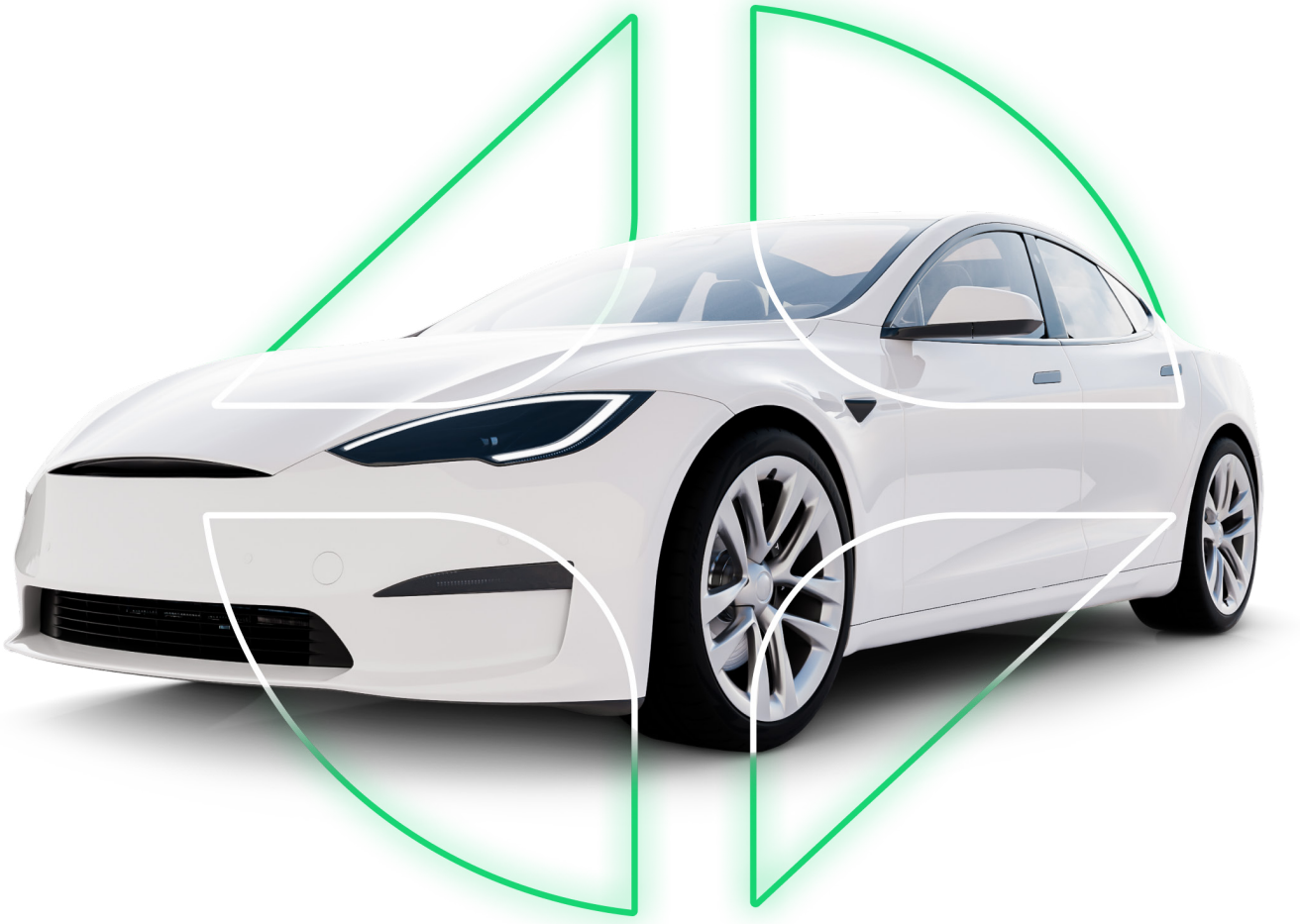
L-CHARGE

Powering the future of EV fleets

An Environmentally Friendly Solution for EV Charging through Clean Fuel Utilization



Executive Summary

L-Charge offers a transformative solution for off-grid EV charging by harnessing clean fuels like natural gas, renewable natural gas (RNG), and hydrogen.

At a time when the electrification of transportation is hindered by the limitations of traditional grid infrastructure, particularly in urban centers, L-Charge provides an innovative path forward.

By enabling EV charging that bypasses grid dependency, L-Charge not only accelerates infrastructure deployment but also reduces emissions compared to conventional fuel sources.

This white paper draws on an air emissions impact analysis conducted by the Montrose Environmental Solutions Advisory Services Team (Montrose), which assesses the environmental benefits of L-Charge's model compared to traditional gasoline and diesel vehicles, compressed natural gas (CNG) alternatives, and even grid-powered EVs across different U.S. regions.

In this white paper, we explore the key benefits of this approach, showing why L-Charge is an environmentally sustainable choice for both the present and the future.

Key Environmental Benefits

L-Charge's clean fuel-based system offers several environmental advantages, helping operators meet emissions targets sooner than grid-based models and serving as a bridge to future green energy sources.

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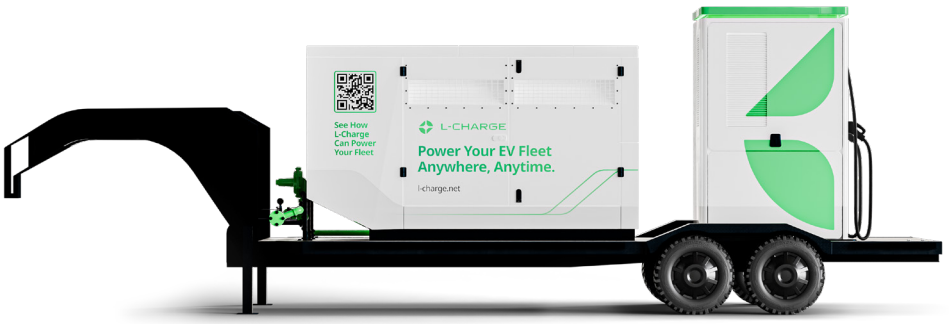
Lower Emissions Compared to Conventional Vehicles



Greenhouse Gas Reduction:

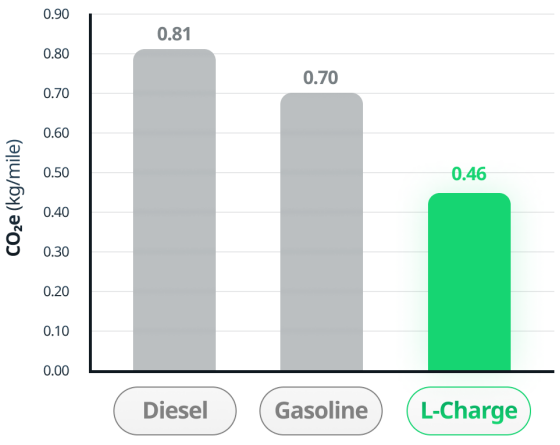
L-Charge's solution, using natural gas, is expected to result in a 34% to 43% reduction in greenhouse gas (GHG) emissions when compared to gasoline and diesel vehicles.

This significant reduction is crucial for fleet operators looking to minimize their carbon footprint while transitioning to electric vehicles.

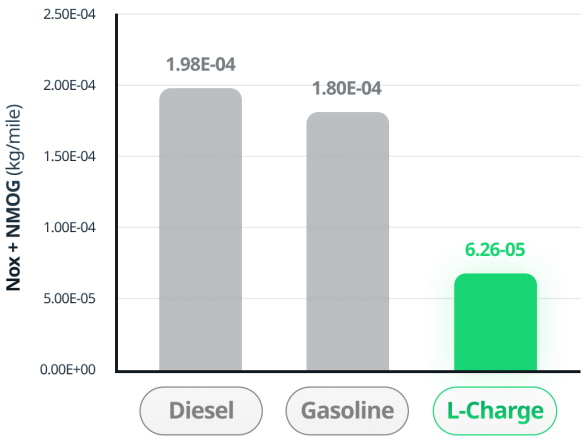
Criteria Pollutants:

Montrose's study highlighted that L-Charge is expected to reduce emissions of criteria pollutants, with calculated emissions reductions of approximately 90% for carbon monoxide (CO) and 60%for nitrogen oxides (NOx) and non-methane organic gases (NMOG), compared to gasoline and diesel vehicles.

Avarage GHG by Fuel Type



Avarage NOx + NMOG by Fuel Type



Enhanced Sustainability with Renewable Natural Gas (RNG)

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RNG Option:

For further decarbonization, L-Charge can operate on RNG, reducing expected GHG emissions by 25% relative to CNG-powered vehicles.

This use of RNG not only supports lower carbon intensities but can adapt based on the RNG feedstock type (e.g., landfill or digester sources).

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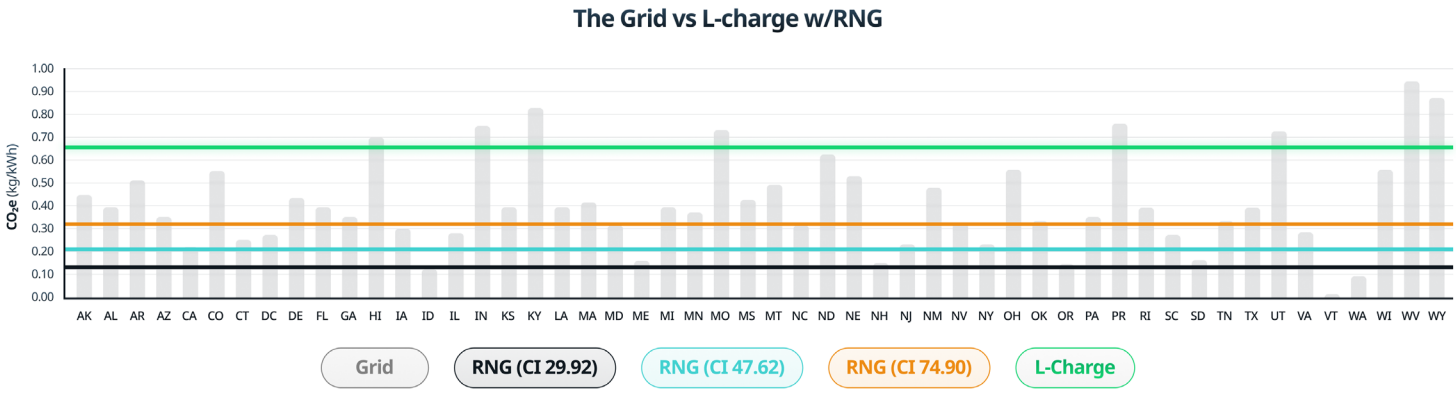
Flexibility with Blends:

Using RNG allows L-Charge to tailor carbon intensity levels to meet specific environmental targets, further reinforcing the company's commitment to sustainable operations.



Comparison with Grid-Charged EVs

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Regional Benefits:

L-Charge's natural gas-based EaaS (Energy as a Service) system is expected to generate lower emissions per kWh than the existing grid in some states (shown below).

It is likely most advantageous, compared to the existing grid, in states that are heavily reliant on electricity generated from coal-fired powerplants and other fossil fuels.

L-Charge can likely provide an immediate environmental benefit in areas where renewable or natural-gas generated grid power is limited

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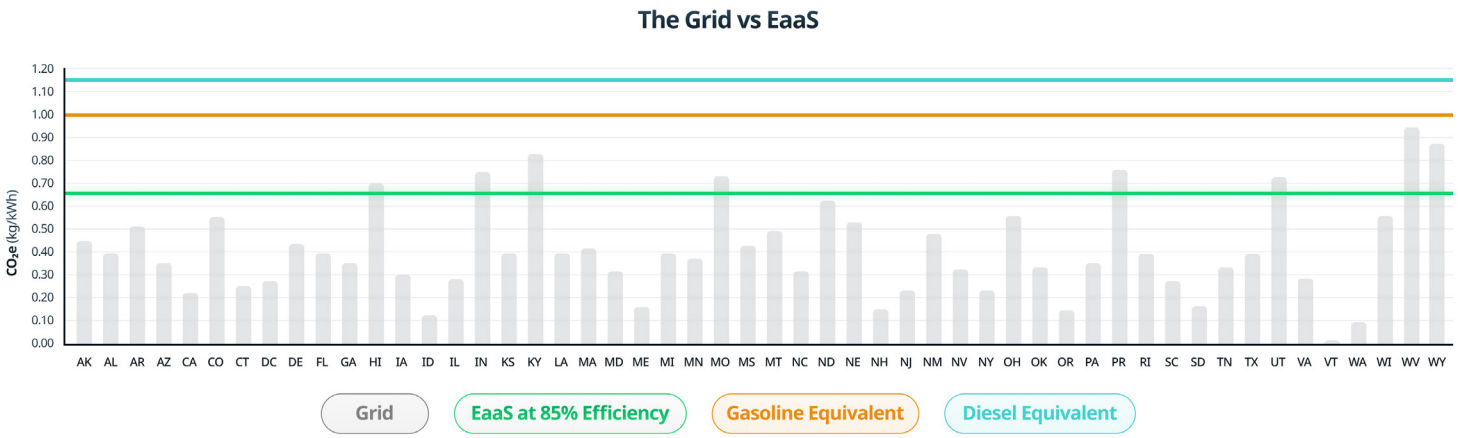
Higher Efficiency in Deployment:

With an off-grid model, L-Charge addresses infrastructure delays that can extend grid connection timelines by several years, enabling faster fleet electrification and reducing emissions from delayed EV adoption.



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Future-Proofing with Hydrogen

Hydrogen Pathway:

While hydrogen is not yet widely available for fuelling, L-Charge's technology is designed with future flexibility in mind.

Hydrogen combustion produces no CO2, methane, or nitrous oxide emissions, potentially making it a viable long-term clean fuel source despite current challenges with NOx emissions from hydrogen combustion.

Research and Development:

Ongoing research into hydrogen fuel cells and linear generators will further enhance NOx reduction, positioning L-Charge to leverage hydrogen once infrastructure and supply chains mature.

With these advancements, L-Charge can seamlessly transition to cleaner hydrogen solutions as conditions evolve and readiness improves.

Conclusion

L-Charge's off-grid, clean-fuel model delivers a practical and environmentally sustainable alternative for EV charging. As regions worldwide face infrastructure challenges and increased demand for rapid decarbonization, L-Charge's flexible use of natural gas, RNG, and hydrogen offers an immediate solution for fleet operators aiming to meet stringent environmental standards.

With its adaptability to renewable fuels and readiness for future hydrogen integration, L-Charge not only offers a lower-emission charging alternative today but also aligns with the long-term goals of global decarbonization. In doing so, it paves the way for a cleaner, more resilient EV infrastructure that contributes significantly to a sustainable transportation future.

Take the Next Step

L-Charge invites you to join the EV revolution with charging solutions designed to grow with your business. Contact our team today to learn how we can customize an off-grid charging solution for your fleet.

l-charge.net

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Together, Let's Power A Sustainable Future.

Appendix

References and assumptions in Montrose report:

- Vehicle Properties Source
  - Conventionally Fueled Vehicles, mileage: Source: The Federal Highway Administration. Highway Statistics 2021
  - EVs, mileage and battery size:
    - US EPA and DEO Fuel Economy Guide (2024)
    - Vehicle Specifications: Kia EV9, BrightDrop , Ford eTransit , Blue Arc, Mack MD
  - EPA Emissions Certification (Criteria Pollutants): EPA Annual Certification Data for Vehicles, Engines, and Equipment
- L-Charge EaaS Properties
  - Engine Specifications: ZPP TA690 Manufacturer Data Sheets
  - Assumed 85% efficiency
- Renewable Natural Gas (RNG)
  - Carbon Intensity
    - California Air Resource Board LCFS
    - Pathway Certified Carbon Intensities
    - Compressed Natural Gas Fuel Type and Landfill Feedstock
- Emission Factor Sources
  - Conventionally Fueled Vehicles:
    - US EPA Emission Factors for GHG Inventories (2024)
    - US EPA Tier 2 Vehicle Emissions Standards
    - US Highway Administration, Highway Statistics 2021
  - Compressed Natural Gas
    - US EPA Emission Factors for GHG Inventories (2024)
  - L-Charge EaaS (Natural Gas Combustion):
    - Federal Register EPA; 40 CFR Part 98;e CFR; Table C 1 and Table C 2
    - California South Coast Rule 1110.2
  - U.S. EPA AP 42 Chapter 3.2
- Electrical Grid
  - U.S. EPA eGRID (2022)
  - All states evaluated for GHG emission including US Average, and all regions evaluated for other air pollutants.
  - Regional Gross Grid Loss (GGL) was applied. Average GGL applied on state evaluations.


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