NEVADA: MEDIUM AND HEAVY DUTY (MDHD) ELECTRIFICATION

A State Summary of electric MDHD vehicles and Key Indicators

March 2022
OVERVIEW

• About the data
• Benefits and challenges
• State of the market
• The grid in Nevada
• Electric MDHD deployment in Nevada
ABOUT THE DATA

• Where not otherwise sourced, data is drawn from Atlas EV Hub: www.atlasevhub.com

• EV Hub gives users quick access to key data and information on market, policies and regulations, and activities by EV community
ABOUT ELECTRIFYING MDHD

Status of the MDHD electrification transition around the country.
BENEFITS

• Zero Tailpipe Emissions
  • MDHD vehicles largest contributor to mobile emissions of NOx (EPA)

• GHG Emission Reductions
  • MDHD vehicles responsible for 23% of transportation sector GHG emissions (EPA)
  • Electric MDHD vehicles can produce less than half the GHG Emissions of a MDHD diesel vehicle (UCS)

• Equity
  • PM$_{2.5}$ exposure from on-road sources relative to national average (UCS)
    • Asian American +34 %
    • African American +24 %
    • Hispanic or Latino +23 %
    • White -14%
CHALLENGES

Charging Infrastructure Needs
- $100 to $166 billion needed by 2030 to be on the path to 100 percent electric MDHD truck sales by 2040. (Atlas Public Policy)

High Upfront Costs
- Can be as high as 2-4 times the cost of diesel vehicles (NREL)

Electric Vehicles Don’t Fit Each Use Case Today
- BEVs still lag in payload capacity, range, and fueling time. (NACFE)
ELECTRIC MDHD MANUFACTURERS (1/2)

Saint-Jerome, Quebec
Joliet, Illinois
School Buses, Trucks
450+ Buses and Trucks on the Road

Charlotte, North Carolina
Delivery Van, Bus
10,000 Vans on Order by UPS

Detroit, Michigan
Delivery Van
18,000 Vans on Order by Merchant Fleets

Source: Lion Electric
Source: Arrival
Source: Merchant Fleets
ELECTRIC MDHD MANUFACTURERS (2/2)

Dublin, Virginia
Heavy-Duty Truck
22+ Class 8 Trucks on the Road

Greenville, South Carolina
Transit Bus, Electric Powertrain
700+ Buses on the Road

Normal, Illinois
Delivery Van
100,000 Vans on Order by Amazon

Source: Volvo LIGHTS
Source: Proterra
Source: Amazon
AND MANY MORE…

Trucks

Vans

Buses

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TESLA GIGA FACTORY
Sparks, Nevada

$5 billion capital investment

7,500 employees

2 pre-production Tesla Semis spotted December 2021

Source: Tesla
THE GRID

Understanding the relative emissions of electric trucks and buses in Nevada
NEVADA GRID CLEANER THAN NATIONAL AVERAGE

- Composition of NWPP sub-Region electricity grid:
  - 42% hydro
  - 23% coal
  - 20% gas
  - 8% wind
  - 7% other
- Lower CO$_2$ emissions than national average due to high proportion of hydropower

Data source: Power Profiler | US EPA
ELECTRIC MDHD VEHICLES PRODUCE LESS THAN HALF THE GHG EMISSIONS OF A MDHD DIESEL VEHICLE

- **Study (2019)** shows emissions of MDHD vehicles based on national average grid emissions
- Even greater emissions reductions in Nevada due to cleaner grid than the national average
MDHD IN NEVADA

Deployments, funding, and policy of MDHD electric vehicles in Nevada
VEHICLES ON THE ROAD (2019)*
- 76 K MDHD Vehicles
- <1% of National Total

NEW REGISTRATIONS*
- 10 K New MDHD Vehicles Registered Since 2019
- 0 Electric

UTILITY INVESTMENT**
- Approved: $112.2 Million
- Pending: $0 Million

ALTERNATIVE FUEL VEHICLES ON THE ROAD*
- 748 CNG MDHD Vehicles
- 76 Propane MDHD Vehicles
- 22 Electric MDHD Vehicles

POLICY ENVIRONMENT**
- 5 Supportive Policies
- 1 Bill Passed in 2021 Legislative Session

GOVERNMENT FUNDING
- $5.4 Million Awarded
- 183 Vehicles Committed
- 87% of VW Funds Awarded to ZEVs

*Vehicles on the Road represents a snapshot from 2019. New Registrations represents new vehicles registered from 2019 to date. Turnover in the existing fleet during this time is unknown.

**Refers to transportation electrification in general, not specific to MDHD vehicles.
MORE THAN 75,000 MDHD VEHICLES IN NEVADA

MDHD Vehicles by Vehicle Class and Fleet Type

- Light Heavy-Duty (Class 2B to 3): 30,088
- Medium Heavy-Duty (Class 4 to 6): 21,022
- Heavy Heavy-Duty (Class 7 to 8): 24,797

MDHD Vehicles by Use Case

- Truck: 52%
- Van: 39%
- Bus: 7%
- Other: 2%

Excludes Pickups and SUVs
POLICY SUPPORT GROWS

Governor Sisolak Signs SB 448
Leads to $100 million Transportation Electrification Program from NV Energy

December 2021

Advanced Clean Truck rule spreads
Following California, six other states have either proposed adoption or formally adopted the rule requiring an increasing proportion of MDHD EV sales

Federal MDHD Standards
Following an Executive Order, EPA releases proposed new medium and heavy-duty Multi-Pollutant and Fuel Economy Standards starting with model year 2027

March 2022

June 2021
82 percent of Nevada's VW settlement funds electric vehicles

$5,371,880

$3,320,100

$672,701

$300,000

$200,000

$90,000

Airport Ground Support Equipment

Charging Station

School Bus

Transit Bus

Refuse Truck

Shuttle Bus

Public Funding for MDHD Vehicles by Project Type

Electric

Diesel

CNG

Note: $8 million released in January 2022 is pending
**Utility Investment in Electric Vehicles in Nevada**

- **$112 million** total approved investments from NV Energy

| $100 million for 2022 to 2024, largest program ever approved on $/customer/year basis* |
| $21 million to support the Transit, School Bus, and Transportation Electrification Custom Program |

*Min. 50,000 customers
AVAILABLE PUBLIC FUNDING

**NV Energy Electric School Bus Incentive**
- $2 M available
- Up to 75% of the cost of the bus
- Open until June 30, 2022, or until funds are reserved

**FTA Low or No Emission Grants**
- $1.18 B for FY 2022
- Purchase low- or zero-emission transit buses, facilities, or charging infrastructure

**EPA Clean School Bus Program**
- $5 B over 5 years
- Up to 100% of the cost of the bus
- First rebates expected to open April 2022

Source: NV Energy
Source: FTA
Source: EPA
FEDERAL INVESTMENT

Funding allocated for MDHD in Infrastructure Investment and Jobs Act
The Infrastructure Investment and Jobs Act (HR 3684) was passed in November 2021.

Total funding of $50.3 billion in EV eligible funding including $7.5 billion for EV dedicated funding.

Funding for MDHD EVs:
- $13.2 billion for Congestion Mitigation & Air Quality Improvement Program (CMAQ): expanded eligibility for zero-emission MDHD vehicles
- $5.6 billion for Low or No Emission (Bus) Grant Program
- $5 billion for Clean School Bus Program
FEDERAL FUNDING COMING TO NEVADA

• The Infrastructure Investment and Jobs Act has competitive and formula funding

• According to the Department of Transportation, formula funding over the next five years for Nevada will include:
  • $38 million for an EV charging network in the state
  • $157 million to reduce transportation-related emissions
  • $65 million to increase the resilience of its transportation system

• Nevada can also compete for other grant funding

Source: The Bipartisan Infrastructure Law Will Deliver for Nevada | US Department of Transportation