Auto Dealerships, Climate Change & Electric Vehicles in the U.S.

Zero emissions vehicles (ZEVs) are transforming the auto retail industry. An increase in the demand for ZEVs means a change in the traditional auto dealership model. This guide aims to equip auto dealers with an understanding of how the EV transition will impact your business and the opportunities that can be leveraged to increase exposure in the electric vehicle market.

Government Action

Federal and regional measures are driving EV adoption. Find more details below on how the government is changing the transportation industry and the rebates your customers can access when buying or leasing an EV from your dealership.

Policy Signals – The United States	
Federal	
President Biden's EV Target	50% of new vehicle sales to be zero emissions by 2030.
Fuel Economy Standards	In April 2022, it was announced that new vehicles sold in the U.S. must average a minimum of 40 miles per gallon of gasoline in 2026 (up from 28mpg), the highest to date. The intention is to raise new vehicle prices as an incentive to switch to ZEVs.
National Electric Vehicle Infrastructure (NEVI)	Nearly $5 billion over five years has been allocated to building out a national electric vehicle charging network. States must submit an EV Infrastructure Deployment Plan before they can access these funds. All 50 states, DC, and Puerto Rico have submitted a NEVI plan.
Inflation Reduction Act (IRA)	Announced in August 2022, the IRA aims to invest $369 billion over 10 years into energy and climate programs. This includes $2B toward grants for domestic manufacturing of battery-electric, plug-in hybrid, and hydrogen fuel cell EVs and components, $1B for clean heavy-duty vehicles, and an EV tax credit.
Major State-Level Mandates and Regulations	
California	Mandate: 100% of new passenger cars and trucks sold in-state must be zero emission by 2035 Regulation: California's Zero Emission Vehicles Program (CZEVP) [see below].
California's Zero Emissions Vehicle Program (16 States)	Regulation: California's Zero Emission Vehicles Program (CZEVP) requires auto manufacturers to sell specific numbers of ZEVs. Manufacturers are subject to increasingly stringent ZEV % credit requirements. The regulation has been adopted by other states i.e., Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont, and Washington. Newly adopted states include Colorado (2023), Minnesota (2025), Nevada (2025), New Mexico (2026) and Virginia (2025).
Colorado	EV Plan with a goal of 940,000 EVs in the state by 2030 + California's CZEVP.

New York & Massachusetts	Mandate: 100% of new passenger car sales to be zero emissions by 2035.
Washington	Mandate: 100% of new passenger car sales to be zero emissions by 2030.
Other State-Level Policies	Detailed map of state-level EV-related policies (Centre for Climate and Energy Solutions).

Demand and Supply Incentives

The term "ZEV" is very specific to vehicles that do not emit exhaust or other pollutants from their power source i.e., a fully electric vehicle. Rebates for ZEVs therefore do not apply to hybrid electric vehicles (HEV) or plug-in hybrid electric vehicles (PHEVs).

U.S. Demand Incentives	
State-Level*	Forty-five states provide an incentive for EVs, either through state legislation or through specific private utility owners. To see what is available in your region, check the National Conference of State Legislatures' Interactive Map or the U.S. Department of Energy's EV State Incentives Map.
Inflation Reduction Act (IRA)	There is a $7,500 EV tax credit and a 30% tax credit for used EVs ($4,000 cap), as well as $3B in loans to establish or expand domestic advanced technology vehicle manufacturing facilities with low/zero GHG emissions.
U.S. Supply Incentives	
Inflation Reduction Act (IRA)	The IRA includes a tax credit for electric vehicles that can only be accessed if at least 50% of the vehicle's materials and battery components are sourced in North America or by a U.S. trading partner. This percentage will rise by 10% annually until they reach 80% in 2027 and 100% in 2029, providing a massive opportunity for the U.S. supply of EVs and EV components.

* **Note:** Some rebate eligibility varies by brand, model, and price. Be sure to check based on your customer's needs.

Regional Electricity Grid Requirements

Clean- and renewable-powered grids will impact the economics of ZEVs. It is important to understand your dealership's regional power sources for two main reasons:

1 **ZEVs are only as clean as their power supply.**
The production and manufacturing of ZEVs is more carbon-intensive than internal combustion engine (ICE) vehicles. However, with a clean electricity grid, it will only take one year for a ZEV to reach "carbon parity" with ICE vehicles. If the electricity grid is powered by coal/fossil fuels, it will take over five years to reach carbon parity.

2 **It's cheaper for customers to fuel ZEVs.**
Regions with the cleanest grids tend to have the lowest electricity rates.

TIPS

Check the **map** to see how clean your region's electricity grid is.

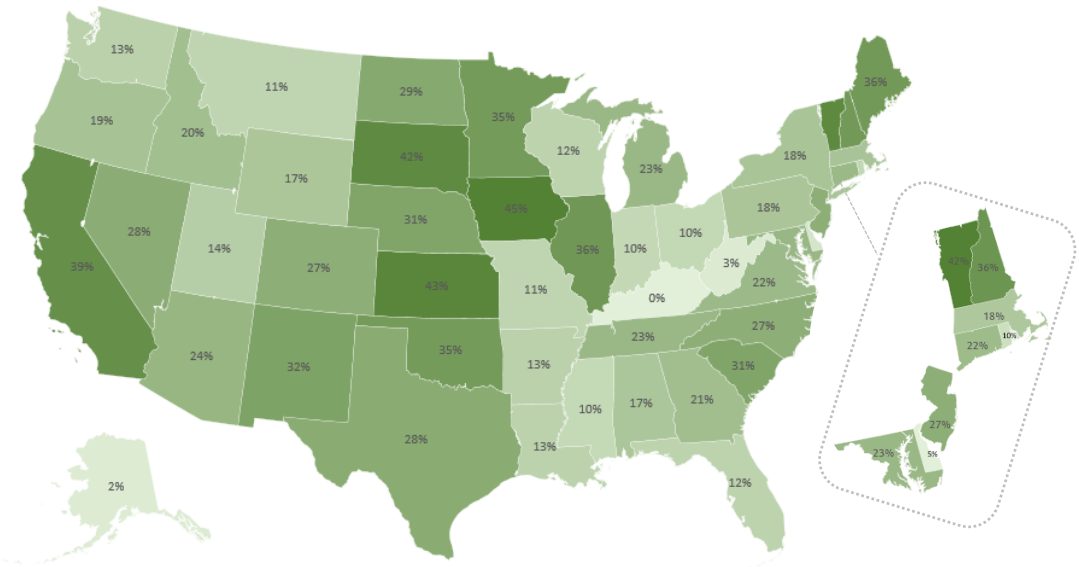


Figure 1: Share of non-emitting sources used in power generation
BMO, U.S. Energy Information Administration

Charging Infrastructure

Accessible public chargers will be increasingly important as ZEVs scale. This includes financing support for at-home chargers and investment into publicly accessible DC fast-charging.[1]
See below for more details on the types of chargers available, how this compares to the average ZEV battery range, and charger infrastructure locations across the U.S.

Charging Types & Considerations

Electric Vehicle Charging 101			
Considerations	Level 1 Charger	Level 2 Charger	Level 3 Charger
Time to Full Charge	Up to 20hrs	Up to 6-7hrs	30 minutes
Outlet Requirements	120 V wall outlet	208 or 240 V wall outlet	480+ V
Common Location	Home	Home, businesses, public stations	Public stations
Compatibility with ZEVs	All	All	Some

Average ZEV Statistics on a Full Charge	
Average Range	200 mi
Avg. Energy Consumption	322 Wh/mi
Avg. Useable Battery Capacity	61.7 kWh

Charging Stations in the U.S.

There are **48,175 public stations in the U.S.** This interactive map from the U.S. Department of Energy allows your customers to map the charging infrastructure along common routes.
California has the densest EV infrastructure in the U.S. (14,050 stations), with 5x as many stations as the second highest state (New York).

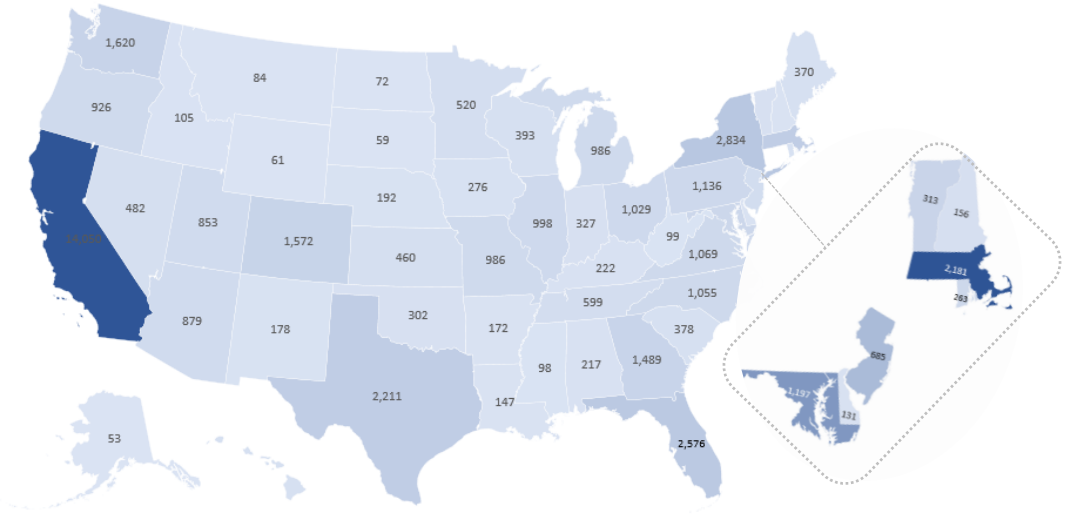


Figure 2: Number of charging stations across the U.S. by province
BMO, U.S. Department of Energy

[1] DC fast chargers covert AC power to DC within the charging station and deliver DC power directly to the battery, which accounts for the faster charge.

Mapping Travel Routes with EV Infrastructure

To map out their route, customers should be aware of:

1. their vehicle's range on a full charge
2. the distance they need to travel
3. where the EV infrastructure is along their route; and
4. which stations offer DC-fast charging.

The last 3 steps can be done with the **ZEV stations locator**.

The average range for ZEVs on a full charge is 200 miles. The average commute for Americans is 40 miles a day, which means customers would have to recharge once every five days on average.

Customers will still experience challenges travelling by fully electric vehicle in the Rocky Mountains and parts of the Midwest and Southwest, where infrastructure is scarce.

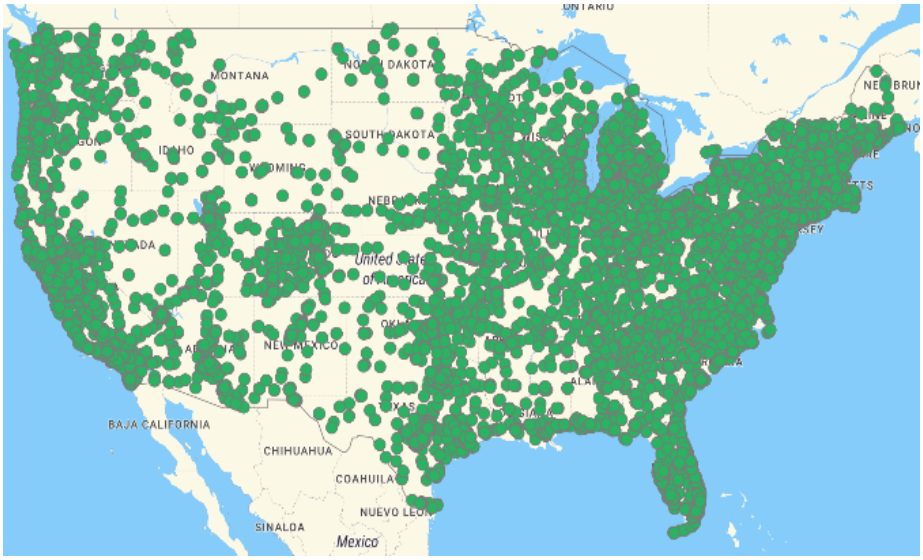
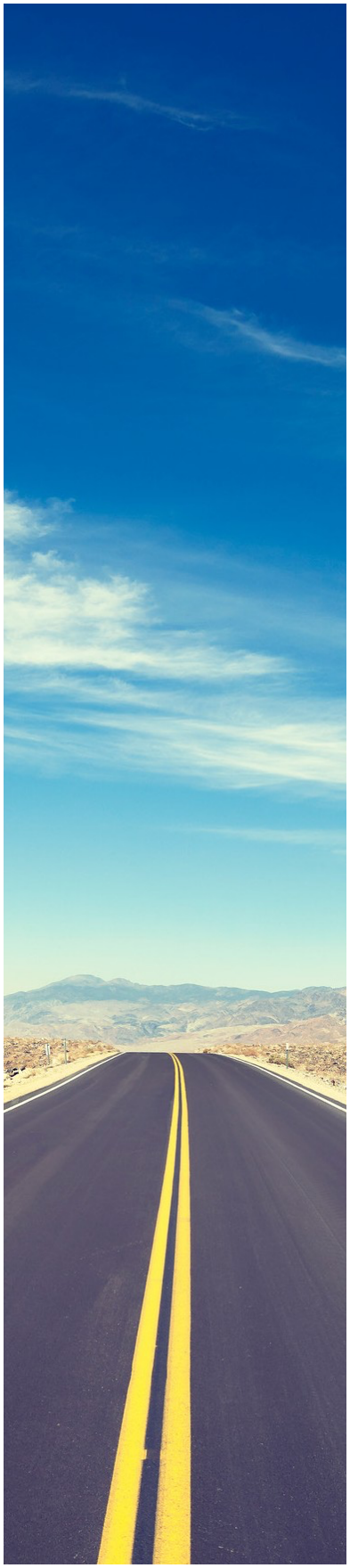
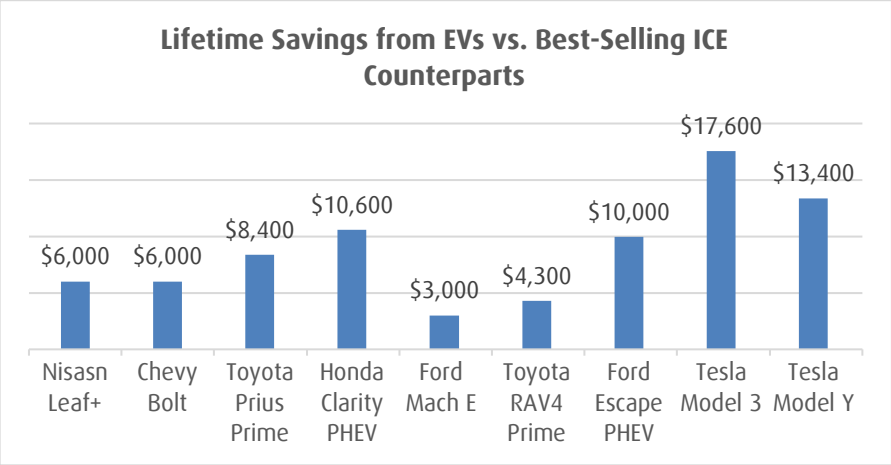


Figure 3: Map of charging infrastructure across the U.S.
U.S. Department of Energy



Cost Considerations

The **upfront sticker price of a ZEV is higher than an ICE**. However, the **ZEV total cost of ownership (TCO) nets out cheaper** via savings in operational costs (fuel and maintenance). For example, a Chevrolet Bolt costs $8,000 more to purchase than a Hyundai Elantra GT, but the Bolt costs $15,000 less to operate over equivalent lifetimes, for a savings of $7,000.[2]



Consumer Reports, BMO Climate Institute. Assume a conservative seven-year lifetime with 200,000 miles.

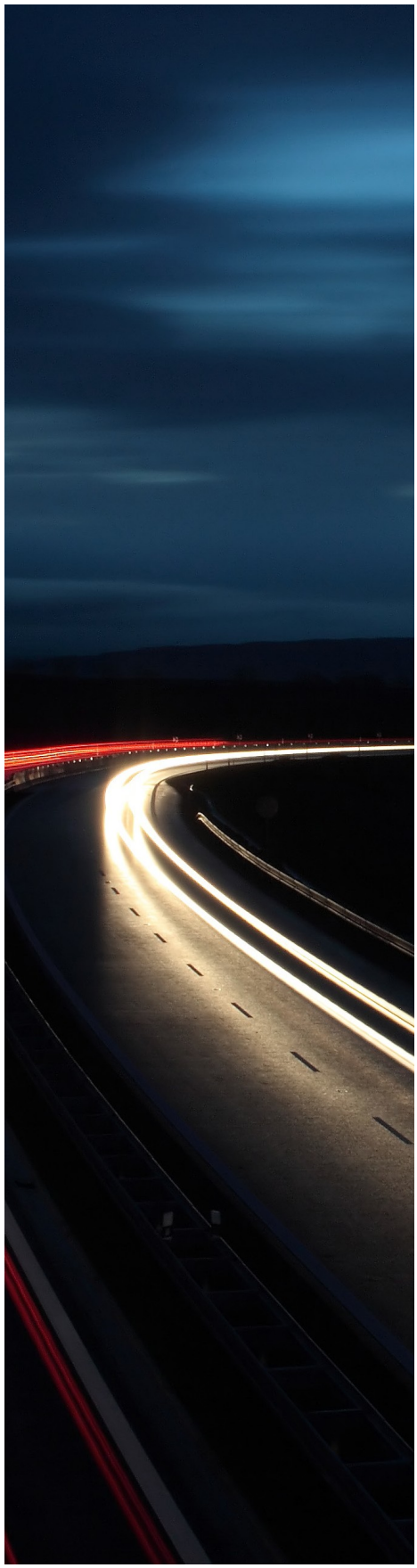
A recent study by Consumer Reports found that the lifetime ownership costs of new EVs (both BEVs and PHEVs) were thousands of dollars lower than all comparable ICE vehicle costs. This was based on lifetime capital costs (depreciation and financing) as well as operating and maintenance costs (fuel, repair, maintenance).

When accounting for used EVs, the percentage savings basis was two to three times larger.

TIPS

The sticker price of a ZEV is a huge barrier for most buyers, even if they net out cheaper over the life of the asset, on average. Ensure your clients understand:

1. Their regional rebate offerings to offset the purchase price,
2. The exact margin of operational savings between a chosen ICE vehicle model and its comparable ZEV counterpart.



[2] Consumer Reports, 2020

Customer Cost Considerations

Direct Costs for Customers	
Sticker Price	Retail prices for EVs range broadly, depending on the model. In the U.S., the range is between $27,000 - $180,000.
Refuelling/Charging Costs	Refuelling costs depend on regional residential electricity rates (per kWh) and the range + battery capacity of the ZEV model. Full Charge ($) = price of electricity per kWh * vehicle's kWh/100mi rating.
Repair Costs	EVs are more reliable and require less maintenance than ICE vehicles. When a car does need servicing, EV drivers can expect to save on average $4,600 in repair and maintenance costs.[3]
Insurance and Taxes	Insurance cost depends on traditional factors such as model, age, driving history, location, etc., however many insurers have premium offerings for green vehicles to consider.
Battery Replacement	If the ZEV is no longer under warranty, battery replacements can be up to $20,000.[4]

Indirect Costs for Customers	
At-Home Charger Installation[5]	Level 1 chargers cost between $300 - $600. Level 2 chargers cost between $500 - $1,000. In both cases, labour and installation costs range from $1,200 to $2,000, depending on the complexity of installation, where the charger will be located, and the age of the home. Level 3 chargers cost upward of $20,000 and are not necessarily suitable to home charging infrastructure given their electricity requirements.
Time of Use (TOU) Rates	It is cheaper to charge an EV during off-peak electricity hours.
Upgrades to Electrical Panel	Older homes generally do not have the electrical capacity to accommodate level 2 charging requirements (e.g., 240v/30 amps). Some customers may face additional charges to install more capacity.

[3] Consumer Reports, 2020
[4] Recurrent Auto, 2022
[5] International Council on Clean Transportation, 2019

Changes to Your Business & New Opportunities

Changes to Your Business	Solutions & New Opportunities	
Changing Business Models	**As OEMs are increasingly shifting toward online direct sales for ZEVs, they prefer dealerships to operate as more of a showroom-based business.** While some OEMs have eliminated dealerships completely (Tesla, Lucid), others may prefer the "agency model," in which the OEM operates as the direct-to-consumer retailer and the dealer acts as the physical touch point with the customer for expertise, service, and support.	• **Expand your role as a service provider.** Dealerships can capitalize on their physical footprint by creating a transformative customer experience. Offer a customer experience that includes not only the EV itself but also the broader ownership journey (e.g., adapt the test drive to include charging the vehicle or offer longer test drives).
Margin Erosion	**Dealers will likely experience a decrease in aftersales parts revenue** because ZEVs are more reliable and require less maintenance on average. **Negative impact on profit pools as ZEV users often do not require a visit to the dealership**. ZEV maintenance is primarily delivered via online software updates. **Potentially lower sales margins of ZEV sales** due to the higher costs of ZEV manufacturing and price competitiveness. **Limited flexibility for dealerships to set end prices** as OEMs gain power in pricing controls and online channels. **Used ZEVs on the market today are likely less profitable due to concerns with long-term battery performance**. However, the residual value of ZEVs will increase over time.	• **Capitalize on cross-selling opportunities.** Consider selling off-road and/or aftermarket parts for EV vehicles, such as at-home charging stations, work with OEMs to sell replaceable batteries, and/or start a "battery as a service" (BaaS) subscription. This allows EV customers to 'subscribe' to battery swapping on a monthly or yearly basis, and can be accompanied by other plans (e.g., unlimited mileage, repairs, and insurance coverage). Some battery-swapping/replacement companies will offer discounts on the retail price of ZEVs for those who participate in the program. • **Expand various F&I products to meet consumer needs.** Since ZEVs, hybrids and plug-in hybrids cost more upfront, they drive higher attachment rates for guaranteed auto protection and appearance products. Dealers can also offer special protection plans for batteries, in addition to extended service contracts and battery maintenance plans.
Frontline Sales Processes	**Dealerships that sell ZEVs are expected to have expertise on electric vehicles**. This includes understanding regional rebates, the total cost of ownership advantage of a ZEV, charging costs, at-home infrastructure, the lifetime of batteries, and battery replacement. **A wider range of skills are required to service ZEVs, including electrical engineering, computing, and software**. To hire skilled labour, dealerships may suddenly find themselves competing with other industries for new talent. **Consumers have historically faced challenges finding ZEVs for purchase due to limited dealership inventory.** Most dealerships do not have ZEVs in inventory available for purchase or test-driving. This creates an opportunity for dealers to differentiate themselves with higher inventory and more knowledgeable staff.	• **Train the frontline sales team.** Train sales teams to become knowledgeable about important EV buying criteria such as range, vehicle performance, service expectations and day-to-day operations. This will become especially important as OEMS shift toward the agency model and expect dealerships to provide expertise and servicing for EVs. • **Upskill your technical employees where possible.** For example, on-site technicians or engineers could be trained in software development. • **Reform service and reconditioning centres.** Establish new point-of-sale processes, train technicians to manage high-voltage systems, and invest in the special tools and equipment required to service electric powertrains. • **Increase ZEV inventory well before 2035.** Demand has been far greater than supply and the EV transition is gaining momentum. • **Keep knowledge current on EV depreciation.** Understand EV depreciation, especially as ambiguous residual values remain a risk for dealers.
Financing and Insurance	**More buyers will need the help of the dealer to create a financing solution**, as the sticker price of EVs are almost always more expensive than comparable ICE vehicles. This may result in an increase in finance reserves. **Customers are looking for online** solutions for ZEV financing in a shift away from arranging financing in person.	• **Offer a digital sales model** when providing quotations and financing (e.g., allowing customers to complete paperwork online). • **Develop an end-to-end EV leasing or financing solution** that includes everything from financing the vehicle, home charger installation (with utility partnerships), and seamless commercial charging access, all in one monthly payment.

How BMO Can Help

BMO is committed to being your lead partner in the low carbon transition. We can help you navigate the challenges associated with the ZEV market and advise on how to leverage new financing and revenue-generating opportunities. Speak with your relationship manager to see how BMO can help.

BMO Climate Institute

Contact us at climate.institute@bmo.com

Center for Climate and Energy Solutions, https://www.c2es.org/content/electric-vehicles/

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