

AGENDA

- 1. Introductions
- 2. Working Group Role
- 3. 3 Steps for Successful Fleet Electrification The Electrification Coalition
- 4. Public EV Charging S Curve Strategies
- 5. EV and Infrastructure Goals
- 6. Q&A: Public and Interested Parties
- 7. Next Steps



Credit: NJ Spotlight News

PRESENTERS

- Marci Henson, Director of Department of Environment & Sustainability, Clark County
- Jared Walker, The Electrification Coalition
- Randy Schimka, S Curve Strategies
- April Bolduc, S Curve Strategies



Credit: NJ Spotlight News

INTRODUCTIONS

MEMBERS

- CHISPA
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County
- Clark County School District
- NAIOP
- NV State Apartment Association
- NV Energy
- NV Resort Association
- Ovation Development

- Regional Transportation Commission
- Southern NV Water Authority
- Southern NV Home Builders Association
- NV Division of Environmental Protection
- NV Climate Initiative
- NV Governor's Office of Energy
- NV Department of Transportation
- Southwest Energy Efficiency Project
- The Electrification Coalition
- Western Resources Advocates



INTERESTED PARTIES

- 1. Post your name and organization in the chat
- 2. Post questions in the chat
- 3. Time reserved for Q&A and discussion

The meeting is being recorded and posted on the Clark County website.



Credit: Jenny Ueberberg

WORKING GROUP ROLE RECAP

NV EMISSIONS REDUCTION GOALS

- 28% reduction by 2025
- 45% reduction by 2030
- Net-zero by 2050



Gov. Sisolak delivers remarks on the need for climate action in front of a public electric bus operated by RTC Washoe. Credit: NRDC

CLARK COUNTY EMISSIONS

- 37% from transportation
- 50% of transportation emissions from light-duty vehicles
- Reducing light-duty emissions is key to meeting the state's goal of net zero by 2050



Source: Las Vegas Review-Journal

Half of Clark County transportation emissions are from light-duty vehicles.

TODAY'S NEWS

- DMV says state EV registrations up 133% in past 2 years
- Clean Cars Nevada will help increase percentage:
 - Increase manufacture requirements to offer more EVs
 - Strengthen vehicle emissions standards
 - Reduce vehicle pollution
 - Create more opportunities for residents to go electric

E LAS VEGAS REVIEW-JOURNAL SU

Going Green: Nevada sees jump in electric vehicle registrations



Feb. 7, 2022 Las Vegas Review-Journal article: <u>https://www.reviewjournal.com/news/news-columns/road-warrior/going-green-nevada-sees-jump-in-electric-vehicle-registrations-2525581/</u>

WORKING GROUP

- Understand transportation electrification (TE) goals
- Discover current TE efforts
- Uncover barriers
- Provide solutions based on best practices
- Develop a model EV charging infrastructure ordinance
- Develop an equitable strategic plan that will meet goals



Credit: Michael Fousert

WORKING GROUP

- Expected Outcome
 - Develop a Regional Transportation Electrification Strategy
 - as part of the All-In Clark County Sustainability & Climate Initiative
 - Phase 1: 2022 light-duty
 - Phase 2: 2023 medium- and heavy-duty



CLARK COUNTY'S SUSTAINABILITY AND CLIMATE ACTION PLAN

28 Survey Respondents

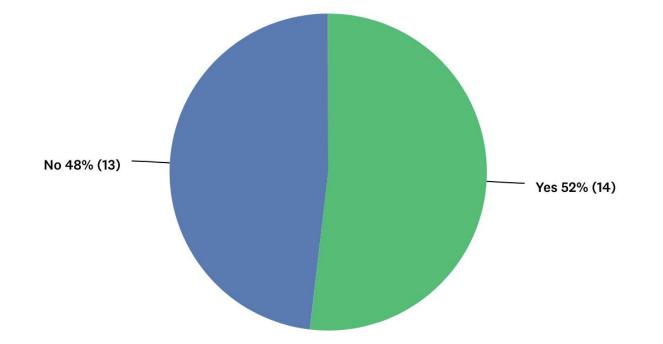
Thank you!

Champion Resource Group, LLC CHISPA City of Henderson City of Las Vegas City of Mesquite NV City of Reno Clark County Clark County School District **Flectrification Coalition** Governor's Office of Energy Majestic Realty Co. MGM Resorts International Nevada Division of Environmental Protection Nevada State Apartment Association

Nevada Resort Association NV Energy NV Franchised Auto Dealers Association NV Petro Marketers & Convenience Store Association Pinyon Public Affairs Public Utilities Commission of Nevada **Regional Transportation Commission of Southern Nevada** Renewable Envoy Rowe Law Group Southern Nevada Homebuilders Association Southern Nevada Water Authority SWFFP Vote Solar Washoe County Air Quality Management Division

8 new business and nonprofit respondents since the January meeting.

Does your organization own or lease any fleet vehicles?



More than 50% of respondents have fleets.

10 are government organizations, 2 trade associations, 1 corporation, and the school district.

How many fleet vehicles? How many are light-duty?

- Of the 14 respondents with fleets:
 - 8 know the number of fleet vehicles they have
- Of the 8 respondents that know:
 - 3,355 fleet vehicles in total
 - 2,108 of these are light-duty fleet vehicles



Popular all-electric fleet vehicles: Chevy Bolt and Ford Lightening

At least 63% of the 3,355 fleet vehicles owned by survey respondents are light-duty.

3 STEPS FOR SUCCESSFUL FLEET ELECTRIFICATION

Jared Walker, Sr. Program Specialist The Electrification Coalition

EV Adoption Programs Around the U.S.

The Electrification Coalition is a nonpartisan, not-for-profit group of business leaders committed to promoting policies and actions that facilitate the deployment of electric vehicles on a mass scale.







Step #1

DRVE Tool Full Fleet Analysis Tool





DRVE Fleet Analysis Software

Standard fleet analysis can be costly, take weeks/months, and be difficult to interpret results.

Through the DRVE Tool, the EC has created an accessible, easy-to-use analysis tool that provides total cost of ownership and other data in minutes.

Focused on bringing light-, medium-, and heavy-duty fleet analysis under one tool; typically separated for analysis.



DRVE Tool Analysis

Dashboard for Rapid Vehicle Electrification

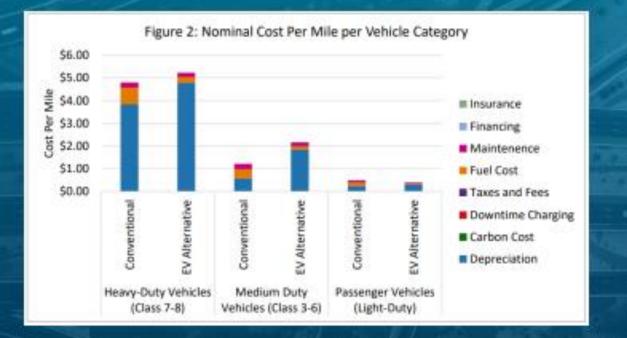
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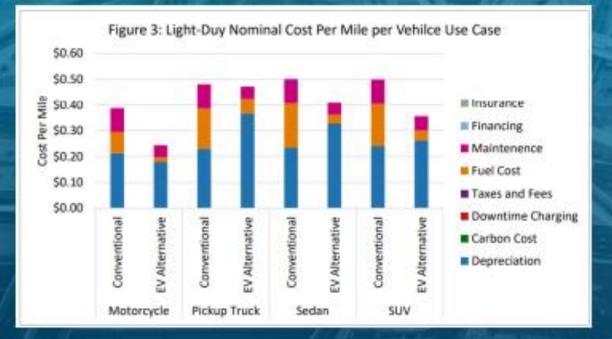
3) Vehicle Service Life



DRVE Tool Analysis

Dashboard for Rapid Vehicle Electrification







DRVE Tool Analysis

Dashboard for Rapid Vehicle Electrification

Average TCO Per Mile			
	Conventional	EV Alternative	
Delivery Truck	\$1.03	\$1.66	
Pickup Truck	\$0.38	\$0.37	
SUV	\$0.34	\$0.31	
Vans	\$0.60	\$0.51	
Grand Total	\$0.47	\$0.44	

	Average of			
Vehicle Model	Percent Saving from EVs	s Vehicles		
2022 Ford eTransit - Cargo Van BEV	23.3	31%	1	
2022 Ford eTransit - Passenger Van BEV	15.3	74%	15	
2020 Ford Escape FWD PHEV PHEV	9.28%		3	
2022 Ford F-150 Lightning (Standard Range) BEV	3.03%		26	
Grand Total	8.1	13%	45	

Electrifi	cation	

Figure 9: Top 100 Vehicles			Automatical and
VIN	Conventional Vehicle	EV Alternative	Average of Percent Savings from EVs
	CUEVEOU ET CIN	2022 Ford	
3N63M0YN6FK727109	Express	eTransit - Cargo Van BEV 2022 Ford eTransit -	23.31%
	CHEVROLET	Passenger Van	
1GNSGCF48E1117639	Express	BEV	18.74%



Step #2

EV Purchasing Collaborative Explore Procurement Options



Climate Mayors EV Purchasing Collaborative





Sourcewell

www.driveEVfleets.org



Climate Mayors EV Purchasing Collaborative



Don't target your charging infrastructure! Click here to learn more.



www.driveEVfleets.org

Climate Mayors EV Purchasing Collaborative

www.driveEVfleets.org

Leasing Benefits

- Allows non-tax-burdened public entities to access the federal tax credit.
- Preserve capital

Procurement Benefits

- Vehicle availability
- Executed contracts available



Step #3

Electrification Coalition City Policy Toolkit



City Policy Toolkit

The EV Policy Toolkit outlines key policies within five categories:

- Multi-sector
- Freight
- Fleets
- Charging infrastructure
- Consumer adoption

Electrifying Transportation in Municipalities:

A Policy Toolkit for Electric Vehicle Deployment and Adoption at the Local Level August 30, 2021





American Cities Climate Challenge

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Summary of key city policies Benefits & Impact key: O High O Medium O Potential Negative Diffculty & cost key: O Low O Medium O High			Benefits & impact					Current
		Direct GHG reduction	Health	Equity benefits	Jobs	Market Impact	Difficulty to pass	cost to implement
Charging infrastructure	1. Infrastructure deployment		۲	•	٠			•
	2. EV-ready buildings & businesses	•			•			•
	3. Equitable charging			•				
	4. Streamlined charging approval (permits)	•		•				٠
Multi- sector	5. Zero emission (ZE) areas, diesel bans, or similar	•	۲		٠			
	6. Road tolls and CO ₂ -focused congestion pricing	•		•				
	7. Funding for electric vehicles and charging		•	•		٠		•
Freight	8. Zero emission freight/delivery zones/curb access	•	•	•	•	•		•
	 Zero emission ports and inland hubs/ warehouse districts 	•	•	•	٠	•	•	•
Fleets (buses, light-duty)	10. Zero emission bus requirements & rollout	•	•	•		٠		•
	11. Fleet EV funding and business models							•
	12. Light-duty city fleet requirements			•	٠		٠	
	13. EV procurement and use policies (all classes)							
	14. ZE mobility service provider/taxi deployment	•	•	•				٠
Consumer	 City programs for faster uptake (bulk purchase agreements & dealer & education campaigns) (action) 		•	•	٠			



Fleet Policy Examples

 Zero emission bus requirements & rollout – Miami-Dade County, FL partnered with U.S.-based Proterra on a comprehensive electrification plan, incorporating 75 chargers and 42 new electric buses, making this fleet one of the largest e-bus fleets in America.

 Fleet EV funding and business models – Holy Cross Energy, a nonprofit electric cooperative in Colorado, provides fleets up to two free Level 2 EV chargers. The customer is responsible for labor costs, which can be paid up front or over time via the agency's monthly utility bills.

 Light duty city fleet requirements – Charlotte, NC, strives for a 100% Zero Carbon City Fleet by 2030 (passed in 2018). Additionally, electricity used to run these vehicles is targeted to be 100% renewable sourced, such as through on-site generation or power purchasing contract.

4. EV procurement and use policies (all classes) – Albuquerque, NM, developed a Vehicle Acquisition Policy and Procedures policy (passed in 2020) that prioritizes zero-emission and fuel-efficient vehicle procurement. The goal is to reduce carbon emissions and save taxpayers money on fuel.



Successful Fleet Electrification In 3 steps

Step #1 – Assess the opportunity
Step #2 – Explore procurement options
Step #3 – Build a strong policy framework







Next Steps:

Check out the DRVE Tool – www.electrificationcoalition.org/resource/drve/
Review the Policy Toolkit
Reach out to the EC
Commit to the Collaborative
Electrify your fleet!



Electrification Coalition Changing the Future of Transportation.

Jared Walker Senior Program Specialist jwalker@electrificationcoalition.org

Will Drier Senior Policy Analyst wdrier@electrificationcoalition.org

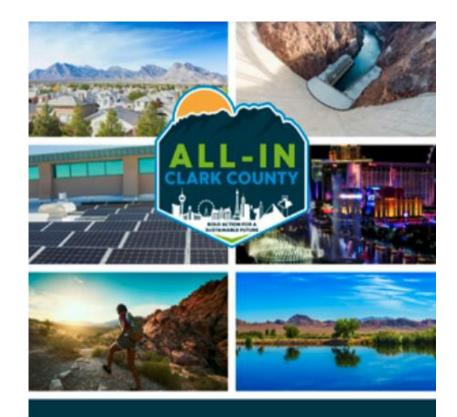


1111 19TH STREET NW SUITE 406 WASHINGTON, DC 20036 TEL: 202-461-2360 FAX: 202-318-8934 ELECTRIFICATIONCOALITION ORG

EDUCATIONAL EV TOPICS

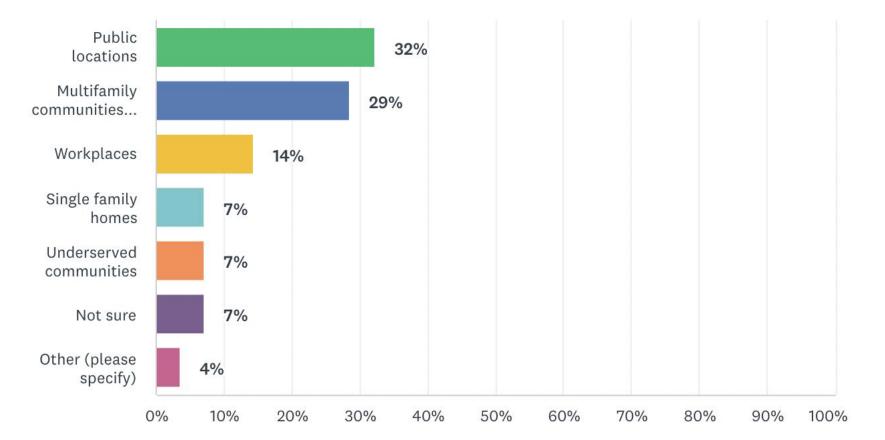
EV TOPICS TO DATE

- EVs and EV charging
- Energy grid and transportation electrification
- Multifamily charging infrastructure planning
- Fleet electrification



CLARK COUNTY'S SUSTAINABILITY AND CLIMATE ACTION PLAN

Where should the region focus its light-duty EV charging installation efforts over the next 5 years?



More than 60% of respondents said public and multifamily locations should be the focus for EV charging over the next 5 years.

Almost equally split between the two.

PUBLIC EV CHARGING

Randy Schimka S Curve Strategies

PUBLIC EV CHARGING TOPICS

- Public EV Charging Overview
- The Biggest Myth
- How it Works for Drivers
- Business Models



Public Level 2 Charging

PUBLIC EV CHARGING EXAMPLES

- Destination Charging:
 - At restaurants, shopping malls, theaters, retail establishments
 - Usually Level 2 charging
- Highway Corridors / Road Tripping:
 - Commercial property near travel corridors, park and ride lots
 - Usually DC Fast charging; but may also include Level 2
- Lodging:
 - Hotels, Resorts, Bed & Breakfasts
 - Usually Level 2 charging, but could include Level 1
- Airports:
 - Shorter term lots, longer term lots, taxis/buses/shuttles
 - Usually Level 1 or Level 2 for travelers, and Level 2 / DC Fast Charging for taxis/buses/shuttles

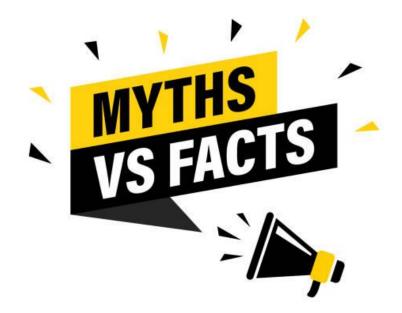


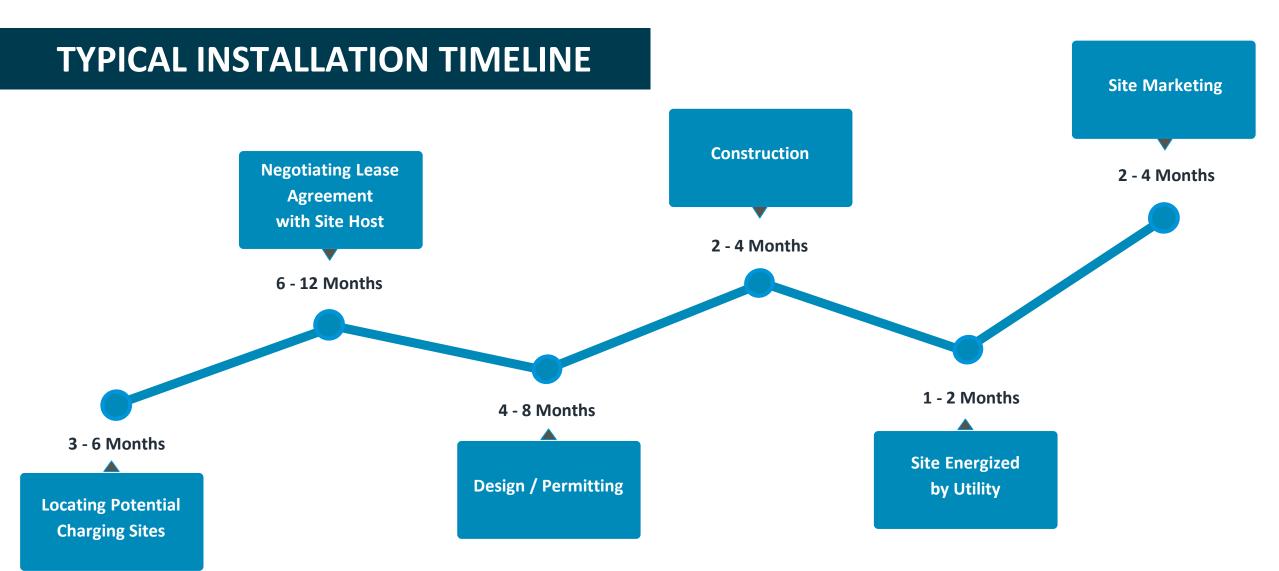
Level 2 Charging at Hotel

PUBLIC CHARGING'S BIGGEST MYTH

Myth: Public EV charging can be quickly and easily installed wherever it is needed

- The only party that can sign a lease agreement and give permission for public charging to be installed is the property owner
- Most of the time that is NOT the store or business
- The owner has to perceive there is value to give up parking spaces for EV charging and equipment





Discussion: It can be 18 months to 3 years to install public charging at a single location. Is this consistent with your experiences?

PUBLIC CHARGING FOR DRIVERS

- Driver Needs to Find Public Charging Station:
 - Using phone: Google, Plugshare, or other provider websites
 - Using EV's navigation system
- Authenticating and Starting a Charging Session:
 - Some systems start charging car automatically upon plugin
 - Others require a membership card, credit card, or phone app to authenticate and energize
 - Depending on charging network, drivers can report any issues by using their phone app or by calling customer service
 - Plugshare app displays status and uptime history of stations



DC Fast Charger

PUBLIC CHARGING FOR DRIVERS

- Adding Miles:
 - Level 2: Adds 12 35 miles of range per hour
 - DC Fast Charging: Adds 60-200 miles of range per 30 minutes
 - Some charging stations limit session time to 30 or 45 minutes as a courtesy to other drivers
- Paying for Charging:
 - A small number of stations are free
 - For others, drivers pay with a credit card, their phone, or a vendor card tied to a credit card



Level 2 charger with App

PUBLIC CHARGING BUSINESS MODELS

TESLA

- 12-24 DC fast chargers per location; network is nationwide; currently only for Tesla cars
- Some locations have storage batteries and/or solar
- Tesla pays for:
 - Charging station hardware and infrastructure upgrades
 - Installation and maintenance costs
 - Electric bill for all charging energy consumed
- Driver billing:
 - Drivers pay Tesla for charging energy consumed
 - Pricing mimics local utility TOU pricing where possible; otherwise pricing is flat by kWh
 - No card or phone needed to launch charging session driver authentication happens when plugging in car
 - Drivers pay via credit card on file at Tesla's website



Tesla Superchargers

Site Host Business Model: Proprietary, third-party operator

EVGO

- 3-4 DC fast chargers in one location; network is regional
- Charges all cars, including Tesla that has built-in adapter
- EVgo pays for:
 - Charging station hardware and infrastructure upgrades
 - Installation and maintenance costs
 - Electric bill for all charging energy consumed
- Driver billing:
 - Drivers pay EVgo retail price per kWh for charging energy consumed **plus a built-in adder**
 - The adder is 20-30 cents/kWh above retail electricity pricing
 - Drivers can use credit card reader or EVgo app to launch and pay for charging session
- EVgo's business is mostly funded by the adder
 - Can also collect grants or fees from car manufacturers



EVgo DC Fast Charger

Site Host Business Model: Public, third-party operator

ELECTRIFY AMERICA

- 4-6 DC Fast chargers in one location; network will be nationwide
- Funded from VW Clean Air Act Civil Settlement
- Electrify America pays:
 - Charging station hardware and infrastructure upgrades
 - Installation and maintenance costs
 - Electric bill for all charging energy consumed
- Driver billing:
 - Drivers pay EA retail price per kWh for charging energy consumed **plus a built-in adder**
 - The adder is 20-30 cents/kWh above retail electricity pricing
 - Drivers can use credit card reader or app to launch and pay for charging session



Electrify America DC Fast Charger

Site Host Business Model: Public, third-party operator

CHARGEPOINT

- 2-10 chargers per location, mostly Level 2, DC is growing
- Site host pays:
 - Charging equipment and installation costs
 - Networking package
 - Maintenance package
 - Electric bill and sets price for billing drivers
- ChargePoint:
 - Keeps ~10% of driver billing revenue as their fee
 - Pays balance of driver billing revenue back to site hosts
- Driver billing:
 - Drivers pay price set by site host typically ranges from 0 40 cents/kWh (average approximately 15 30 cents per kWh)
 - Can use phone or pre-paid ChargePoint card to launch and pay for charging session

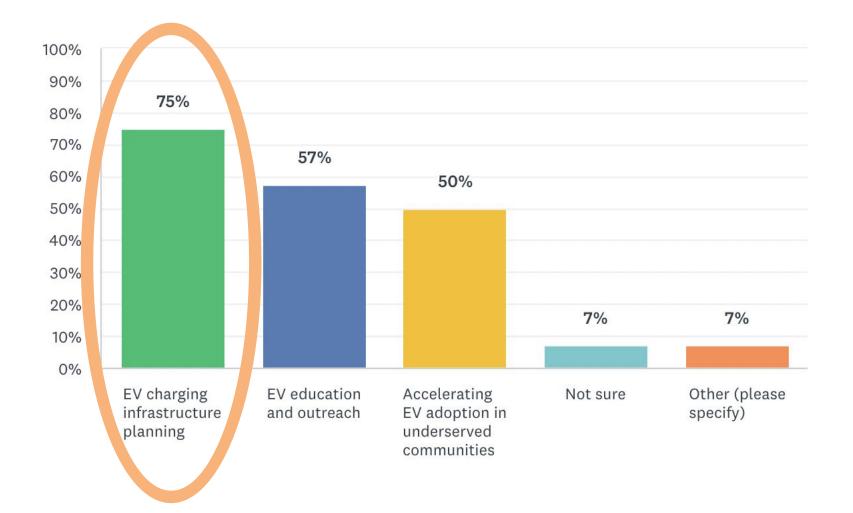


ChargePoint DC Fast Charger

Site Host Business Model: Public, third-party operator, revenue share

TE PLANNING GOALS

April Bolduc, President, S Curve Strategies Which initiative do you feel your organization can help make the biggest impact in accelerating light-duty EV adoption?



PROJECTED CLARK COUNTY EV ADOPTION NEEDS

- 92,000 ZEVs by 2025
- 285,000 by 2030
- 2 million by 2050

Year	Percent Of Light-Duty Sales	Annual New ZEV Vehicles***	Cumulative ZEV Vehicles	
2019	2.3%*	2,219	2,219	
2021	4.6%	7,154	13,088**	
2025	25%	24,676	92,174	
2030	50%	50,181	285,107	
2035	86%	87,183	629,631	
2040	100%	104,759	1,105,074	
2045	100%	108,725	1,587,407	
2050	100%	112,691	2,069,741	

*2019 https://evadoption.com/ev-market-share/ev-market-share-state/

**2021 DMV ZEV registrations

*** Adjusted for Clark County share of Nevada Sales and projected forward with anticipated population growth

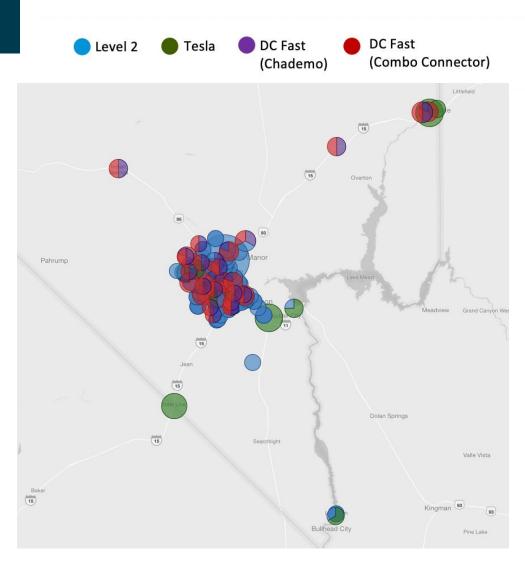
Source: KLA

A quarter of all light-duty vehicle sales should be ZEVs by the end of 2025.

50% should be ZEVs by 2030.

CURRENT CLARK COUNTY EV CHARGING

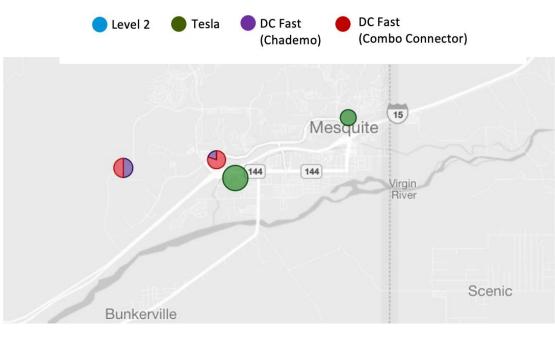
- Total 708 EV charging ports at 272 locations
- 166 DC fast chargers at 41 locations
- 542 Level 2 ports at 233 locations



Clark County public EV charging

705 CURRENT EV CHARGERS BY CITY

- Boulder City: 6 charge ports at 2 locations
- Henderson: 105 at 25 locations
- Las Vegas: 551 at 114 locations
- Mesquite: 26 at 4 locations
- North Las Vegas: 17 at 5 locations
- Unincorporated Areas: Laughlin, Indian Springs, Jean, Moapa, Primm: 34 at 5 locations



Mesquite public EV charging

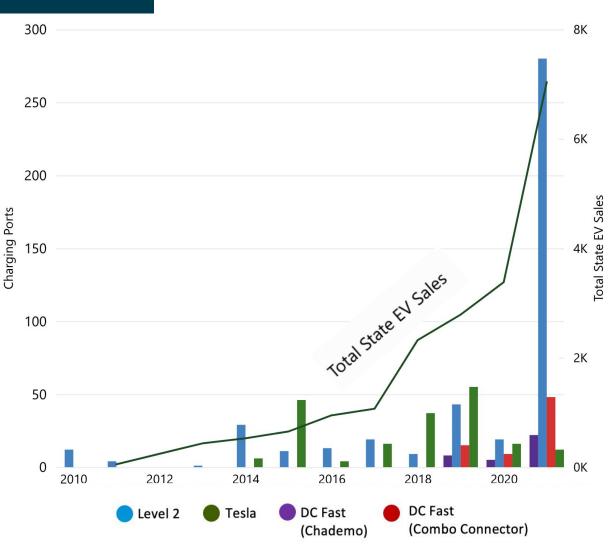
99% of these 705 charging ports are public.

CLARK COUNTY CHARGING INSTALLATIONS BY YEAR



• 2018-2020: 216 total were installed

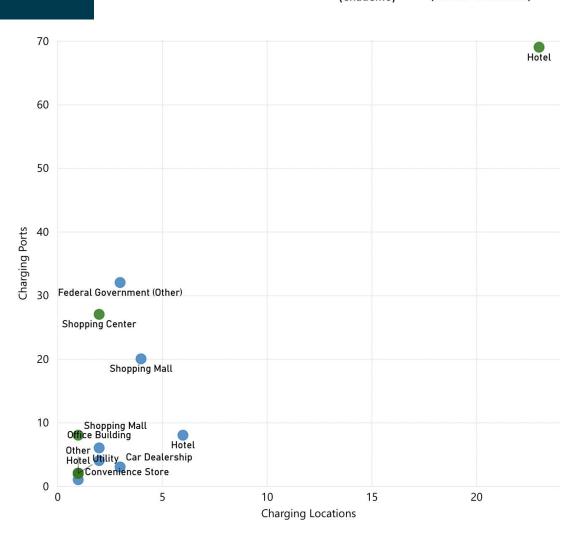
There is a strong correlation between public charging installations and EV sales.



CLARK COUNTY CHARGING BY FACILITY TYPE

Level 2 Tesla DC Fast (Chademo) (Combo Connector)

	Connector	Charging Locations	Charging Ports
	CHADEMO - DC FAST		
	Convenience Store	1	2
	Hotel	1	2
	Service/Gas Station	1	2
	J1772 - LEVEL 2		
	Car Dealership	3	3
	Convenience Store	1	1
	Federal Government (Other)	3	32
	Hotel	6	8
	Office Building	2	6
	Other	1	2
	Shopping Mall	4	20
	Stand-alone Station	2	4
	Utility	1	2
	J1772COMBO - DC FAST		
	Convenience Store	1	2
	Hotel	1	2
	Service/Gas Station	1	2
	TESLA - DC FAST		
	Convention Center	1	2
	Hotel	23	69
	Other Entertainment	1	2
>	Shopping Center	2	27
	Shopping Mall	1	8



Hotels, government, and shopping center facilities have the highest number of public chargers.

PROJECTED CLARK COUNTY EV CHARGING NEEDS

Considerations to add to this US DOE tool data:

- Multifamily communities
- Underserved communities
- Single-family homes
- Transportation network companies (I.e., taxi, rideshare)

Year	Workplace L2	Public L2	Public DC Fast		
2021	-	542	166		
2025	4,440	2,723	752		
2030	13,734	8,422	2,326		
2035	30,329	18,599	5,138		
2040	53,231	32,644	9,017		
2045	76,465	46,892	12,953		
2050	99,699	61,140	16,889		
*Estimated with US Department of Energy EVPro-Lite Tool https://afdc.energy.gov/evi-pro-lite					

Q&A: PUBLIC & INTERESTED PARTIES

NEXT STEPS

April Bolduc, President, S Curve Strategies

NEXT MEETING

- Visit the Clark County website for meeting presentations and recordings*
- Thu., March 10 meeting in-person
 - Clark County Offices 4701 W. Russell Rd., Las Vegas. 1st floor
- Presentation by PUCN Economist Karen Olesky
 - Role in transportation electrification
- EVs on display

PAGES	Office Of Sustainability > Transportation Electrificat	All-In Clark Co	unty > Electr		
ment to	Working <u>Group</u>	Purpose M	<u>Membership</u>	<u>Outcomes</u> <u>N</u>	leetings Contact U
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levada	Meeting #1	12/09/2021	2-4 pm	Meeting #1	Meeting #1
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64	Meeting #3	02/07/2022	2-4 pm		
	Meeting #4	03/10/2022	2-4 pm*		
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	Meeting #6	05/05/2022	2-4 pm		
	Meeting #7	06/02/2022	2-4 pm*		
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р	Meeting #10	09/08/2022	2-4 pm		
	Meeting #11	10/06/2022	2-4 pm*		
	Meeting #12	11/09/2022	2-4 pm		
	Meeting #13	12/01/2022	2-4 pm		

* In person at the County Offices if safe to do so.

*Clark County TEWG meetings and recordings:

clarkcountynv.gov/government/departments/environment_and_sustainability/sustainability/allin clark county/electric vehicles/tewg meetings.php

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Thank You!

Marci Henson, Clark County, mhenson@clarkcountynv.gov April Bolduc, S Curve Strategies, abolduc@scurvestrategies.com Randy Schimka, S Curve Strategies, rschimka@scurvestrategies.com

APPENDIX

WORKING GROUP STRATEGY CORNERSTONE

- ✓ Project EV demand and the charging infrastructure to support it
 - Consider multifamily, single family, public charging, workplace, and underserved communities
- ✓ Recommendations requested
 - Regional EV infrastructure development needs
 - Regional EV charging infrastructure installation planning
 - Model EV charging infrastructure ordinance, costs and how costs are distributed
 - Strategies for funding
 - Input to the Nevada Public Utilities Commission
 - Economic and workforce development opportunities
 - Where EV goals will be housed by government collaborators and transformed into actionable policies and programs