



DRIVE ELECTRIC

NICOLE WARGO, CLARK COUNTY FELLOW
DECEMBER 2022

OVERVIEW

- All-In Clark County
- Transportation Initiatives
- Electric Vehicles 101
- EV Charging Etiquette



ALL-IN CLARK COUNTY & SUSTAINABLE TRANSPORTATION



ALL-IN CLARK COUNTY

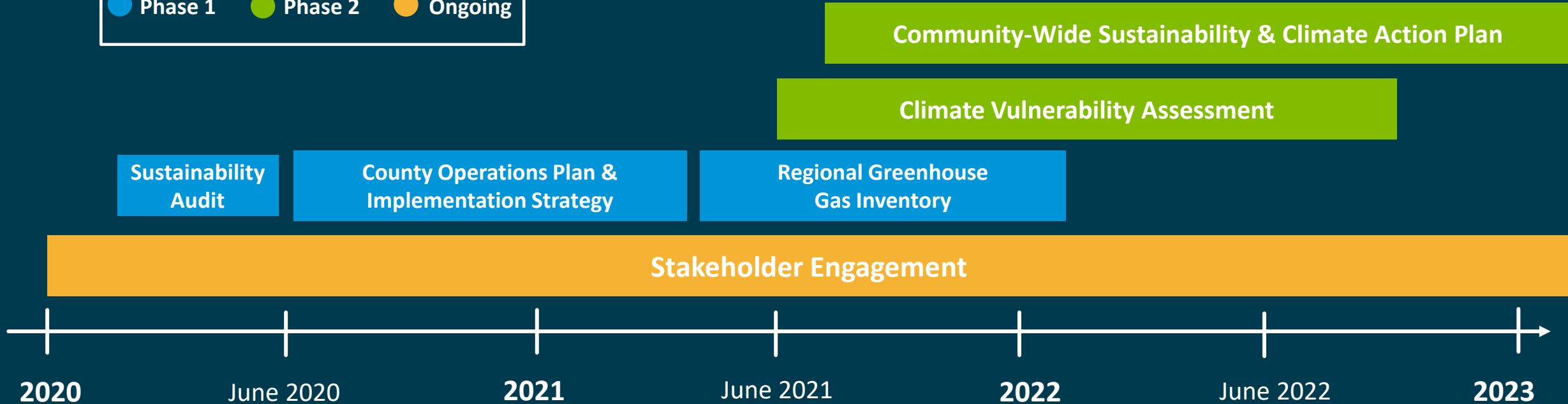
- Sustainability initiatives with implementable actions
 - Reduce greenhouse gas emissions 100% by 2050
 - A resilient, equitable future for the region
- Consists of:
 - County Operations Plan
 - Greenhouse Gas Inventory
 - Climate Vulnerability Assessment
 - Community Plan (early 2023)





All-In Clark County Planning Timeline

● Phase 1 ● Phase 2 ● Ongoing





CLARK COUNTY OPERATIONAL GREENHOUSE GAS EMISSIONS (MTCO₂E)

COUNTY OPERATIONS PLAN (2020)



CLEAN & RELIABLE ENERGY



RESILIENT COUNTY OPERATIONS

5



SMART WASTE MANAGEMENT & REDUCTION

KEY AREAS



SUSTAINABLE TRANSPORTATION

With this Plan, Clark County will focus on these five key areas as they relate to County operations:



WATER CONSERVATION & PROTECTION

COUNTY OPERATIONS PLAN (2020)



SUSTAINABLE TRANSPORTATION

GOALS

- Reduce emissions from vehicles in County operations.
- Support County employee commuting alternatives.
- Promote policies, programs, and infrastructure investments that prioritize multi-modal, clean, efficient transportation options throughout Clark County.

ACTIONS

Establish a formal vehicle purchasing and replacement policy that considers right-sizing of vehicles, assesses life-cycle costs and benefits, and shifts the County fleet to low-/zero-emission vehicles.

Install electric vehicle charging infrastructure needed to support County staff vehicles.

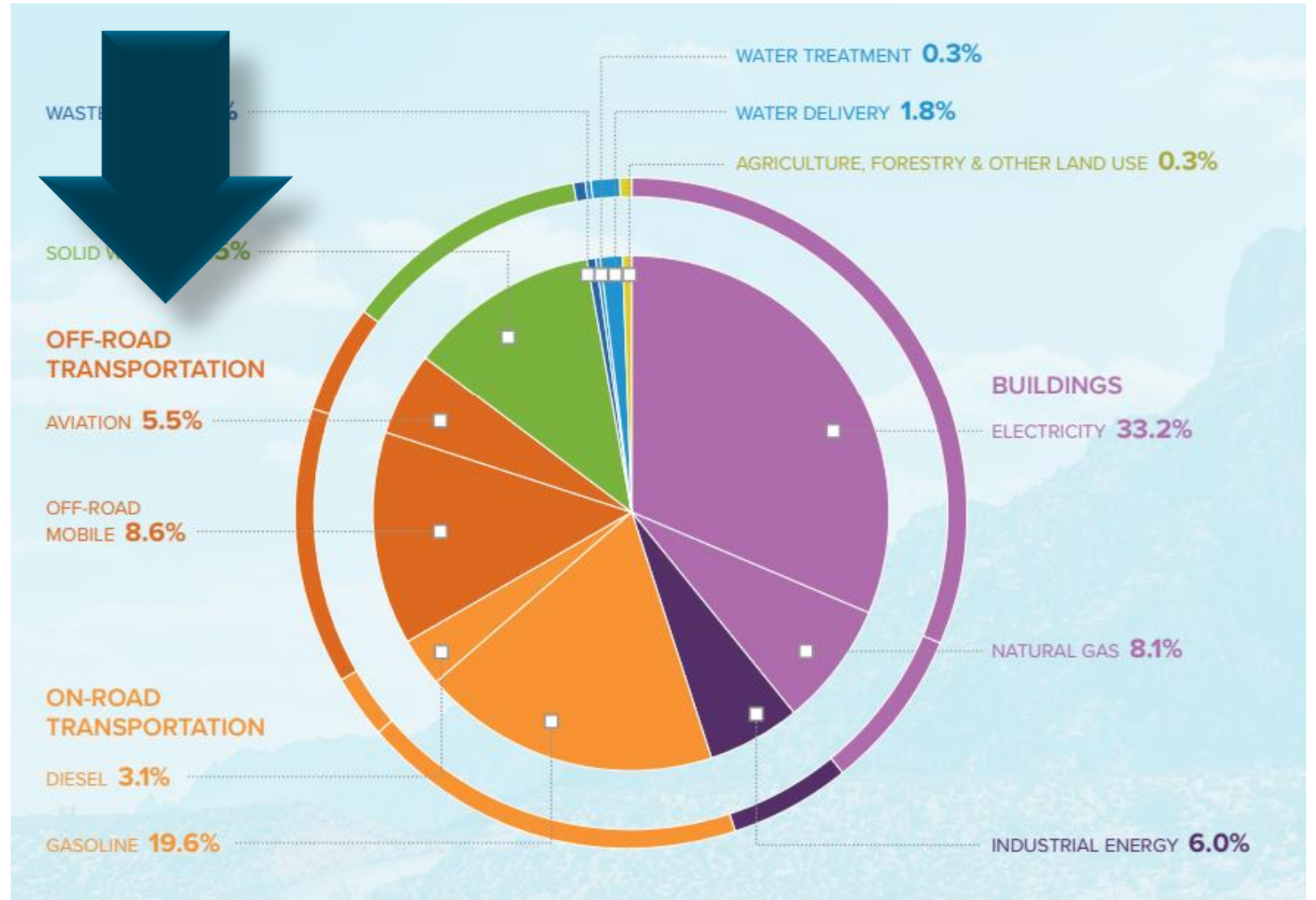
COUNTY OPERATIONS PLAN (2020)

GREENHOUSE GAS INVENTORY (2021)

■ Based on 2019 data

SOURCE	MTCO ₂ e	% OF TOTAL
Off-Road Transportation	4,145,745	14.1%
Off-Road Mobile	2,511,500	8.6%
Aviation	1,608,713	5.5%
Waterborne Navigation	17,589	0.1%
Railways	7,944	0.0%

On-Road Transportation	6,734,219	23.0%
Gasoline	5,747,487	19.6%
Diesel	904,285	3.1%
Electric	8,705	0.0%
CNG	6,483	0.0%
Transit CNG	51,029	0.2%
Transit Biodiesel	16,230	0.1%



COMMUNITY PLAN (2023)

Plan Focus Areas

The *All-In Community Plan* has six focus areas. Focus areas help us be sure to prepare for all the ways climate change will impact Clark County, and to put ourselves on a path that eliminates our contributions towards climate change.



Clean & Reliable Energy



Connected & Equitable Mobility



Diverse & Circular Economy



Sustainable Water Systems



Resilient & Healthy Community



Smart Buildings & Development

COMMUNITY PLAN (2023)



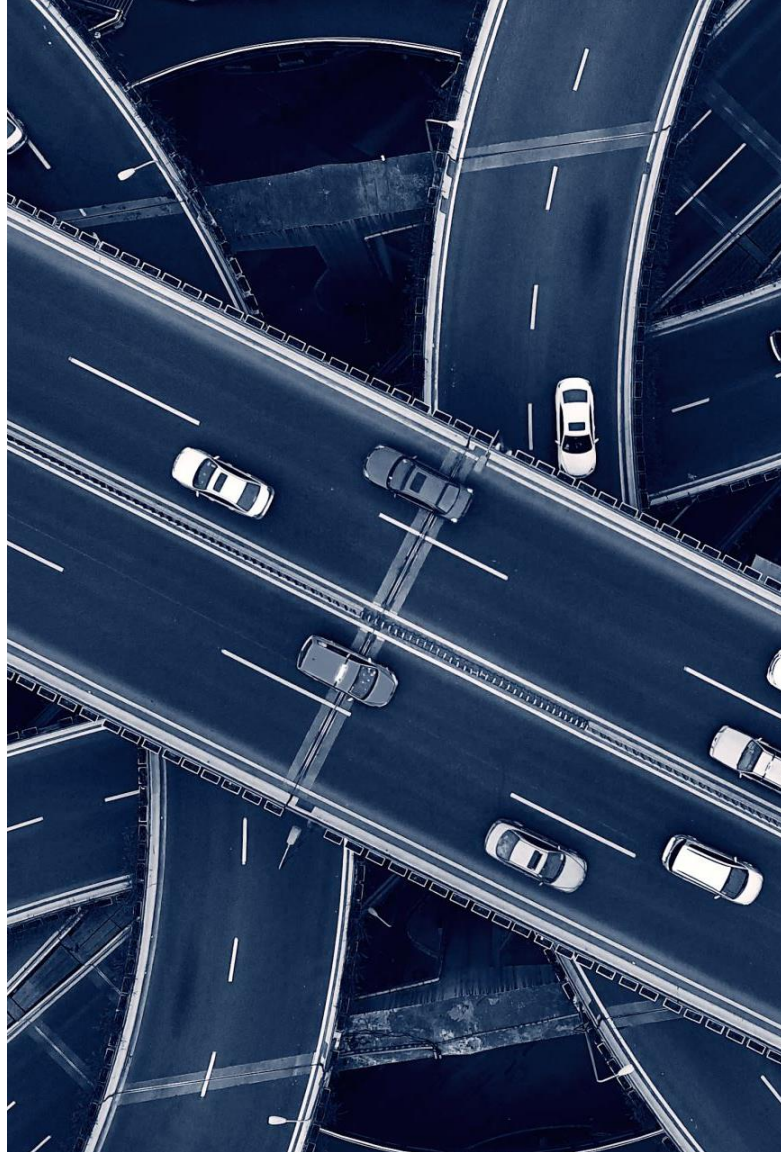
Connected and Equitable Mobility

Transitioning vehicles to electric and zero emission fuels will deliver the second largest share of reductions. Additional investments in the most efficient modes such as transit and bicycling could help minimize the impact of additional electricity demand on the grid.

Goal 2: The transportation system minimizes energy use and eliminates fossil fuels.

2.1 Transition passenger and light-duty vehicles to zero emission vehicles.

2.1.A	Establish incentives for electric vehicle upgrades for low-income drivers and people interested in used electric vehicles.
2.1.B	Establish incentives to encourage installation of electric vehicle charging infrastructure at residential and commercial locations, including a pilot program for multi-family residential properties and underserved communities.



OTHER INITIATIVES

- Transportation Electrification Working Group
 - Guide transportation electrification planning and policy
- Clean Cities Coalition
 - Education and outreach on alternative fuels and vehicles
 - Working towards designation from Department of Energy

ELECTRIC VEHICLES 101



TYPES OF ELECTRIC VEHICLES

■ Hybrid Electric Vehicles (HEVs)

- Electric motor assists gas-powered engine
 - Increases gasoline fuel efficiency
 - Charges through regenerative braking and the internal combustion engine
- Average 40 to 50 combined mpg
- Has ONLY a gasoline tank

■ Plug-In Hybrid Electric Vehicles (PHEVs)

- Similar to hybrid, but larger battery and electric motor
- Average 20 to 40-mile electric range
- Has BOTH gasoline tank and electricity port

■ Battery Electric Vehicles (BEVs)

- Powered by electric battery, no gas engine
- Has ONLY electricity port



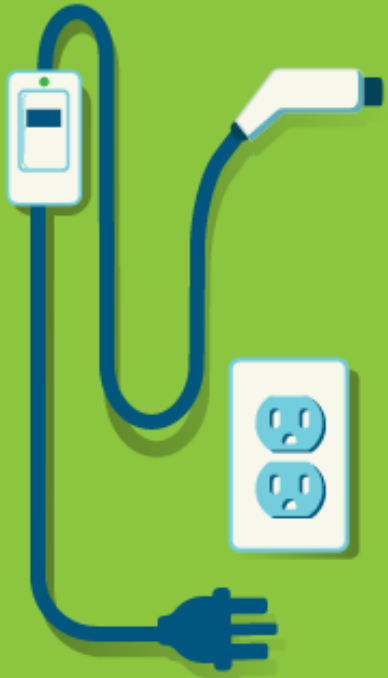
Toyota Prius
Toyota.com



Ford Escape
Ford.com



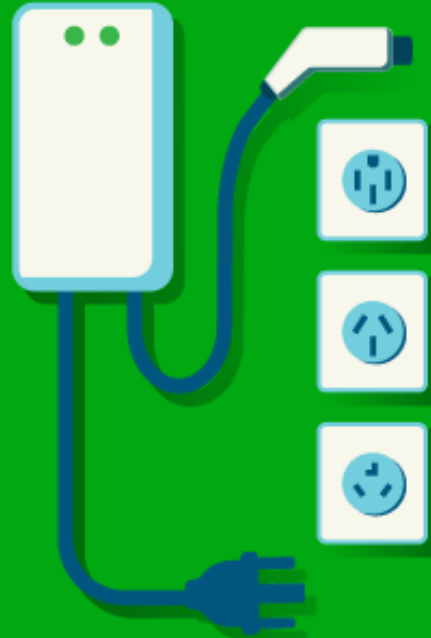
Subaru Solterra
Subaru.com



Level One

120V
Electrical source from a regular home outlet.

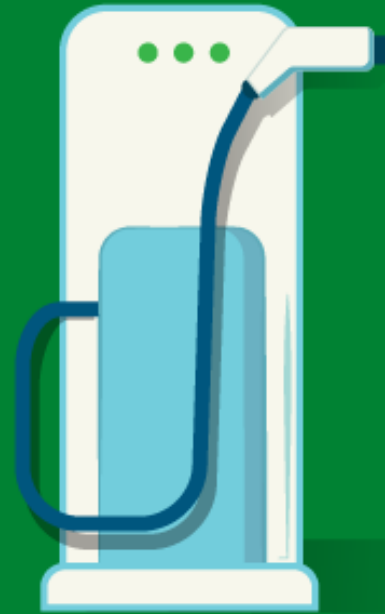
Charge Time
2-5 miles of range per 1 hour of charging.



Level Two

220V
Electrical source from a regular home dryer outlet, home hardwire, or public station.

Charge Time
10-20 miles of range per 1 hour of charging.



DC Fast Charge

208 or 480V 3-Phase AC
Electrical source from a public station.

Charge Time
60-80 miles of range per 20 minutes of charging.

TYPES OF CHARGERS

- Level 1
 - Provided with vehicle
- Level 2
 - Some public chargers
 - Home installation
- DC Fast Charge
 - Only available as a public charger

Kia Presents 2030 Roadmap With Accelerated EV Transition Targets

The new target is 1.2 million battery-electric vehicles annually by 2030.

Audi US president: 'By 2033, we will be fully electric'

Big News - Subaru Says More New EVs Are Coming To The US By 2027

Honda announces major EV and battery production investment in the US

Ambition2039

Setting our course toward carbon-zero.

We have the power to shape the next era of mobility with Mercedes-Benz Electric. We call it Ambition2039 — our strategy to create a carbon-neutral fleet of passenger vehicles across the globe within the next 20 years.



Bentley to Disavow Gasoline, Go All-Electric by 2030

Luxury carmaker Rolls-Royce to switch to all electric range by 2030

Hyundai launches construction of EV factory in the USA

Volvo Cars to be fully electric by 2030

WHY ELECTRIC?

1

Fewer Greenhouse Gas Emissions

Even when taking
entire lifecycle into
account

2

Less pollution

And pollution occurs
at energy plant, not in
communities

3

Improving electric grid

Goal of 50%
renewable by 2030
(NV Energy)

4

Save on energy costs

Charging an EV is
cheaper than filling a
gas tank

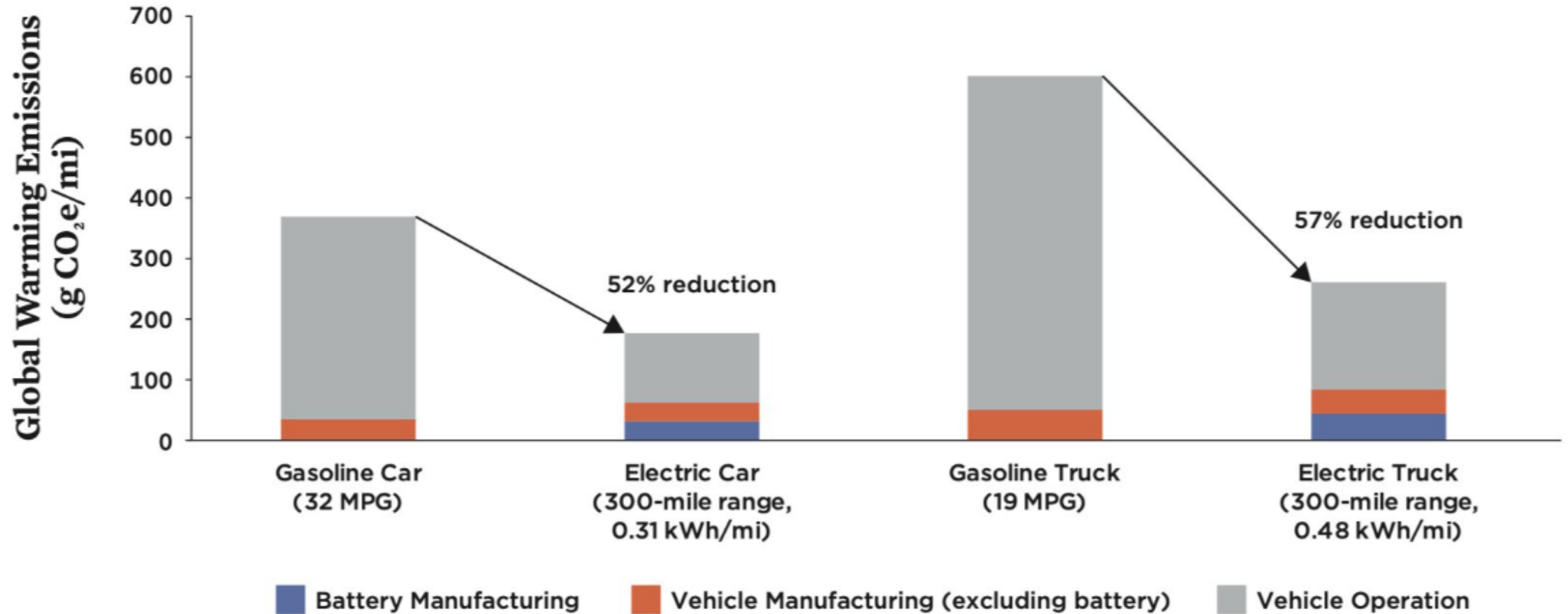
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Incentives

For both vehicles and
chargers

WHY ELECTRIC?

FIGURE ES-2. Life Cycle Global Warming Emissions, EVs vs. Gasoline Cars and Trucks



Graph: Union of Concerned Scientists

ENERGY SAVINGS

- Sample Calculation Assumption
 - Drive 9,000 miles a year
 - 25 mpg for gas vehicle
 - \$3.96 per gallon in Clark County (AAA, Dec 19, 2022)
 - 3 miles per kWh for electric vehicle (BEV)
 - Cost of \$0.125 per kWh (Standard Residential, NV Energy, Dec 2022)
- Gas
 - $9,000 / 25 = 360$ gallons \times \$3.96 = **\$1,426 annual fuel cost**
 - Cents per mile = $\$1,426 / 9,000 = 15.8$ cents per mile
- Electric
 - $9,000 / 3 = 3,000$ kWh \times \$0.125 = **\$375 annual fuel cost**
 - Cents per mile = $\$375 / 9,000 = 4.2$ cents per mile
- Savings of **\$1,051 per year**
 - Plus, no oil changes or smog checks



OTHER INCENTIVES



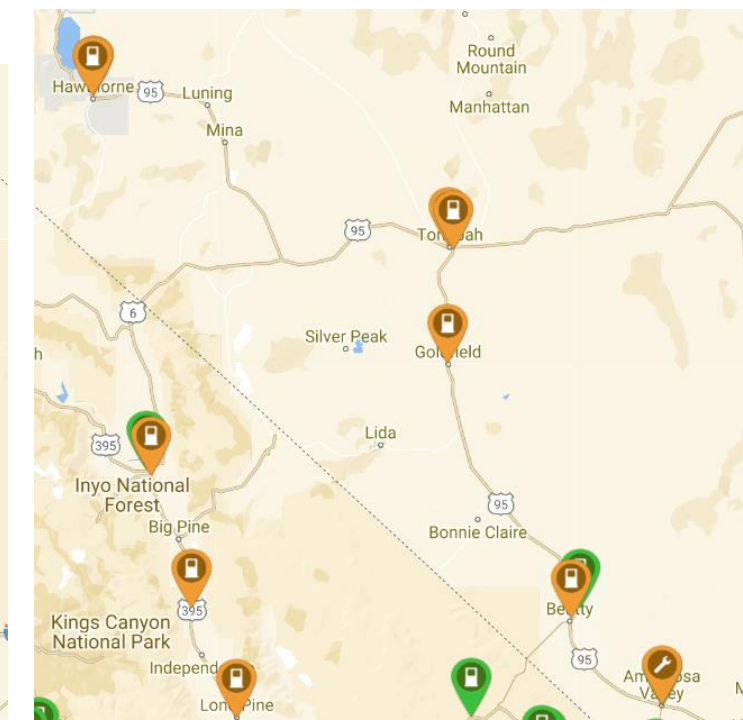
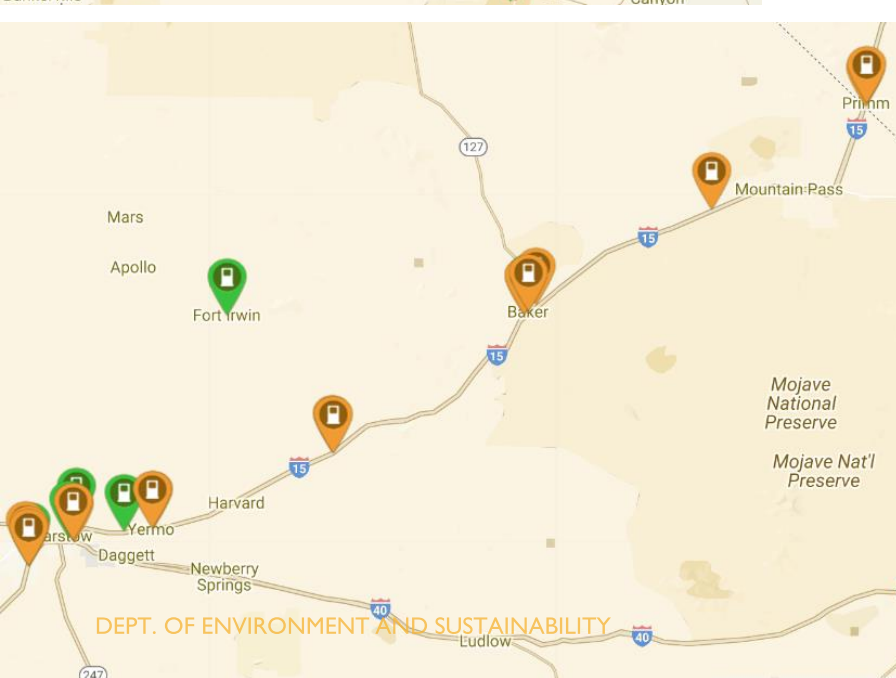
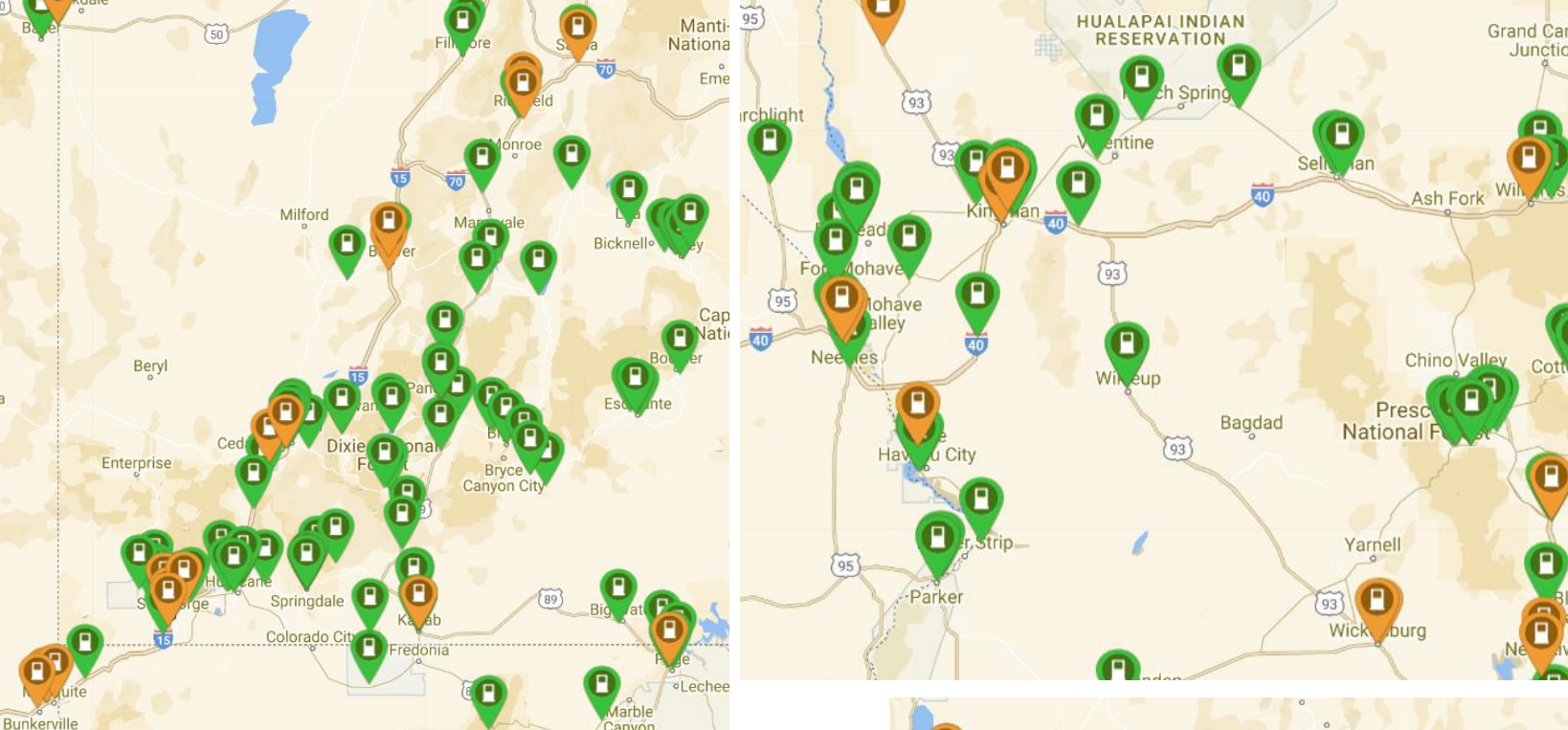
Vehicles

- Clean Vehicle Tax Credit
 - Federal
 - Up to \$7,500 for new and up to \$4,000 for used EVs
 - Has some manufacturing requirements to earn full amount
- EV Time-of-Use Rates
 - NV Energy
 - Pay a discounted rate if you charge during off-peak hours
 - \$0.07 vs \$0.125 per kilowatt hour
 - Applies to all electricity use at home
 - Can compare to flat-use rate and receive credit back if you did not save money



Chargers

- Transportation Electrification Plan (TEP) – Residential
 - NV Energy
 - 75% of approved costs (100% if income qualified)
 - Up to \$12,812
 - Operations and maintenance incentive
 - Up to \$200 per year for five years
 - Was fully subscribed for 2022, so look for this program in 2023
- Alternative Fuel Refueling Property Tax Credit – Residential
 - Federal
 - 30% of cost of hardware and installation
 - Up to \$1,000



RANGE ANXIETY?

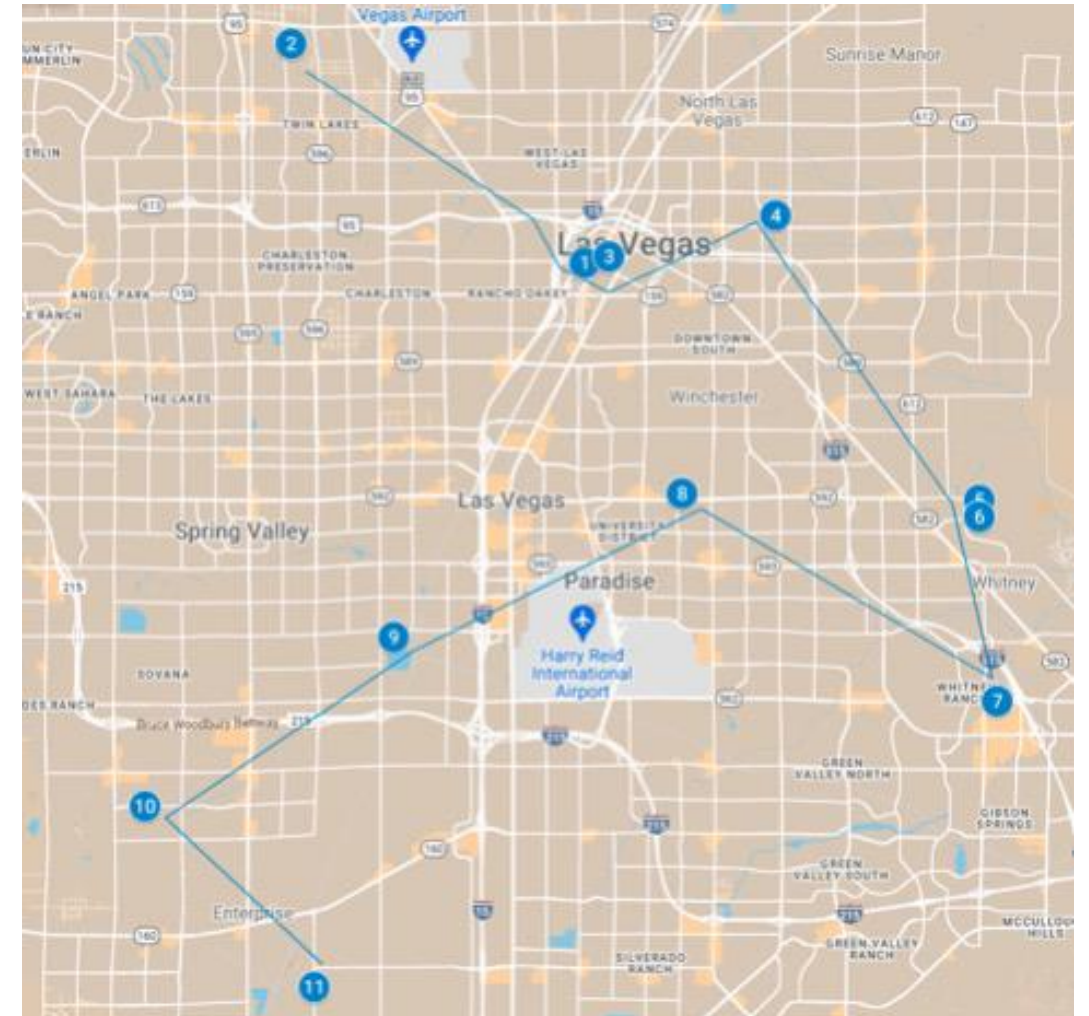
- EPA-estimated ranges from 100 miles (Mazda MX-30) to 520 miles (Lucid Air)
- 2021 models
 - Average range of 234 miles (EPA)
- 2022 models
 - 14 with a range of 300+ miles (EPA)
- Plan your trip!
 - Google Maps
 - PlugShare
 - ...and more!

EMPLOYEE CHARGING & EV ETIQUETTE



COUNTY OPERATIONS EV TRANSITION

- Conducted site walks and audit
 - Considered: Existing infrastructure, available power, fleet, number of employees, upcoming construction projects
- Created a plan for prioritizing EV charging for both fleet & county employees





#THE_EV_LIFE

EMPLOYEE PERSONAL VEHICLE CHARGING ETIQUETTE

Limit to 4 hours

Move vehicle at lunch or breaks

Don't unplug others

Start a Teams EV group

Find EV buddies to share a charger





REMEMBER

Sharing

Is

Caring

SUMMARY

- Transportation is a large polluter and greenhouse gas emitter
- Sustainable transportation is part of County Operations and Community All-In Plans
- Electric vehicles are the path forward
- EVs save on energy costs and reduce GHG emissions and pollution
- EV range is always improving and chargers are available on all major roadways
- Practice EV etiquette





THANK YOU!

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CLEAN CITIES COALITION

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SCAN ME

RESOURCES

All-In Clark County, Reports, Transportation Electrification Working Group, Clean Cities Coalition

https://www.clarkcountynv.gov/government/departments/environment_and_sustainability/sustainability/all-in_clark_county/index.php

Types of Electric Vehicles and Range

Hybrid, TrueCar <https://www.truecar.com/best-cars-trucks/fuel-hybrid/by-gas-mileage/>

Plug-In Hybrid, US News <https://cars.usnews.com/cars-trucks/advice/best-plug-in-hybrids>

Percent Renewables for Southern Nevada, NV Energy <https://www.nvenergy.com/cleanenergy>

Greenhouse Gas Lifecycle for Gasoline Vs. Electric Vehicles, Union of Concerned Scientists <https://www.ucsusa.org/resources/driving-cleaner>

Energy Prices

Gasoline, AAA <https://gasprices.aaa.com/?state=NV>

Electricity, NV Energy, Flat Rate <https://www.nvenergy.com/account-services/energy-pricing-plans>

Electricity, NV Energy, Time of Use Rate <https://www.nvenergy.com/account-services/energy-pricing-plans/time-of-use/standard-rates-residential>

EV Range

Average, EPA <https://www.energy.gov/eere/vehicles/articles/fotw-1221-january-17-2022-model-year-2021-all-electric-vehicles-had-median>

2022 Models, EPA <https://www.energy.gov/eere/vehicles/articles/fotw-1253-august-29-2022-fourteen-model-year-2022-light-duty-electric>

EV Charger Locator

Google Maps <https://www.google.com/maps>

PlugShare <https://www.plugshare.com/>

RESOURCES

Incentives

Clean Vehicle Tax Credit <https://tax.thomsonreuters.com/blog/understanding-clean-vehicle-credits-for-electric-vehicles/>

Alternative Fuel Refueling

<https://afdc.energy.gov/laws/10513#:~:text=Beginning%20January%201%2C%202023%2C%20fueling,depreciation%2C%20not%20to%20exceed%20%24100%2C000.>

NV Energy EV Time of Use Rates <https://www.nvenergy.com/account-services/energy-pricing-plans/electric-vehicle>

NV Energy Transportation Electrification Plan <https://www.nvenergy.com/about-nvenergy/news/news-releases/nv-energy-files-new-transportation-electrification-plan>

US Department of Energy <https://afdc.energy.gov/>