DEMAND FOR ELECTRIC VEHICLE (EV) CHARGERS

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Commercial Real Estate Research Advisory Board
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HIGH OIL PRICES INCENTIVIZE SHIFT TO ELECTRIC VEHICLES

West Texas Intermediate $/barrel
ELECTRIC VEHICLE (EV) AND EV CHARGERS TARGETS TO REDUCE CARBON EMISSIONS AND CREATE JOBS

- Increase zero-emission (battery electric, plug-in hybrid electric, fuel cell electric vehicle) vehicle market share to 50% by 2030 (Executive Order)

- Increase the number of electric vehicle chargers to 500,000 by 2030 (from 128,474 as of 2021) with EV stations every 50 miles along fuel corridors; Bipartisan Infrastructure Law allocates $7.5 billion to achieve this target

https://www.whitehouse.gov/bipartisan-infrastructure-law/
https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/05/fact-sheet-president-biden-announces-steps-to-drive-american-leadership-forward-on-clean-cars-and-trucks/
• A typical passenger vehicle emits about 4.6 metric tons of carbon dioxide per year (EPA)

• This assumes the average gasoline vehicle on the road today has a fuel economy of about 22.0 miles per gallon and drives around 11,500 miles per year. Every gallon of gasoline burned creates about 8,887 grams of CO₂.

• A vehicle that operates exclusively on electricity (an EV) will not emit any tailpipe emissions. A fuel cell vehicle operating on hydrogen will emit only water vapor.

Source: EPA: https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#:~:text=typical%20passenger%20vehicle%3F,A%20typical%20passenger%20vehicle%20emits%20about%204.6%20metric%20tons%20of,8%2C887%20grams%20of%20CO₂.
ELECTRIC VEHICLE (EV) SALES SHARE RISES TO 3.4% AS OF 2021

Electric vehicles and hybrids surpass 10% of U.S. light-duty vehicle sales

https://www.eia.gov/todayinenergy/detail.php?id=51218
EV REGISTRATIONS AS A PERCENT OF AUTOMOBILE REGISTRATIONS (1% NATIONALLY)

1.02 Million EV registrations as of December 2020, or 1% of private and commercial automobile registrations in 2020

Source: NAR estimates based on Alternative Fuels Data Center on EV registrations as of 2020 and Office of Highway Policy Information private and commercial automobile registrations as of 2020
CALIFORNIA: 43% of EV REGISTRATIONS AS OF 2020

1.02 Million EV registrations as of December 2020

Source: Alternative Fuels Data Center data
CALIFORNIA: 32% OF EV CHARGING OUTLETS

California accounts for 32% of 128,474 electric vehicle charging outlets that are located in 50,054 stations nationally as of December 2021.
DIRECT CIRCUIT (DC) FAST CHARGERS: 17% OF EV OUTLETS

DC Fast Chargers as a Percent of State's Total EV Outlets as of 2020 (17%: national average)

Source: NAR analysis of Alternative Fuels Data Center data
NATIONALLY, 47 ELECTRIC VEHICLES PER DC FAST CHARGER

Ratio of electric vehicles per DC fast charger as of 2021 (47: national average)

Source: NAR analysis of Alternative Fuels Data Center data
# Electric Vehicle Goals in Some Cities

Table 2. Examples of city electric vehicle goals and strategies

<table>
<thead>
<tr>
<th>City</th>
<th>Goal</th>
<th>Strategy</th>
<th>Strategy details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columbus</td>
<td>1.8% ownership by 2020. Deploy 900 public charging stations.</td>
<td>None identified</td>
<td>None identified</td>
</tr>
<tr>
<td>Denver</td>
<td>15% of total registration by 2025, 30% by 2030, and 100% by 2050.</td>
<td>Opportunities for vehicle electrification in Denver Metro area and across Colorado</td>
<td>Discusses steps to address DC fast charging availability and multi-family housing charging access barriers</td>
</tr>
<tr>
<td>Houston</td>
<td>30% of new vehicle sales by 2030</td>
<td>Evolve Houston electric vehicle roadmap</td>
<td>Outlines awareness, affordability, and availability actions, with suggested key stakeholders</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>25% of total registrations are ZEVs by 2025, 80% by 2035, and 100% by 2050.</td>
<td>L.A.'s Green New Deal</td>
<td>Establishes targets with initiatives from 2021 to 2030</td>
</tr>
<tr>
<td>Memphis</td>
<td>5% of vehicle travel by 2025, 30% by 2035, and 50% by 2050.</td>
<td>None identified</td>
<td>None identified</td>
</tr>
<tr>
<td>Portland</td>
<td>Replace at least 10,000 vehicles. Double public Level 2 and DCFC. 30% in city fleet by 2020.</td>
<td>2017 City of Portland electric vehicle strategy</td>
<td>Details 49 unique actions with lead bureaus</td>
</tr>
<tr>
<td>Sacramento</td>
<td>35% of total registrations are ZEVs by 2025</td>
<td>Electric vehicle strategy</td>
<td>Outlines 8 core performance targets with lead department and entities</td>
</tr>
<tr>
<td>San Francisco</td>
<td>50% of new registrations by 2025 and 100% by 2030.</td>
<td>Proposed electric vehicle roadmap for San Francisco</td>
<td>Establishes 6 main strategies with lead and support authorities</td>
</tr>
<tr>
<td>Seattle</td>
<td>30% ownership by 2030</td>
<td>Drive Clean Seattle Implementation Strategy</td>
<td>Coordinates 5 implementation actions with lead departments</td>
</tr>
</tbody>
</table>

Source: International Council on Clean Transportation
STATE WITH INCENTIVES HAVE HIGHER EV SHARE

Figure 6. Electric vehicle shares of new vehicles and available consumer incentives in the 50 most populous U.S. metropolitan areas. New vehicle registration data are from IHS Markit.

Source: International Council on Clean Transportation
EXAMPLES OF STATE INCENTIVES

- California– $2,000 tax rebate on sales purchase, HOV access
- Colorado- $5,000 tax rebate on sale purchase
- Connecticut, DC, Maryland, Pennsylvania, Louisiana – rebate
- Colorado, Louisiana– income tax credit
- Maryland- excise tax credit
- Washington-exemption in sales tax

Source: International Council on Clean Transportation
Whole Foods pivoted from managing the chargers itself to contracting with charging providers, which install and maintain the chargers. It now works with many of the leading companies, including EVGo, Tesla, and ChargePoint Inc.

The chain provides the slow charging for free while rates for the fast charging are set by the charging companies.

Jonathan Levy, vice-president of EVGo, one of the chain's charging providers, described the relationship between Whole Foods and its providers as a "symbiotic relationship." He says, "People who buy organic arugula are also the kind of people who are first to adopt electric cars. Come for the electrons, and spend more time and money at the salad bar."

Target started investing in EV chargers in 2012 by partnering with ChargePoint to provide Level 2 chargers. It ramped this up in 2017 by partnering with Tesla to install Superchargers. In 2018, Target announced that it will expand the installation of EV charging stations to a goal of 600 parking spaces in over 20 states over the next two years and partnered with Electrify America to provide DC fast-charging stations. At the end of 2019, Target had 527 spaces at 74 sites in 16 states.

Target customers could charge for free for as long as two hours using Level 2 chargers.

According to John Leisen, vice president of Property Management, "It's an opportunity to work with industry-leading partners to bring a more convenient shopping experience to guests as we look to design lower-carbon solutions throughout our entire operation."


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