




Electric Vehicle Charging and Energy Management at Multi-Unit Buildings

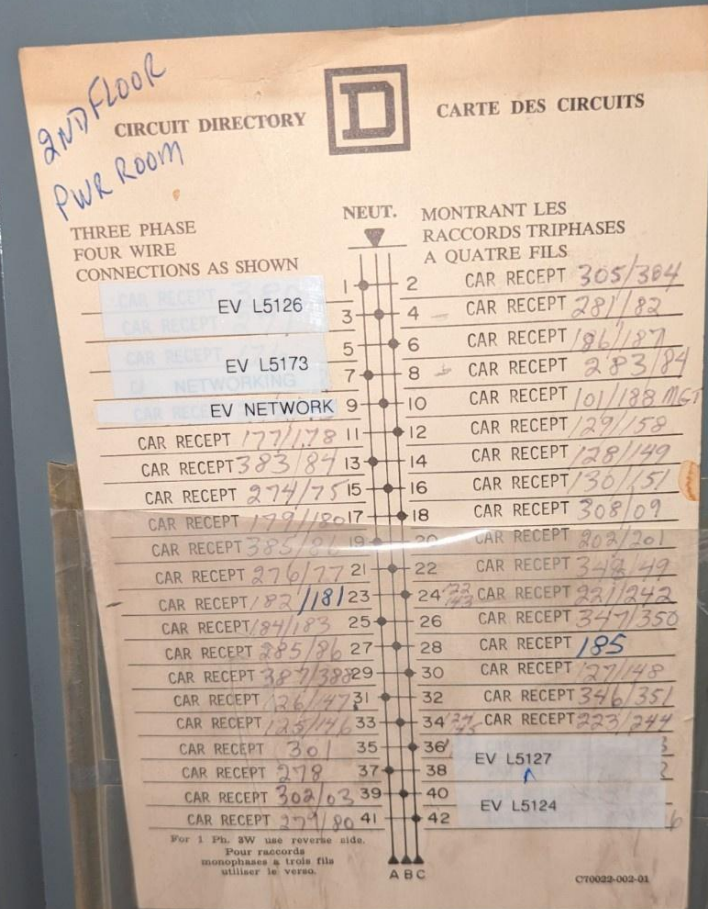
New Mexico Legislature STTC • November 1, 2024



Multifamily properties often face **unique challenges** with EV charging deployment

What are some of the challenges?

- Higher installation costs
- Electrical capacity constraints
- Grid constraints
- Multiple layers of decision-making authority
- Technical complexity
- Business model uncertainty
- Who pays





67%



27%

43 Million Households



568,000

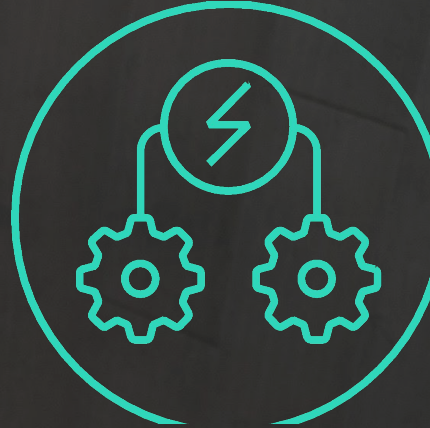
Level 2 charging ports needed for multifamily properties by 2030.

- National Renewable Energy Laboratory, [*The 2030 National Charging Network*](#)



3%

Incremental infrastructure and financial grid investments



30%

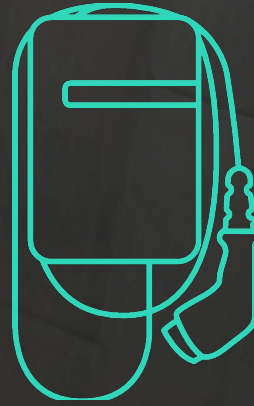
Reduction in utility investments with basic managed charging

- U.S. Department of Energy, [Multi-State Transportation Electrification Impact Study](#)



18

States have adopted Advanced Clean Cars I or II regulations



82%

New cars sold in New Mexico will be ZEVs by 2032

SWTCH is the leader in EV charging for multi-tenant buildings

SWTCH simplifies EV charging operations for building owners, enabling them to comply with regulations, retain tenants and increase net operating income.



Design, installation, operations & maintenance of EV charging stations



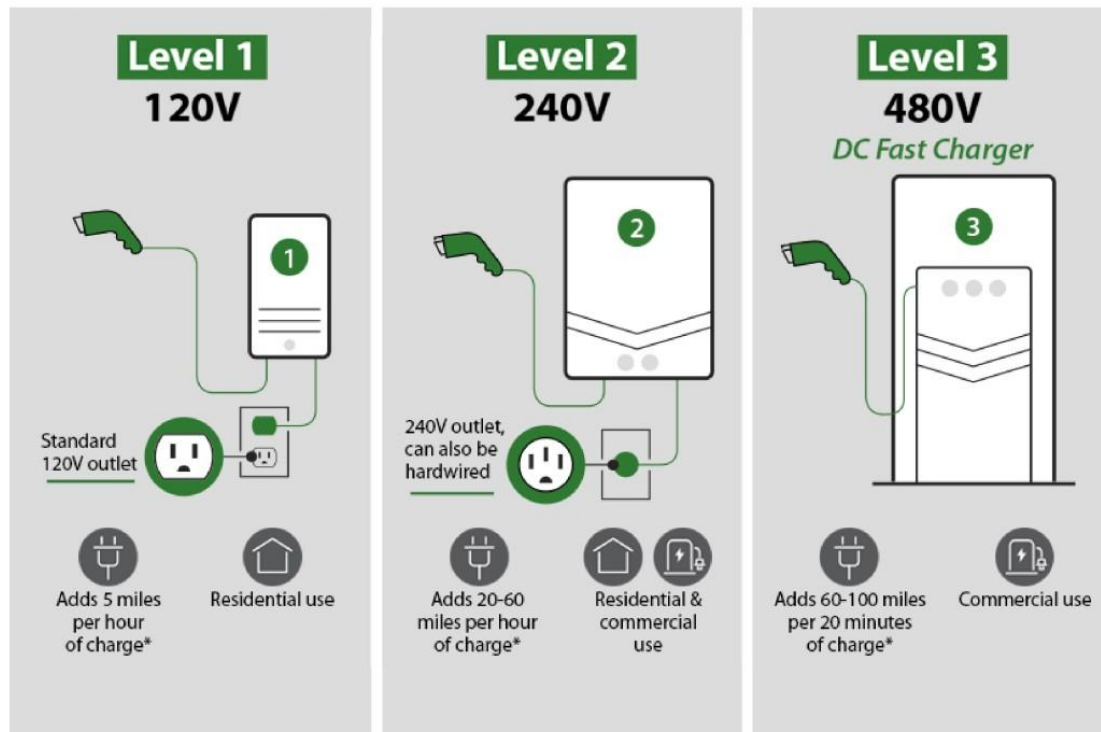
Software suite solving key challenges of shared charging and electrical infrastructure



Dozens of building technology partner integrations



There are 3 power “levels” of EV chargers



SWTCH works with many EV charger manufacturers

LEVEL 2

ZEROVA



LITEON



EVBOX



wallbox



LG



DC FAST

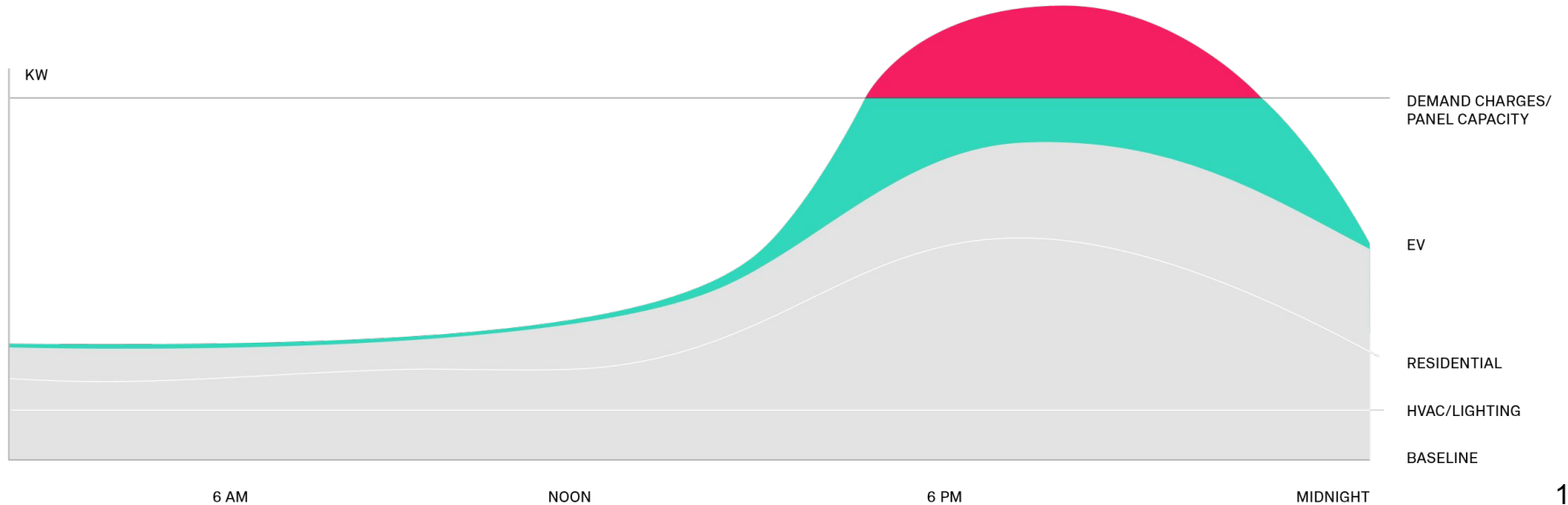
ABB



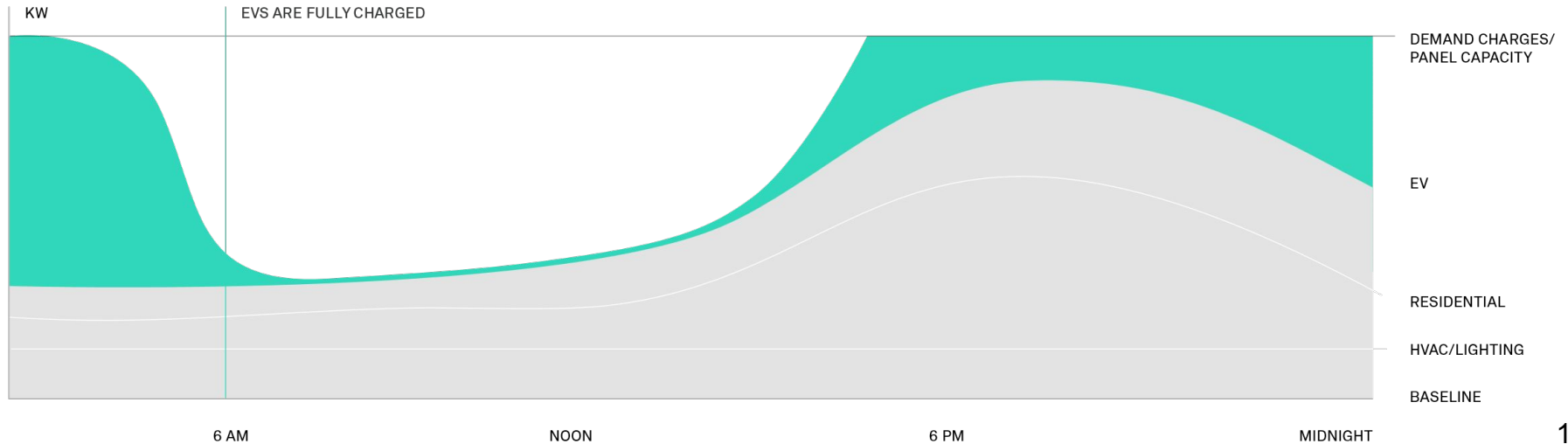
ZEROVA




EV Charging Scenario: Unmanaged Charging



EV Charging Scenario: Managed Charging





Three New Mexico milestones that enable and scale Multi-Unit EV Charging

- **EV-ready building codes** reduce charger install costs, support widespread and equitable EV adoption, and incentivize charging management
- **Incentives** reduce the cost of charging and achieve policy goals for equitable access
- **Clean Transportation Fuel Standards** sustainably finance transportation decarbonization

EV-ready parking requirements can include different degrees of EV readiness



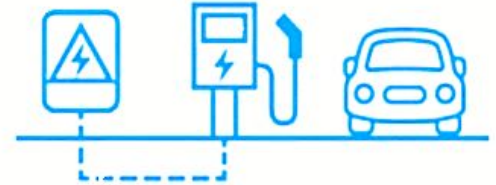
EV Capable Spaces

- Sufficient panel capacity installed and available to support future charging.
- Dedicated circuit and raceway from panel to parking stalls.



EV Ready Spaces

- EVSE-Capable, plus:
- Wiring installed from panel to parking stall, terminating in a 240V outlet or junction box.



EVSE Spaces

- EVSE-Ready, plus:
- Level 2 charger installed.

New Mexico adopts money-saving building codes

New codes will increase accessibility to electric vehicles for New Mexicans living in multi-unit housing



NMRLD

NEW MEXICO
REGULATION &
LICENSING DEPARTMENT

Construction Industries
Commission voted to adopt EV
ready codes in January, 2024.

(b) Table C405.13.1 Required EV Power Transfer Infrastructure. Add this table to the IECC.
TABLE C405.13.1 REQUIRED EV POWER TRANSFER INFRASTRUCTURE

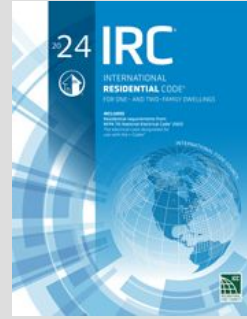
Occupancy	EVSE Spaces	*EV Capable Spaces
Group A	5%	10%
Group B	5%	5%
Group E	5%	5%
Group F	2%	5%
Group H	1%	0%
Group I	5%	10%
Group M	5%	10%
Group R-1	5%	15%
Group R-2	5%	15%
Group R-3 and R-4	2%	5%
Group S exclusive of Parking Garages	1%	0%
Group S-2 Parking Garages	5%	10%

*EV Capable Spaces are in addition to the required EVSE Spaces.

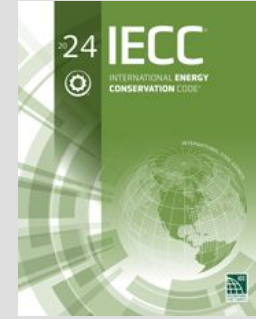
The ICC publishes model building and construction codes



- **International Building Code (IBC)** applies to all buildings except one- and two-family homes and smaller townhomes.



- **International Residential Code (IRC)** applies to all one- and two-family homes and smaller townhomes.



- **International Energy Conservation Code (IECC)** includes energy efficiency provisions.
- Appendix CG includes EV-ready infrastructure standards.

EV-ready building codes can incentivize energy management systems (EMS)

IECC 2021, 2024 System and Circuit Capacity and Management:

Without EMS:

- Min. capacity 7.2 kVA and 50 amps per space

With EMS:

- Min. capacity 3.3 kVA and 25 amps per space

TABLE CG101.2.1 REQUIRED EV POWER TRANSFER INFRASTRUCTURE

OCCUPANCY	EVSE SPACES	EV READY SPACES	EV CAPABLE SPACES
Group A	10%	0%	10%
Group B	15%	0%	30%
Group E	15%	0%	30%
Group F	2%	0%	5%
Group H	1%	0%	0%
Group I	15%	0%	30%
Group M	15%	0%	30%
Group R-1	20%	5%	75%
Group R-2	20%	5%	75%
Groups R-3 and R-4	2%	0%	5%
Group S exclusive of parking garages	1%	0%	0%
Group S-2 parking garages	15%	0%	30%

Federal Incentives

- Bipartisan Infrastructure Law (2021) established two charging infrastructure-focused incentives:
 - National EV Infrastructure (NEVI) Formula Program (\$5B)
 - Charging and Fueling Infrastructure (CFI) Grant Program (\$2.5B)
 - NEVI and CFI require public access.
- Inflation Reduction Act (2022) modified §30C tax credit for charging infrastructure



New Mexico government agencies have recently received four major federal grant awards

- **New Mexico Department of Transportation**

- \$38.3 million in NEVI funding to expand highway and corridor light-duty EV fast charging.
- \$63.8 million to build two EV charging centers for medium and heavy-duty commercial EVs traveling along Interstate 10.

- **County of Santa Fe**

- \$3.3 million to build an EV charging network of 33 fast chargers and Level 2 charging stations at 13 sites encompassing underserved communities, multi-family affordable housing and county transportation hubs.

- **Town of Taos**

- \$500,000 to install the first six publicly available fast EV chargers in the parking lots of three community buildings.

With load management technologies like SWITCH Control - depending on factors like power draw, charging speed, and panel capacity - properties can install up to 3-4x more chargers.

State and utility incentives can fill in gaps remaining after federal incentives

- **EMNRD:** Charging Unit Tax Credit
 - For direct current fast chargers, \$25,000 or the cost to purchase and install the fast charger, whichever is less.
 - For level 2 chargers, \$400 or the cost to purchase and install the fast charger, whichever is less.
- **PNM:** Multifamily EV charger rebate program
 - Up to \$5k per charger port (5+ units)
 - Up to to \$10k per charger port (income-qualified)
- **El Paso Electric:** Make-ready infrastructure
 - 50% (improvement to distribution system), 70% (underserved communities), or up to 100% (multi-unit dwellings)



Between 2009-2019, U.S. electric utilities spent \$3 billion on electric transportation - more than state and local governments combined!

Clean transportation fuel standards can help sustainably finance EV charging at multifamily buildings

- **HB 41 is a major milestone in New Mexico's decarbonization efforts in the transportation sector, while bringing jobs and investment to the state.**
 - Clean fuel standards [will bring](#) at least 1,600 full-time jobs and nearly 2,300 construction jobs, generating \$470 million in wages, and attracting \$240 million capital investment in production and manufacturing in New Mexico.
- **Clean Transportation Fuel Standard rulemaking has an opportunity to model the state's program on other successful low carbon fuel standard markets.**
 - Canadian Clean Fuel Regulation maintains price stability over multiple years. Washington and Oregon have limited restrictions on non-residential EV charger credits.
- **CTFS credits are valuable to finance EV charging at multi-unit dwellings.**
 - EV charging networks can sell credits and reinvest in building out more chargers in underserved sectors like multifamily buildings.

The background of the slide features the Seal of the State of New Mexico, which is a circular emblem with a central figure of an eagle with its wings spread, perched on a cactus. The words "THE STATE OF NEW MEXICO" are inscribed around the perimeter of the seal. The seal is set against a background of a tiled floor with a grid pattern.

Two recommendations for expanding EV Charging in NM

- **Right to charge laws** democratize access to charging and the benefits that accrue from driving electric
- **Utility-led solutions** to enable and support more cost-effective charging and manage grid impacts

Right to charge laws increase EV charging access

The Problem

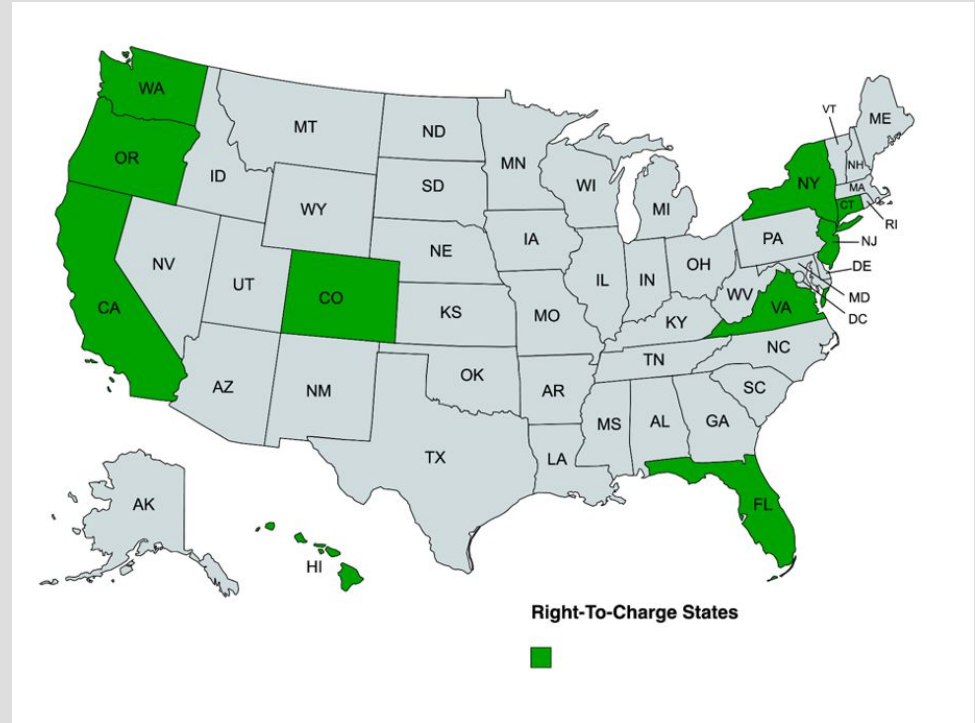
- Homeowners in apartments, condominiums, and even single-family houses in developments are sometimes restricted by homeowners associations (HOAs) from installing EV chargers.
- Renters can have an even harder time accessing charging stations, since many leases and rental agreements prohibit material changes to property such as installing a charging station.

The Policy

- Several states and jurisdictions have enacted “right to charge” policies designed to provide EV users without private parking access to affordable charging.
- These policies can reduce barriers to installing charging infrastructure in parking garages and/or parking lots, especially for multifamily units.

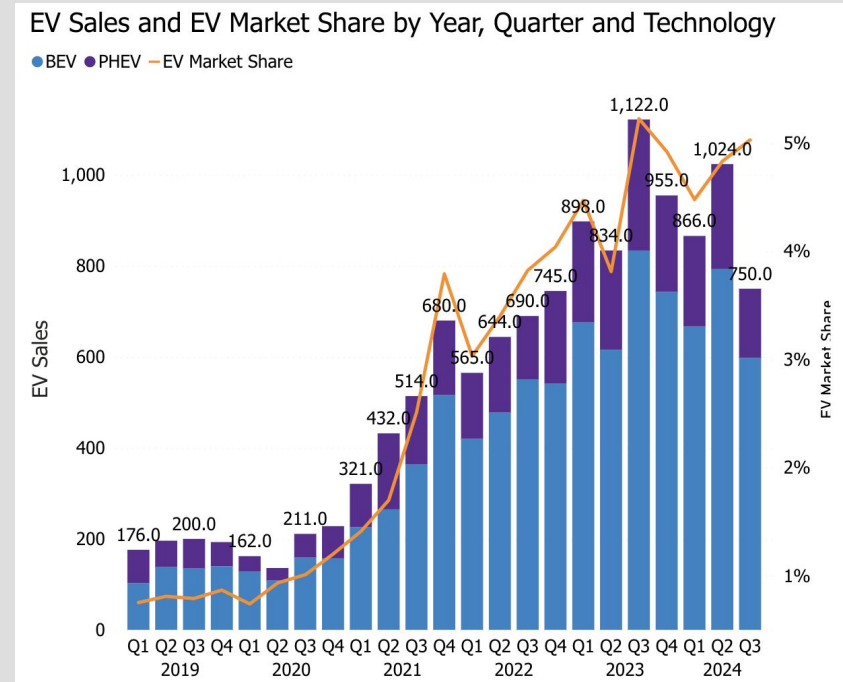
Right to charge (RTC) policies vary by state or municipality

- 9 states have passed RTC policies that vary in consumer protections
 - Some state RTC policies only focus on unit owners, whereas others extend protections to owners and renters (CA, CO)
- Other policy variations
 - Contractor requirements
 - Safety and architectural standards
 - Compliance and enforcement



New Mexico's Grid Modernization Roadmap (HB 233) highlighted distribution grid needs of the future

- The Grid Modernization Roadmap recommended comprehensive grid planning, focused on distributed load forecasting, Hosting Capacity Analysis, and Non-Wires Solutions.
- Transportation electrification can put downward pressure on rates if properly managed.
- Residential and commercial fleet electric owner charging behavior can be managed, in part, through incentives and rate design.



Utilities can tailor innovative approaches to address multifamily challenges

- **Demand charge mitigation**
 - Challenge: Shared apartment building chargers are considered non-residential and are subject to demand charges.
 - Innovative Approach: Pepco Washington D.C “MDU-PIV” EV charging tariff eliminates demand charges for shared EVSE.
- **Commercial charging as a grid asset**
 - Challenge: Off-peak charging by commercial customers (public, workplace, multifamily, industrial, and fleet) increases grid stress.
 - Innovative Approach: Enable load management technology capable of balancing, curtailing, or deferring EV charging demand on the electric grid.
- **Leveraging publicly-owned infrastructure**
 - Challenge: “Garage orphans”
 - Innovative Approach: Cities of Portland and Milwaukee, Oregon partnered with Portland General Electric to install chargers on utility poles.



2025 New Mexico Distribution System Modernization Act addresses Roadmap challenges

- **Strengthen New Mexico’s electric distribution system to meet the clean energy needs of the future.**
 - Challenge: NM utilities need support planning for a future where we electrify transportation and buildings.
 - Innovative Approach: Electric utilities file distribution system plans (DSPs) that forecast electrification growth, allow utilities to take a non-regrets approach to grid upgrades, center equity and transparency in grid planning process.
- **Managed charging can be one of many budget-friendly strategies to distribution grid build-out.**
 - Challenge: Building distribution grid infrastructure under the “business as usual” utility model is no longer financially prudent.
 - Innovative Approach: Flexible interconnection, automated load management, load flexibility programs, and non-wires alternatives to defer or avoid costly infrastructure upgrades.
- **Ensure electric utilities can energize infrastructure in a timely manner.**
 - Challenge: Infrastructure projects are prolonged without targets and standards.
 - Innovative Approach: Pre-order necessary equipment, set average and maximum energization targets, streamline permitting and zoning processes.

Closing Thoughts

Stakeholder engagement and policy alignment are both key to achieving effective and supported programs.

The New Mexico Legislature and this Committee has a major opportunity to shape the electric grid and transportation of the future.



Thank
You

swtchenergy.com/US-Policy-Roadmap

CONTACT



Ben Brint

Western U.S. Policy Manager

+1 415-535-8444

ben.brint@swtchenergy.com

SWTCHENERGY.COM

National EV Infrastructure (NEVI) Formula Program

Summary: the NEVI Formula Program is intended to build out a nationwide network of public fast-charging along major corridors. It provides \$4.155 billion in direct pass-through funding to the 50 states, D.C. and Puerto Rico to deploy in accordance with federal guidelines and minimum standards.

Budget: \$4.155 billion over five years (FY22-FY26), ranging from lows of \$13.7 million for Puerto Rico and \$16.7 million for D.C., to \$384 million for California and \$408 million for Texas

Eligible applicants: Varies according to each state, but most states allow private, for-profit entities to apply for funds

Funding: Varies with each state, but federal guidelines allow states to use NEVI funding to cover up to 80% of purchase, installation, and up to five years' networking and operation

- Some states offer tiered funding to incentivize deployment in underserved locations

Power level: Each installation must have a minimum of four DC fast chargers capable of simultaneously deliver 150-kW each

Accessibility: All NEVI-funded chargers must meet NEVI minimum standards for driver access and be open to any EV without network membership

Charging and Fueling Infrastructure (CFI) Grant Program

Summary: the CFI Grant Program is intended to complement and fill in public charging gaps not filled by NEVI. Unlike NEVI, which apportions formula funding to the states to deploy, the CFI Program is a competitive grant program directly administered by the U.S. Department of Transportation.

Budget: \$2.5 billion over five years (FY22-FY26). The annual budget increases by \$100 million each year, from \$300 million in FY22 to \$700 million in FY26.

- FY24 application period is expected to open in Q4 of 2023 or Q1 of 2024

Programs: Funding is split equally into two programs: a Community Program intended to expand access within communities, and a Corridor Program intended to fill in gaps along major corridors

Eligible applicants: States, local governments, metropolitan planning organizations (MPOs), tribal authorities, transportation authorities, and consortia of eligible entities

- Community Program: the eligible entity may partner with a private-sector co-applicants
- Corridor Program: the eligible entity must partner with a private sector co-applicant

Funding: Up to 80% federal funding, with minimum 20% local match

- Community Program: Minimum grant size \$500,000; maximum grant size \$15 million
- Corridor Program: Minimum grant size \$1 million; no maximum

Accessibility: All NEVI-funded chargers must meet NEVI minimum standards for driver access and be open to any EV without network membership.