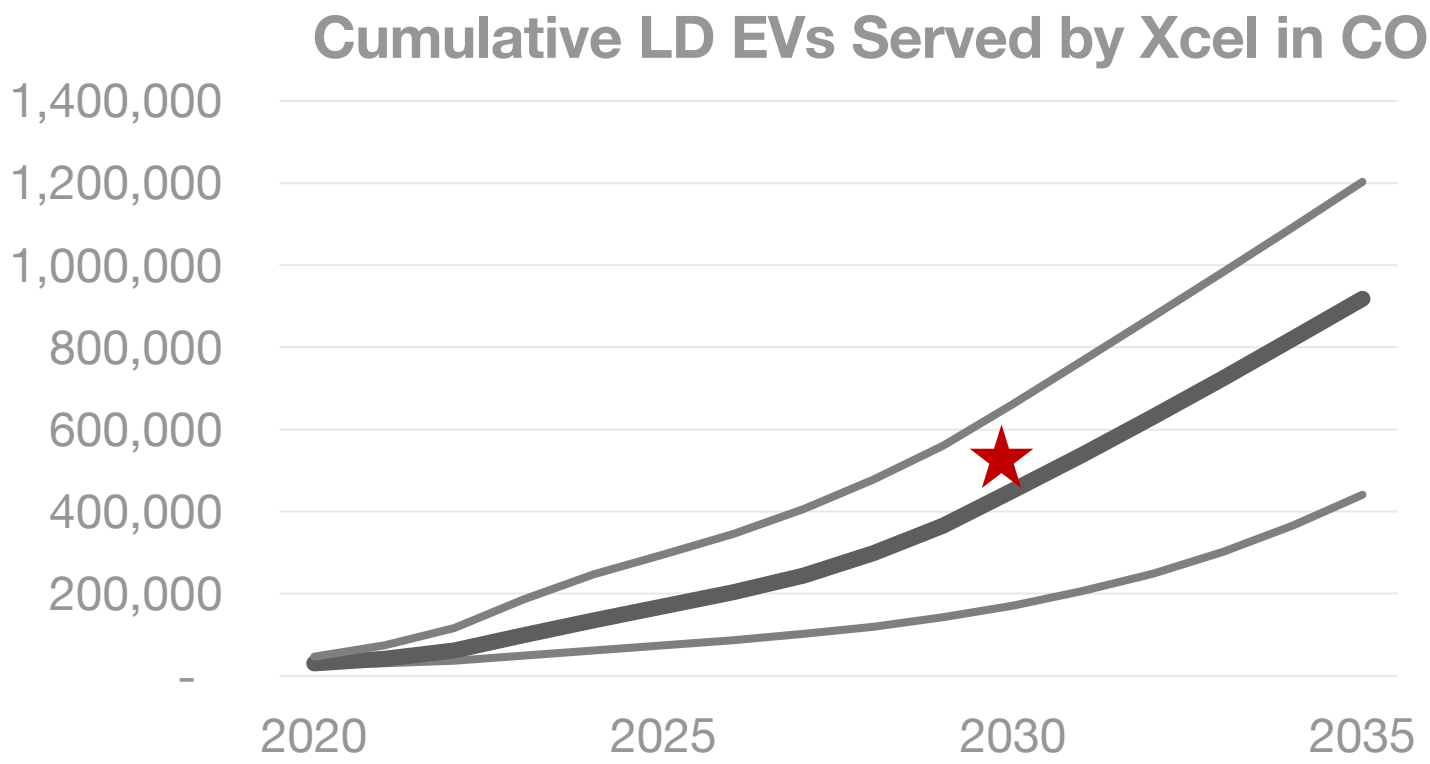
EV Market Projections

★ Xcel share of Governor's 2030 EV goal



Xcel Energy's 2030 EV Vision

Our vision to power 1.5 million EVs across all service areas x 2030

$1 BILLION

In customer fuel savings annually by 2030

$1 OR LESS PER GALLON (EQUIVALENT)

To drive an EV with Xcel Energy's low, off-peak electricity prices

5 MILLION TONS OF CARBON EMISSIONS

Eliminated annually by 2030 with our clean energy

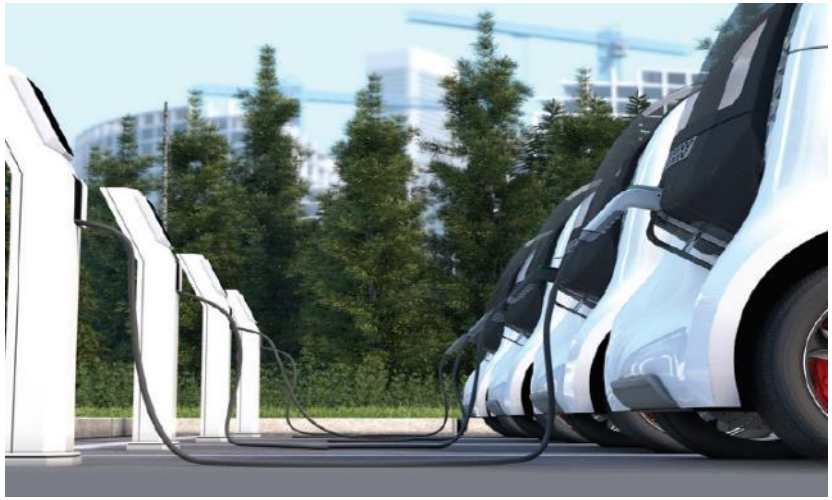
Xcel Energy's EV Programs

Focus on 3 Market Segments:

Home Charging

Charging for Fleet Operators

Public Charging

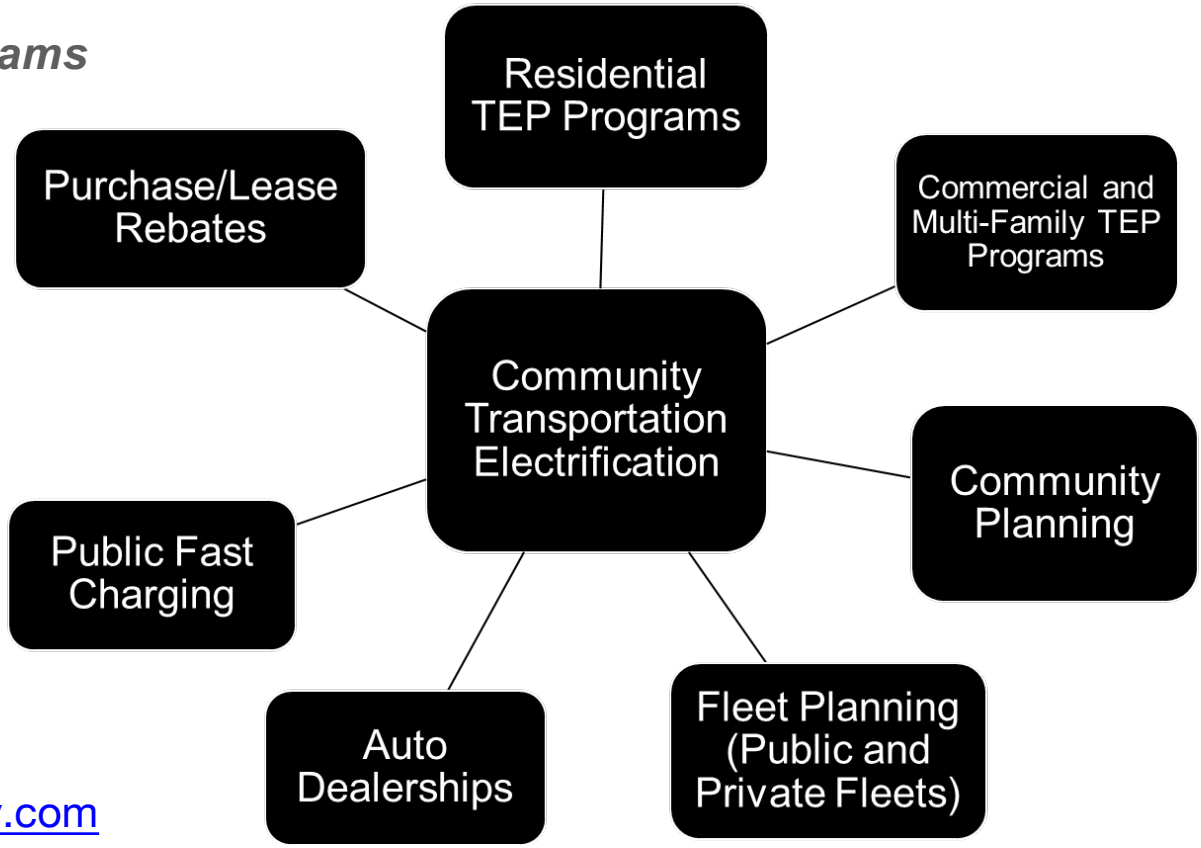


Key Barriers to Address:

- Lack of Awareness and Information
- Initial upfront costs
- Suboptimal incentives to charge when energy costs are lowest

Supporting Communities on Transportation Electrification

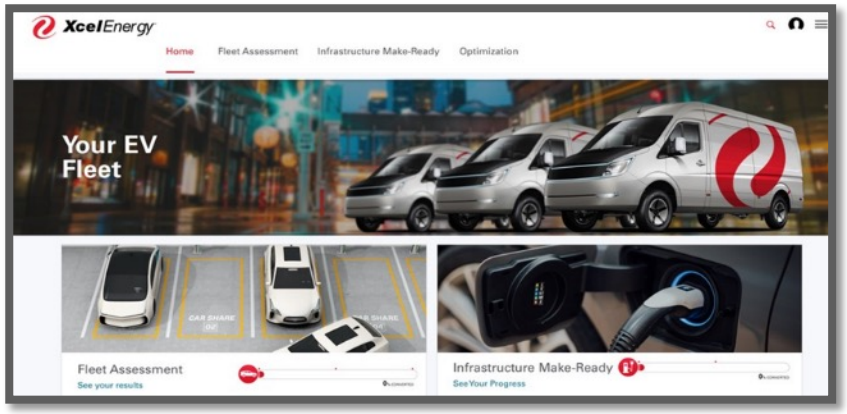
20+ EV Programs



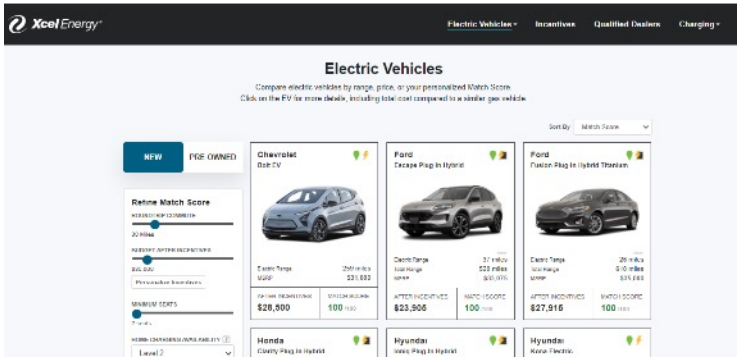
ev.xcelenergy.com

Advisory Services

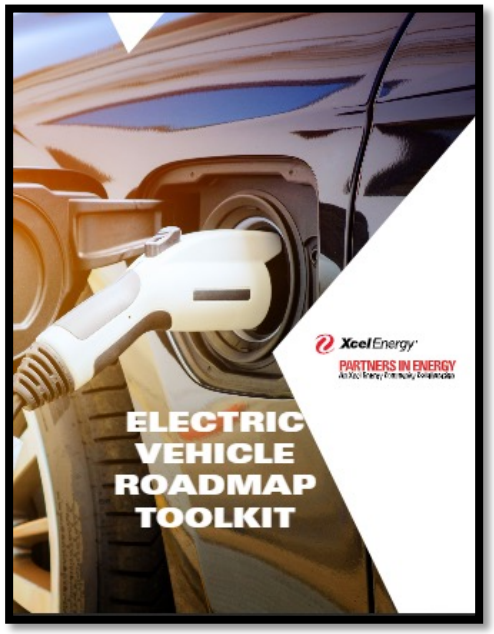
Fleet Planning



Residential / Light Duty



Community Planning



Dealership Network

Enhanced Support for Income-Qualified and Higher Emissions Communities

Multifamily Housing Programs:

Assigned Parking:

Additional rebate of $800 per port

Shared Parking:

Additional rebate of $2,200 per port

Commercial Programs:

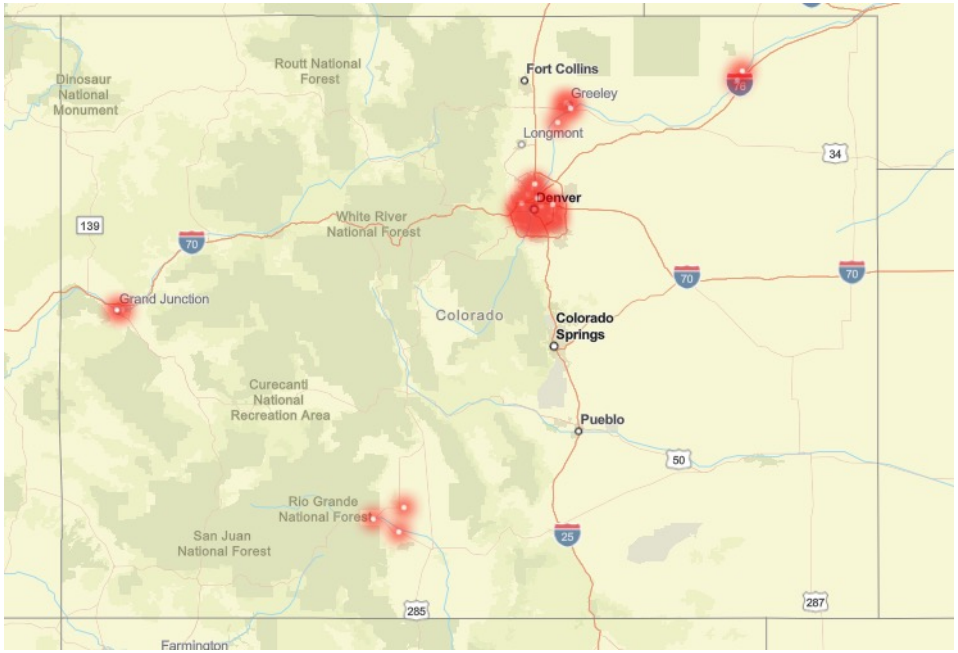
Fleets/Workplaces:

Additional rebate of $2,200 - $45,000 per port

Community Charging Hubs:

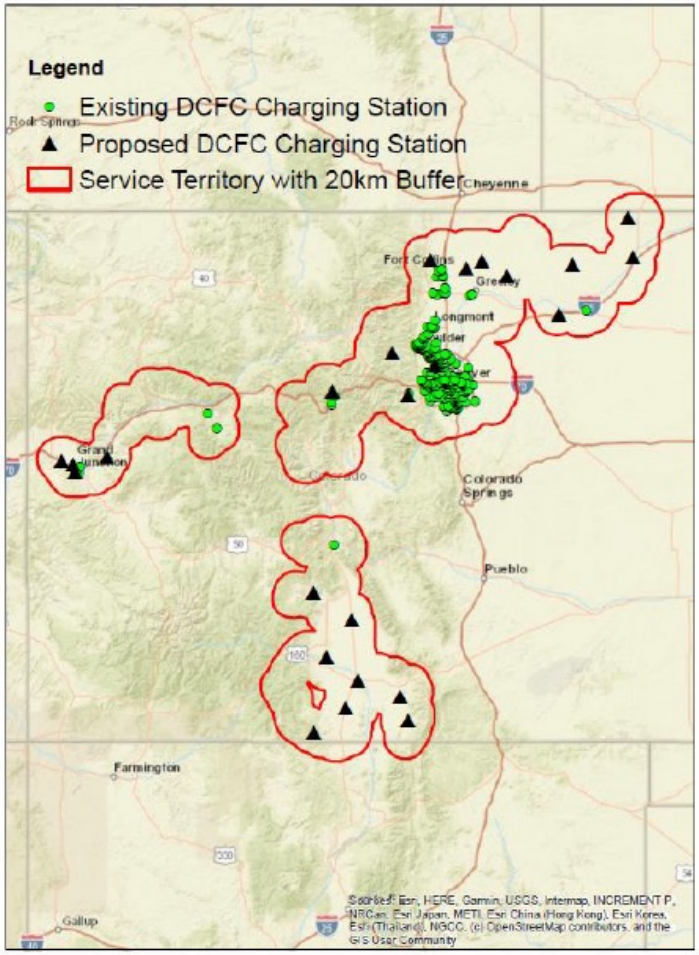
Additional rebate of $15,000 - $40,000

Identified HECs



(Based on CDPHE and EPA Data)

Public Fast Charging



Current:

L2: ~700 ports

DCFC: ~150 ports in service area

2030 need for 450k vehicles:

L2: 9,500 ports

DCFC: 2,200 ports

2030 need for 650k vehicles:

L2: 13,000 ports

DCFC: 3,300 ports

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CDOT EV Update

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CDOT's Electric Vehicle Goals

Policy Directive 14 Environmental Impact Objectives & Targets
Work collaboratively with other state agencies and local partners to **reduce statewide GHG pollution** from the transportation sector by 26% by 2025, 50% by 2030, 90% by 2050 relative to 2005 statewide GHG pollution levels.
Collaborate with other state agencies to **increase electric vehicle registrations** to support a future fleet of at least 940,000 light-duty EVs by 2030.
Work with other state departments, transit agencies, and electric utilities to meet the transit vehicle goals specified in its 2020 Electric Vehicle Plan to **convert the state transit fleet to 100% ZEV** by 2050, with an interim target of at least 1,000 ZEVs by 2030.
Collaborate with other state agencies, local governments, and private companies to **increase the percentage of total state highway miles within a 30-mile travel buffer of DC fast-charging stations** from 40% in FY 2020 to 100% by FY 2030.
Coordinate with other state agencies, the Colorado Scenic & Historic Byways Commission, local governments, and individual site hosts to **increase the number of Colorado Scenic & Historic Byways classified as electrified byways** from 3 in FY 2020 to 26 by the end of FY 2025.

Clean Trucking Strategy

In July 2020, CDOT, CDPHE, and CEO announced plans to develop an all-of-the-above strategy to reduce pollution from medium- and heavy-duty transportation. The draft strategy includes a suite of ideas that will be evaluated comprehensively to determine the most impactful and reasonable actions:

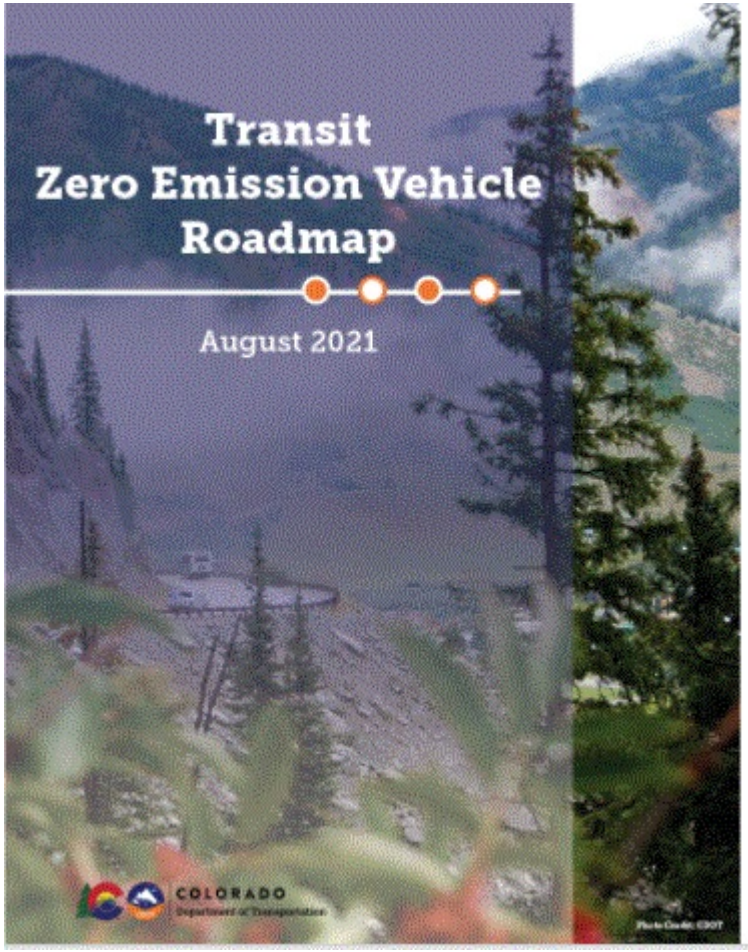
- Accelerating fleet turnover in the conventional truck fleet
- Incorporating clean technology and developing ZEV infrastructure, especially for critical freight corridors
- Encouraging participation in programs like SmartWay
- Exploring adoption of Advanced Clean Truck standard
- Supporting workforce development
- Leading by example through green procurement

Technical analysis by MJ Bradley nearing completion; Public Input meetings to be planned for early fall 2021

Transit ZEV Roadmap

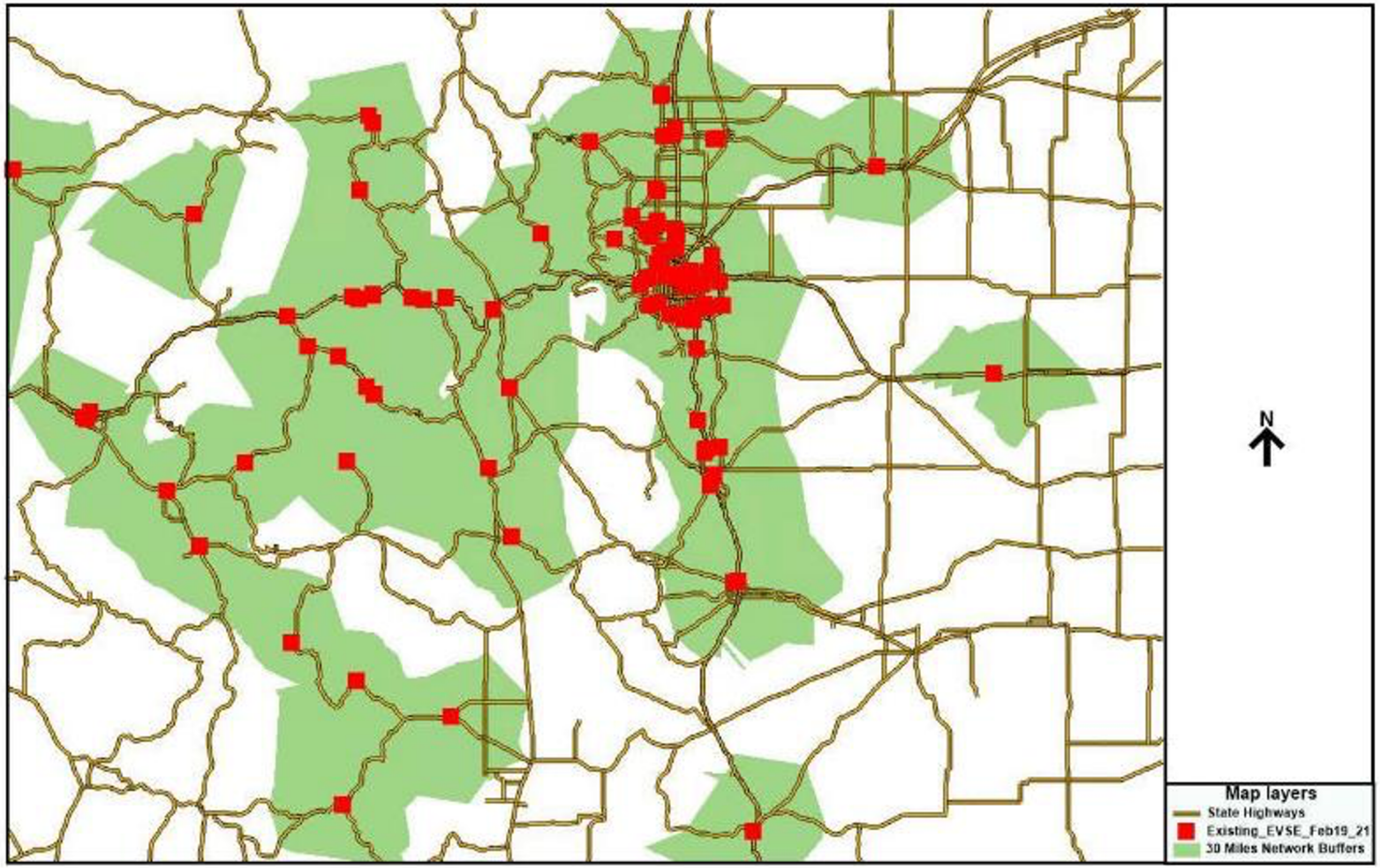
ZEV Transit Roadmap Components

- National Transit ZEV Trends
- Colorado Transit ZEV Environment
- Role of Utilities in Transit Fleet Electrification
- Financial Modeling
- Achieving Colorado's ZEV Transit Goals



EV Fast Charging Access

Colorado Existing EV Fast Charging Stations (117) (with 30 Miles Travel Buffers) *Updated 02/25/2021*



Total State Hwy Miles	30 Miles Network Buffer's Miles	% of State Hwy Miles In Buffers
9,067	4,467	49%

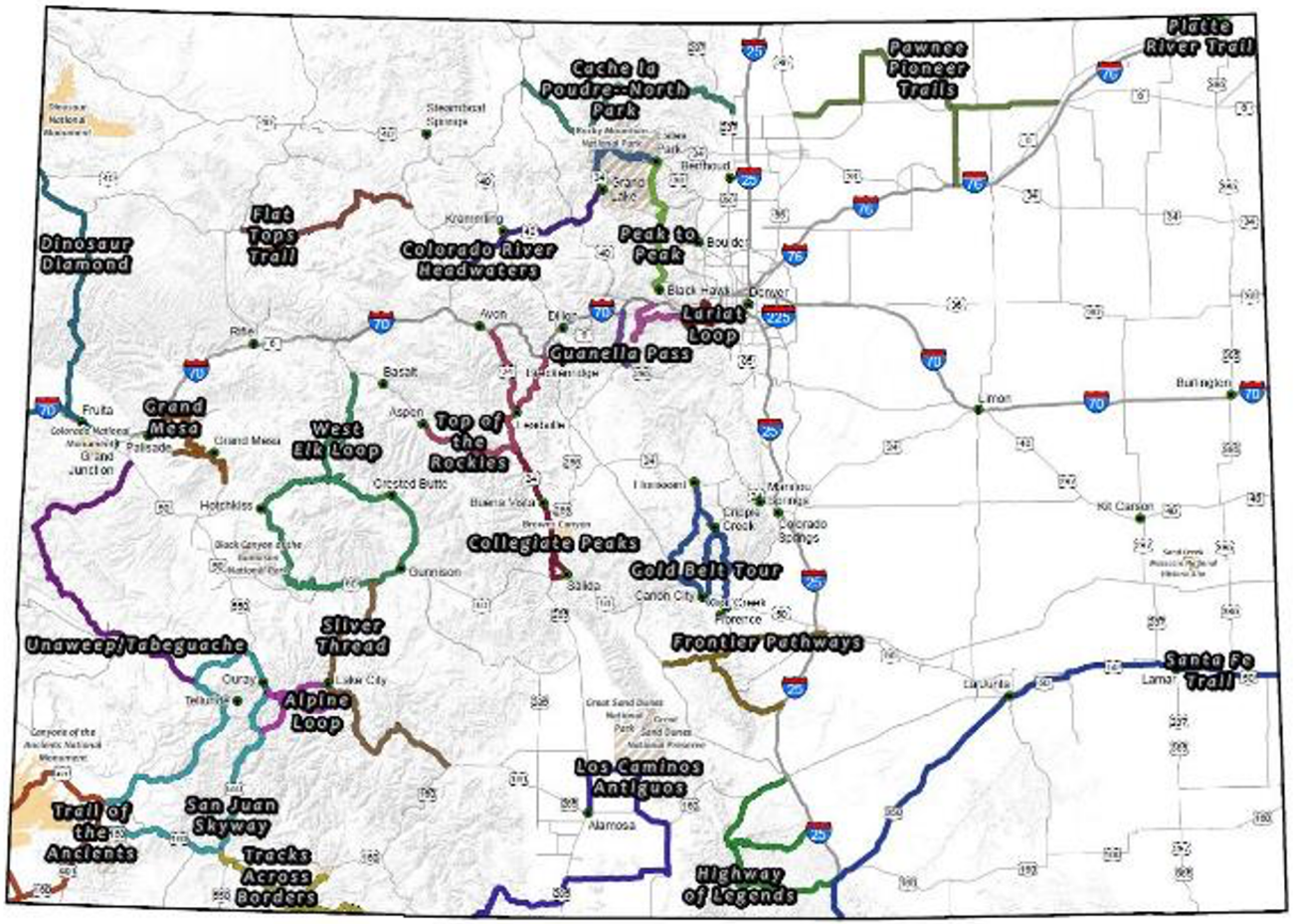
Colorado Scenic Byways

Completed

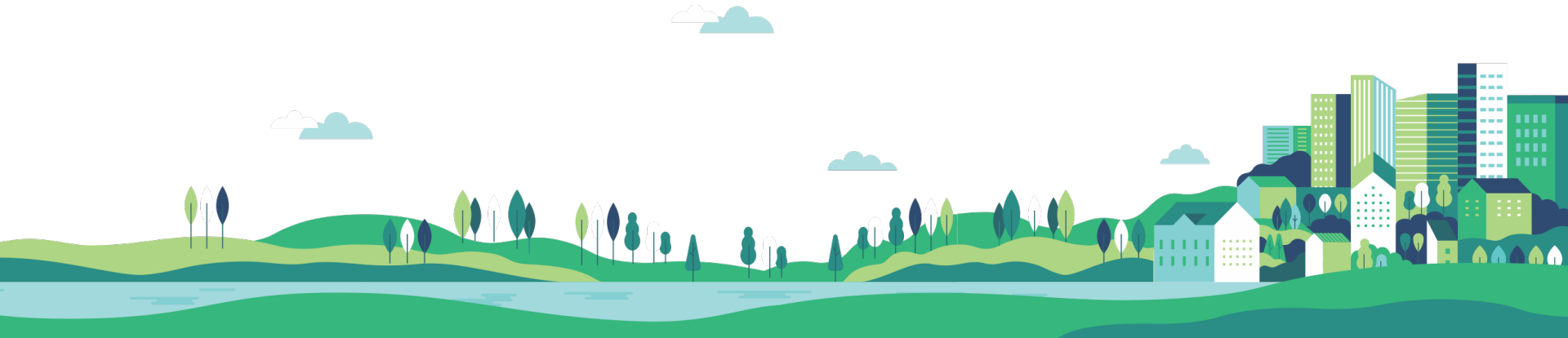
- Lariat Loop
- Grand Mesa
- Silver Thread
- Collegiate Peaks
- Flat Tops Trail
- Trail Ridge Road

In-Progress

- Top of the Rockies
- West Elk Loop
- Colorado River Headwaters
- Trail of the Ancients
- Peak to Peak



Questions?



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