Vermont House Transportation Committee

February 25, 2021

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Transportation and DER Markets

Center for Sustainable Energy™

About CSE

A mission-driven 501(c)(3) nonprofit organization

Offering scalable clean energy program administration and technical advisory services for more than 20 years

Managing ~50 projects and programs

National programs | Statewide incentive projects | Region-specific solutions

Neutral and trusted

Operations funded by delivering service for value under contract

No members or donors to influence positions or actions

Less than 0.1% donor funding

No shareholder pressure for profit or dividends

240+ mission-driven employees

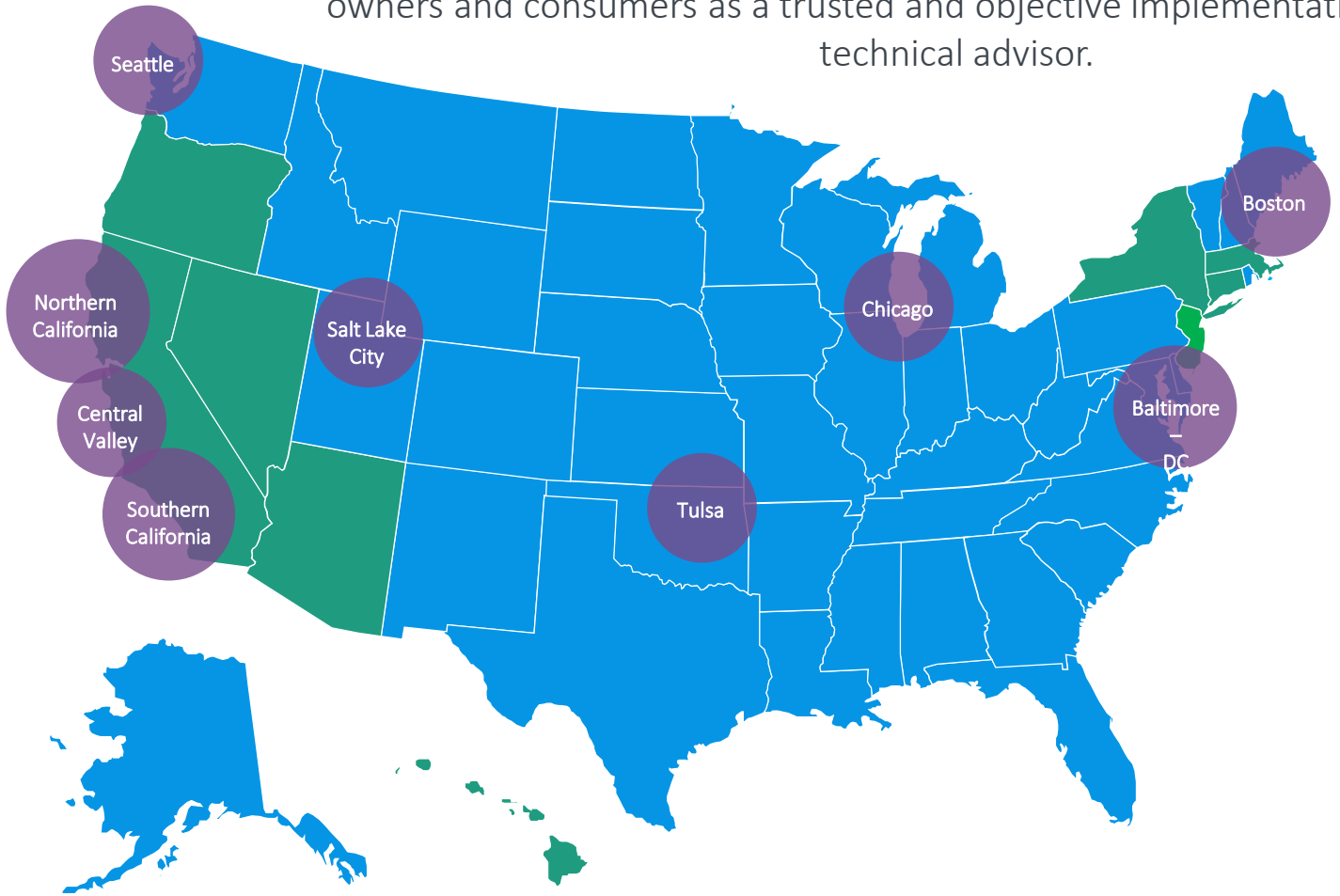
One simple mission —

DECARBONIZE.

Our vision is a future with sustainable, equitable and resilient transportation, buildings and communities.

Our Reach

We work with governments, regulators, utilities, CCAs, businesses, property owners and consumers as a trusted and objective implementation partner and technical advisor.



- Statewide incentive and distributed energy programs
- Region-specific solutions – Partnership with Clean Cities Coalitions

EV and EV Infrastructure Programs

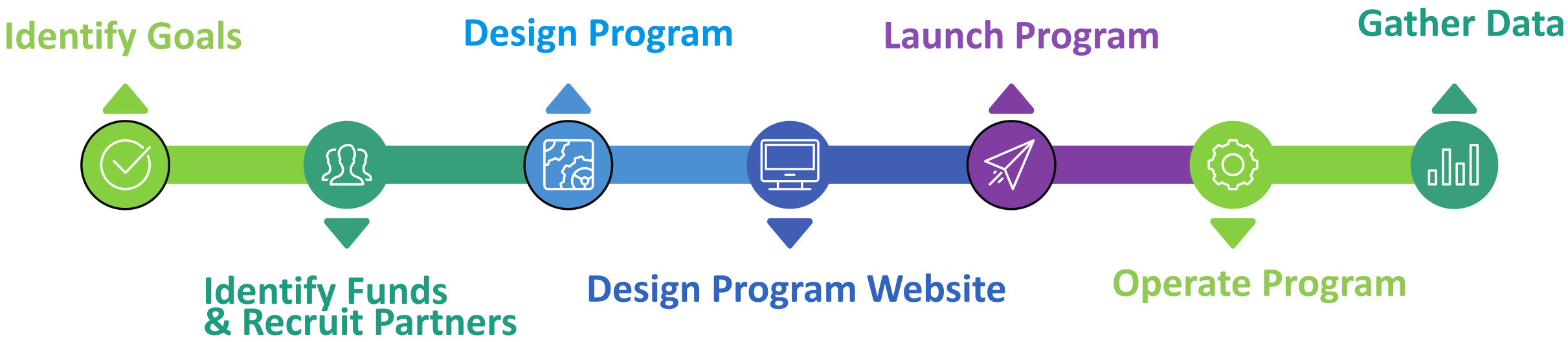
- Statewide EV program administrator in CA, CT, MA, NJ, NY, and OR
  - Home to more than 80 million Americans
  - Supported nearly 500,000 electric vehicle incentives
  - Valued at more than $1 billion
  - Representing approximately 30% of EVs sold in the U.S.

- Statewide EV Infrastructure administrator in CA and NY
  - Incent public DCFC and Level 2 charging at workplaces, public parking lots, and multi-unit dwellings.

How Are Programs Funded?

State	Vehicles	Infrastructure	Amt/Source of Funds	Duration
CA	CVRP		$200 M annually o Cap and Invest (WCI)	no sunset
CA		CALeVIP	$30-50M annually o Vehicle fees	no sunset for program
CT	CHEAPR		$3M annually o Vehicle registration fees	5 years
MA	MOR-EV		$27M annually o Cap and Invest (RGGI)	2 years
NJ	Charge Up NJ		$30M annually o Societal Benefits Charge (SBC) o Cap and Invest (RGGI) o Moneys appropriated by the Legislature o Moneys from other sources determined by BPU o Return on investment of $ deposited in Incentive Fund	10 years
NJ		Charge Up NJ	same as above	10 years
NY	Drive Clean NY		$55 M (not set annually) o Cap and Invest (RGGI)	no sunset
NY		ChargeReady NY	$13M (not set annually) o Cap and Invest (RGGI)	no sunset
OR	OCVRP & ChargeAhead		$12M annually o Auto dealer franchise fee	5 years

EVI Deployment Process

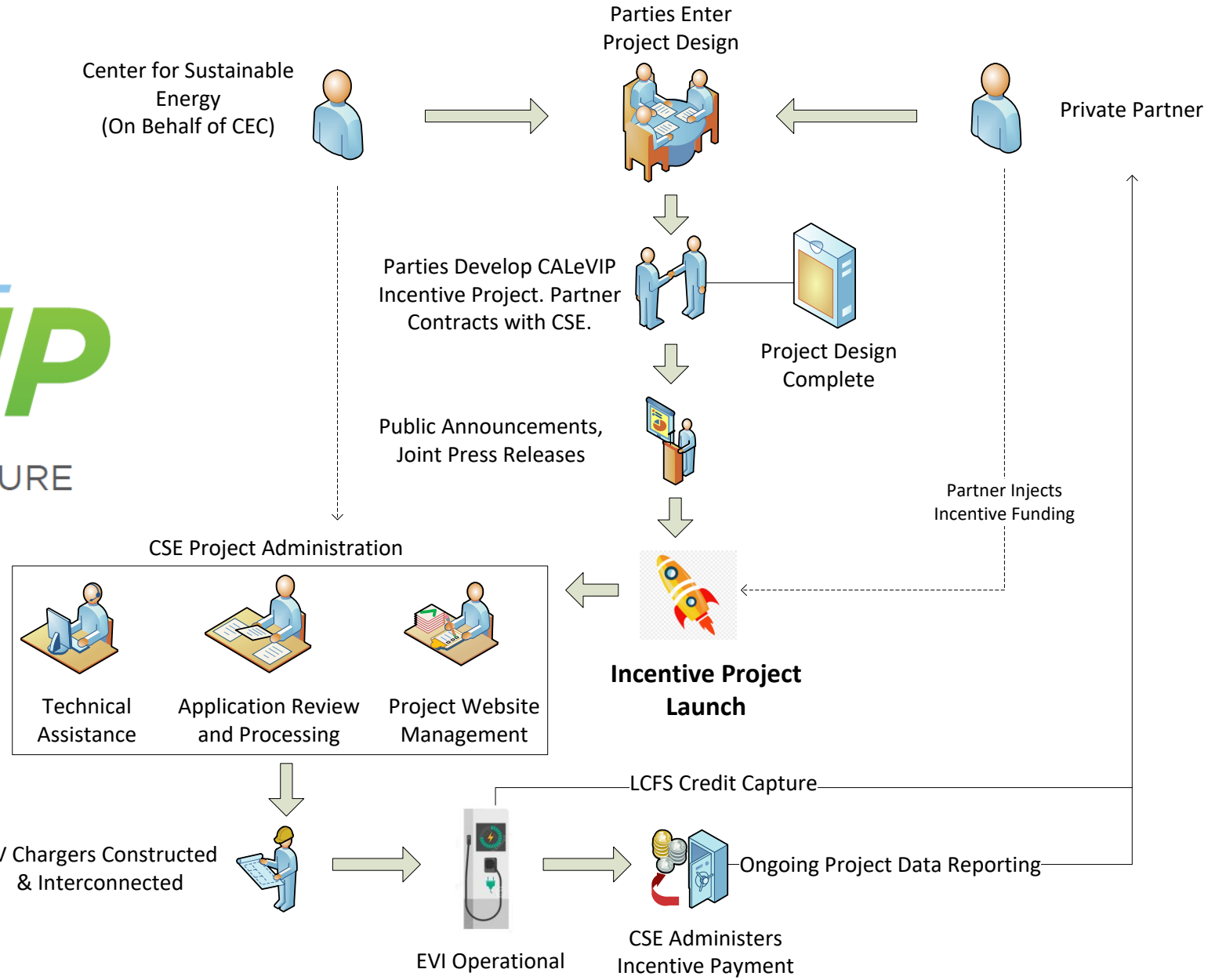


CALeVIP Overview

- Mechanism to provide regionally targeted EV charging infrastructure incentives in California
- Level 2 and DCFC projects
- Streamlined reporting and installation
- Partnering with various POUs, CCAs and state agencies

CAL eVIP

BUILDING EV INFRASTRUCTURE



Center for Sustainable Energy™

Vermont Statutory GHG Goals

- In 2005, Vermont established GHG reduction goals in the law (10. V.S.A. §578) that call for:
  - 50% reduction in emissions from the 1990 level of 8.1 million tons by 2028, and
  - 75% reduction by 2050
  - Transportation = 45% of emissions
  - Light-duty vehicles = 73% of 45% or 33% overall

Powering data-driven policy decisions to transform the EV market

About Caret™

Caret™ is a dynamic platform for designing and optimizing EV incentive programs that empowers decision-makers to make data-driven choices.

It helps policymakers determine which mix of incentives will encourage EV adoption and reduce GHG emissions at the lowest cost and in the shortest time.

With Caret™ you can:

- Take EV incentive ideas for a virtual test drive
- See in real time the costs and impacts of various decisions
- Continuously optimize incentives to meet your goals

Caret™ supports clear vision and cost-effective action

1. Choose

Pick the dollar amounts and duration of any mix of incentives or regulatory interventions.

- New EVs
- Used EVs
- Internal combustion engine vehicle (ICEV) scrap and replace
- Original equipment manufacturer (OEM)
- Car dealer
- Made in America
- EV charging infrastructure
- ZEV and CAFE standards

2. Explore

Compare how your choices affect program costs and progress toward your goals.

- Program cost annually and over time
- Total EV market share and penetration annually and over time
- Number/type of EV chargers required and funded annually and total
- GHG reduction annually, total, and marginal abated cost

3. Advance

Ensure low-income communities share equitably in the benefits of the EV transition.

- Affordability calculator identifies affordable makes/models based on household income
- Visibility ensures incentives increase the choice of affordable EV models

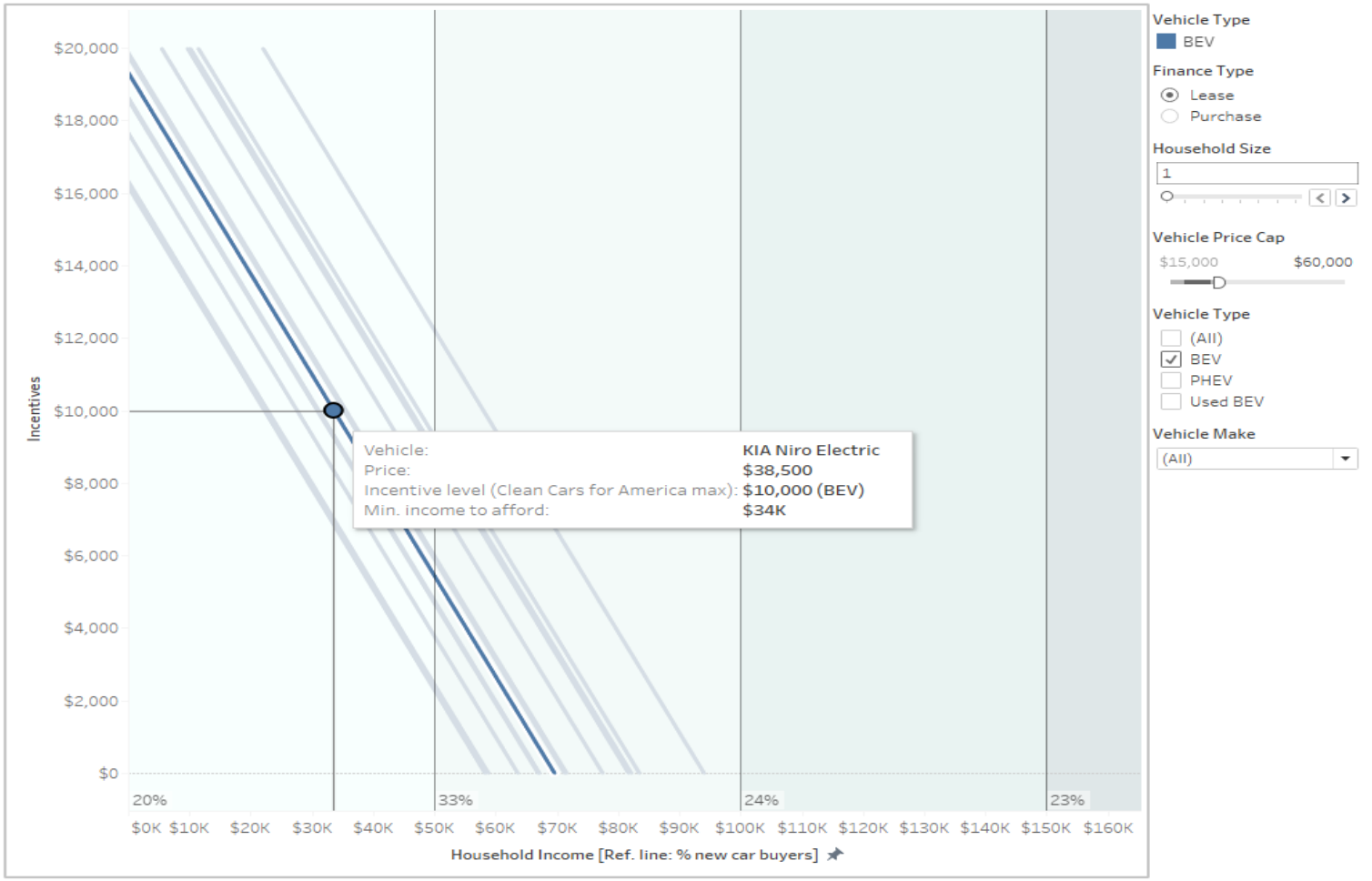
4. Optimize

Fine-tune programs based on new market data to avoid set-it-and-forget-it syndrome.

- Learning algorithm recalculates incentive amounts needed to reach goals
- Active, data-driven program management maximizes EV adoption at the lowest cost and in the shortest time

EV Affordability Calculator

- CSE leverages proprietary modeling and tools to inform strategic program design.
- The EV Affordability Tool allows policy makers to see which EV's are made affordable by their program design.



Caret™ builds insights

Deep Data

The platform pulls from relevant data sets around the world and leverages CSE's deep domain experience administering over $1 billion in EV incentive programs in six states.

An Affordability Calculator

Decision-makers can view available makes and models of new, used, purchased, and leased EVs that are affordable at different income levels to inform efforts to ensure disadvantaged communities share equitably in the EV transition

A Learning Algorithm

Caret™ automatically adjusts incentive amounts required to meet program goals as projections are replaced by market data. This avoids the "set it, forget it, and study it later" approach to program design.

A Proprietary Mathematical Framework

This sophisticated framework is grounded in sociotechnical transition theory and the science of diffusion of innovations. This framework allows Caret™ to account for social barriers that EV buyers face beyond price.

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Vehicle Charging Innovations for Multi-Unit Dwelling (VCI-MUD) Webinar

Feb 25th 10:30AM to 11:30AM PST

Multi-unit dwellings (MUD) are essential for meeting our plug-in electric vehicle (PEV) goals but can be the trickiest place to install charging.

The project addresses barriers to MUD charging through the demonstration of innovative charging technologies and the development of new tools and resources.

The **Vehicle Charging Innovations for Multi-Unit Dwelling (VCI-MUD)** project began in 2019 with funding from the U.S. Department of Energy's Vehicle Technologies Office.

The Columbia-Willamette Clean Cities, The Center for Sustainable Energy, Clean Cities Coalition and others are partners on this project.