Scaling Fleet Electrification: Best Fit EVs and TCO

A Sourcewell & EC Coalition Collaboration

Electrification Coalition

Sourcewell

About Sourcewell & the Electrification Coalition

For over 40 years, **Sourcewell** has helped government, education, and nonprofit agencies operate more efficiently. We help them save time and money with several hundred contract purchasing solutions that are solicited nationally from the most responsive and responsible vendors.

The **Electrification Coalition** is a nonpartisan, nonprofit organization that develops and implements a broad set of strategies to facilitate the widespread adoption of electric vehicles to overcome the economic, public health, and national security challenges that stem from America's dependence on oil.

Committed to fostering sustainable practices and reducing upfront costs and eliminating barriers in EV procurement, **Sourcewell and the Electrification Coalition** work together to provide municipalities nationwide with equal access to competitively bid electric vehicles and charging infrastructure.

Programming

Technical Lead
Climate Mayors EV Purchasing Collaborative

State EV Policy Accelerator
NV, MI, PA, VA, NC

Electrification Advisor
Bloomberg American Cities Climate Challenge

Lead Electrification Partner
Smart Columbus

Project Lead
US Virgin Islands and Washington, DC Roadmaps

Pilot Program Leader
Freight and Goods Delivery Electrification

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EV MARKET

Some Example 2023 Models

Chevrolet Bolt EUV

MSRP: $27,800
Range: 250 miles
Level 2 Charge Time:
7 hours

Subaru Solterra

MSRP: $44,995
Range: 222 - 228 miles
Level 2 Charge Time:
9 hours

Hyundai Ioniq 5

MSRP: $41,450
Range: 220 - 330 miles
Level 2 Charge Time:
7 hours

Volkswagen ID4

MSRP: $38,995
Range: 209 - 275 miles
Level 2 Charge Time:
7 hours

Some Example 2023 Models

Nissan LEAF

MSRP: $28,040
Range: 215 miles
Level 2 Charge Time:
8 hours

Hyundai Kona Electric

MSRP: $33,550
Range: 258 miles
Level 2 Charge Time:
9 hours

Mini Cooper Electric

MSRP: $34,225
Range: 114 miles
Level 2 Charge Time:
4hours

Kia Niro EV

MSRP: $39,550
Range: 253 miles
Level 2 Charge Time:
6.5 hours

CHEVROLET

Ford

RIVIAN

TESLA

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Electric Pick-Ups

Chevrolet Silverado EV (2024)
MSRP: $74,800
Range: Up to 450 miles

Ford F150 Lightning
MSRP: $49,995+
Range: 240 - 320 miles

Rivian R1T
MSRP: $73,000+
Range: 270 - 410 miles

Tesla CyberTruck
MSRP: $79,990
Range: 340 miles

Medium- & Heavy-Duty Equipment

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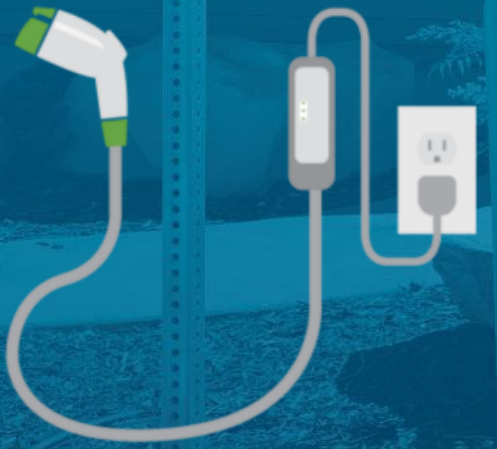
CHARGING PLANNING

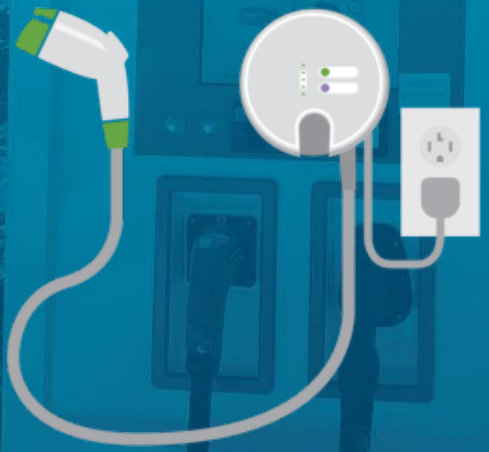
What Are Charging Levels?

Level 1 chargers use standard 120V outlets. 120V circuits are also used by most home electronics. 1 hour = 5 miles. Used at home.



Level 1

Level 2 chargers use 240V circuits. 240V circuits are also used by dryers and stovetops. 1 hour = 25-45 miles. Used at home, in public or at work.



Level 2

Direct Current Fast Chargers (DCFC) use variety of high power circuits at public charging stations. 10 minutes = 40+ miles. Used in public.

Direct Current

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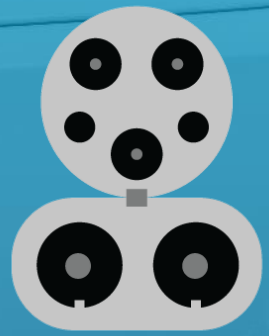
Charging Ports Vary By Manufacturer






Level 1 & 2	*DC Fast Charging*		*All Levels*
J1772	**CHAdeMO**	**CCS Combo**	**NACS**
Almost All Vehicles	Nissan LEAF	*Most Vehicles*	Tesla Model S
	Mitsubishi Outlander	Chevrolet Bolt	Tesla Model 3
		Hyundai IONIQ 5 EV	Tesla Model X
		Kia Niro EV	Tesla Model Y
		VW ID.4	
		Ford Mustang Mach E	

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Networked vs. Non-Networked

Networked

Also known as “smart chargers,” these chargers are connected remotely to a larger network. Users can start/stop a charge, check the status, and (if applicable) pay through a mobile app.

Non-Networked

Stand-alone units that are not part of a connected network. They are not accessible remotely and cannot track charging data, but they are often less expensive to install and operate.

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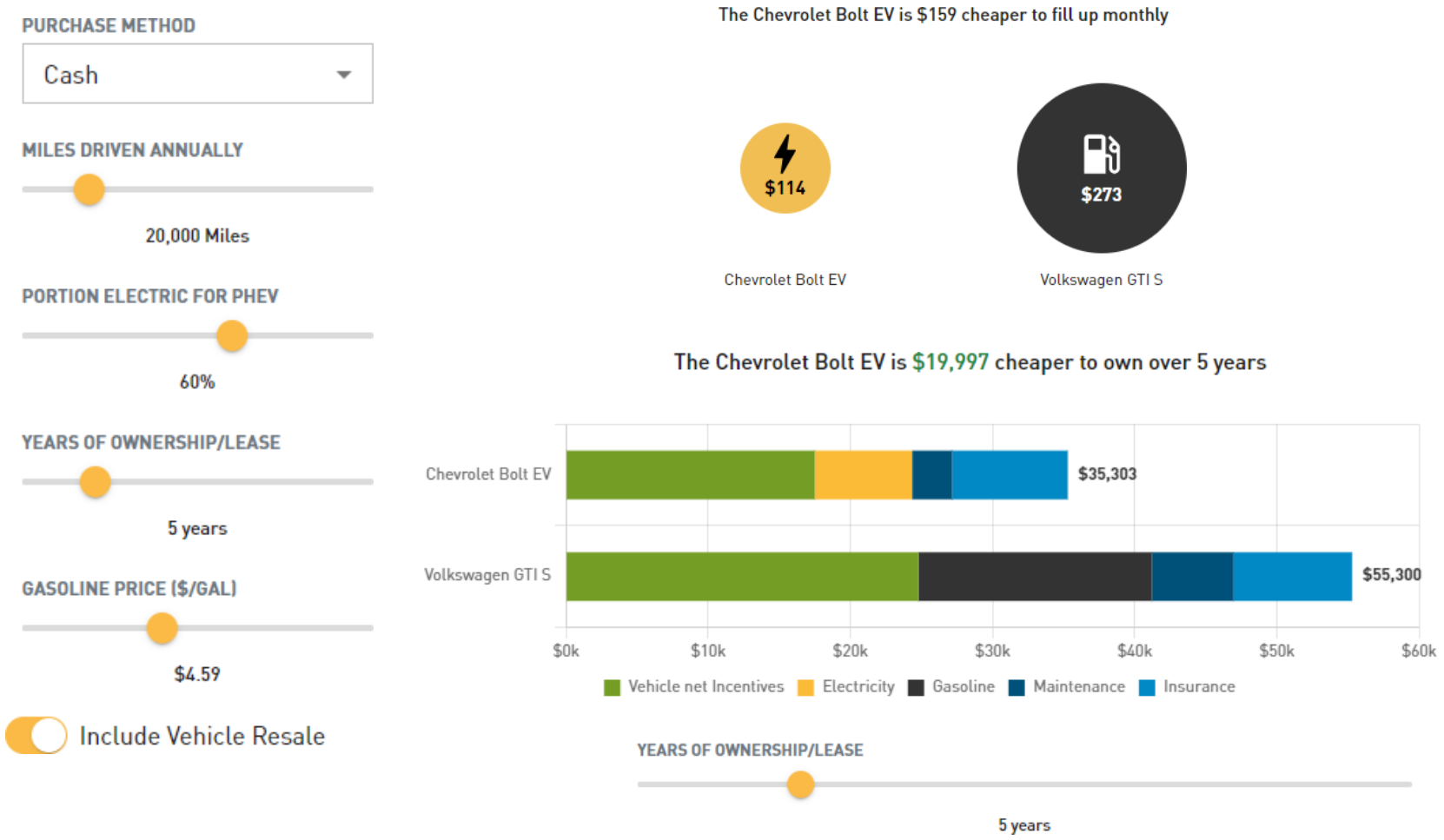
Charging Station Vendors

FLEET PLANNING

EV Costs: Upfront vs. Operational



$48,334
July 2023 Average New ICE Vehicle Cost - US

$53,469
July 2023 Average New EV Cost – US

$28,040
2023 Lowest Price EV (2023 Nissan LEAF MSRP)

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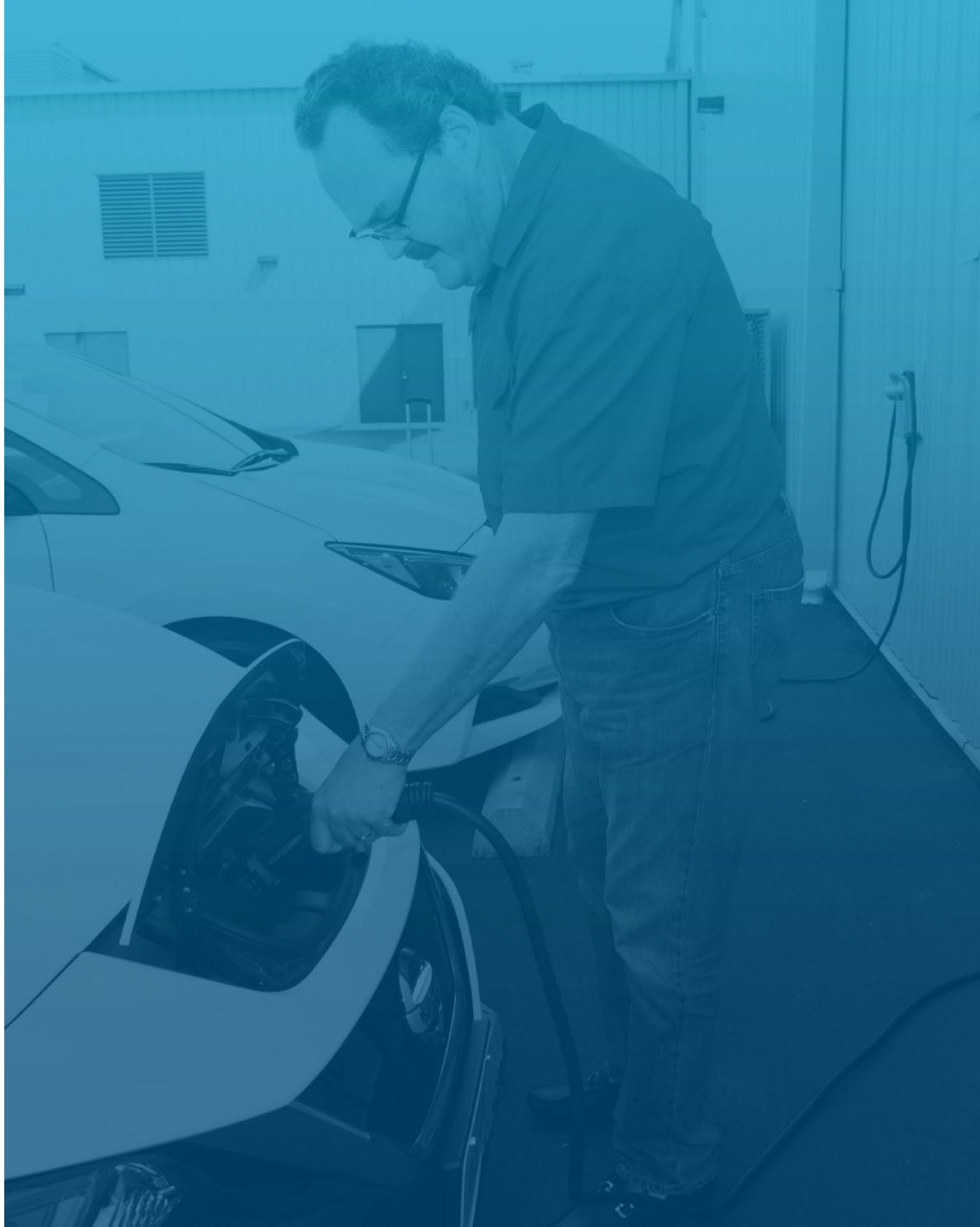
Assumptions: Sales Tax 7.25%, Down Payment 10% of MSRP + Tax, Electricity Rate $0.24480/kWh

What is Total Cost of Ownership (TCO)?

- If we only look at the up-front purchase price of electric vehicles, it might look like a fleet can't afford that option
- Total cost of ownership looks at the costs over a vehicle's entire life in the fleet (purchase price, depreciation, fueling costs, maintenance costs, etc.)
- Helps better understand how much an asset will cost the fleet over time and make the case for more efficient vehicles



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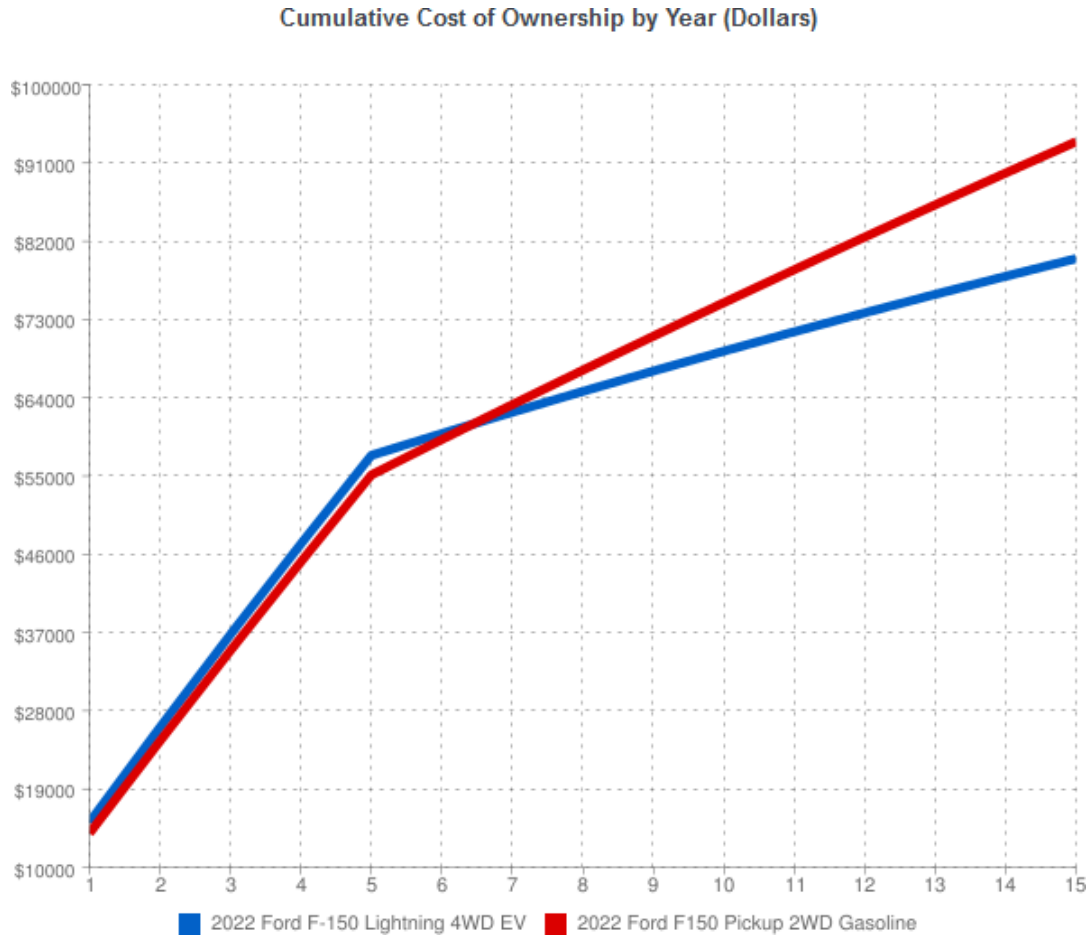
Vehicle Cost

- **Overall, price parity on upfront purchase price of light-duty EV is projected by 2026.**
- **Many light-duty EVs already in TCO payback, before incentives.**



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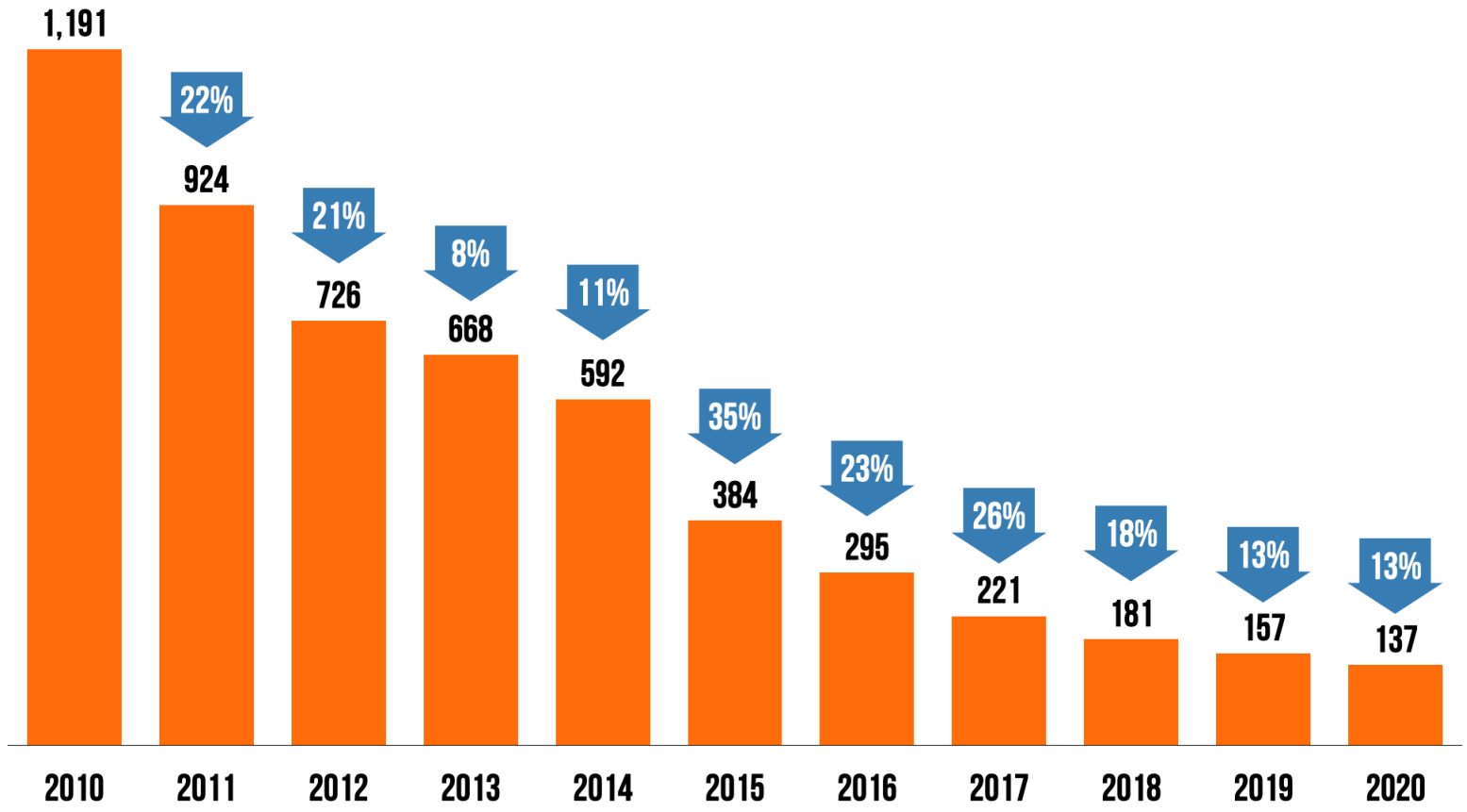
Vehicle Cost Overtime

Price of a Lithium-Ion Battery Pack, Volume-Weighted Average (2020 dollars per kWh)



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Medium- & Heavy-Duty Vehicle Costs

- The medium- and heavy-duty segment has traditionally been challenging to electrify because of its high energy requirements
- Growing medium- and heavy-duty models on the market, a continued decline in battery prices, and increased support from policy makers are starting to bring medium- and heavy-duty EVs into the mainstream

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Fleet Analysis and Planning

Online Tools and “Click” Resources

- Helpful in painting quick picture of potential total cost savings/emissions reductions of EV options.
- Often built for “average” use, rather than outlier examples.
- Helpful visualizations and charts.

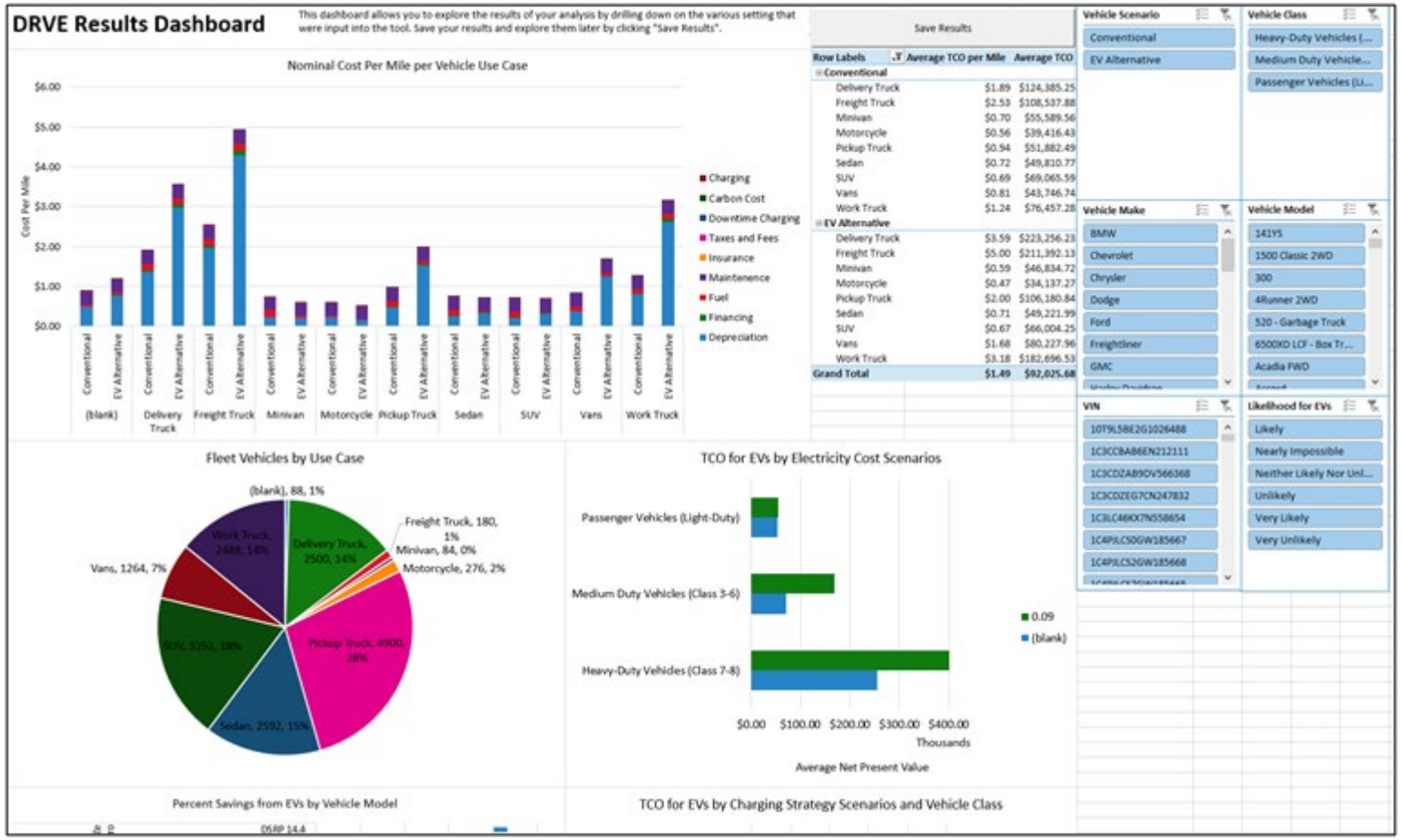
Excel-Based Resources

- Easily upload/account for fleet-specific data, like fuel costs and vehicle miles traveled.
- Allows for some advanced user features.
- Requires some base information, critical inputs for modeling.

Telematics-Based Assessment

- High data capture, down to millisecond readout for vehicle operation.
- Requires commitment of capital cost and time to create helpful dataset.
- Can account for more specific assessments of vehicles, down to direct routes and singular vehicles.

Dashboard for Rapid Vehicle Electrification (DRVE)



www.electrificationcoalition.org/drve/

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Climate Mayors EV Purchasing Collaborative

The Climate Mayors EV Purchasing Collaborative (the Collaborative) is a partnership designed to help accelerate the electrification of public fleets across the country.

Through the website and staff support, the Collaborative works to reduce the costs and barriers to electrifying fleets to make it easy for public fleets to go electric.

www.DriveEVfleets.org

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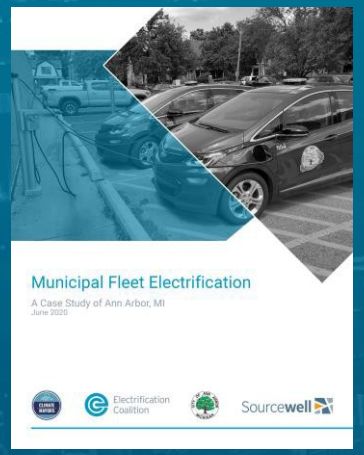

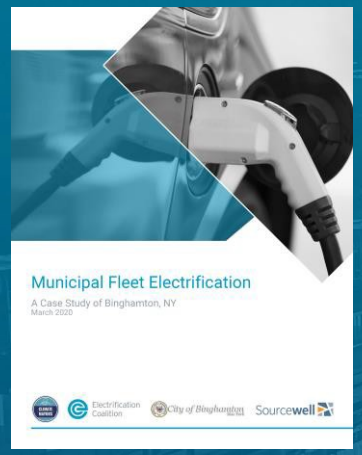

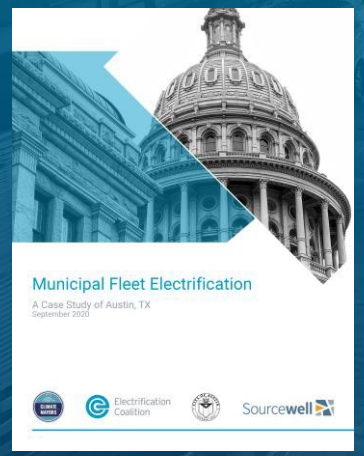

Find these case studies and more at:
driveevfleets.org/media

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Case Studies

Cincinnati, OH

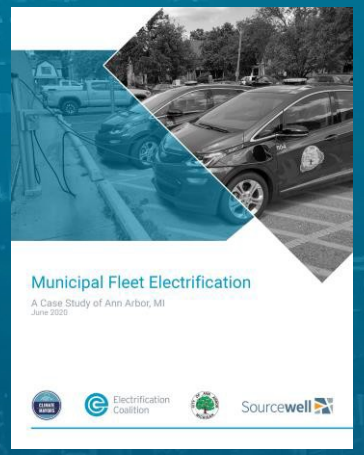
- Analysis showed that replacing 11 vehicles with EVs would save up to $150,000 in operational costs and avoid 1,450,000 pounds of emissions
- Purchased 19 additional vehicles in 2020

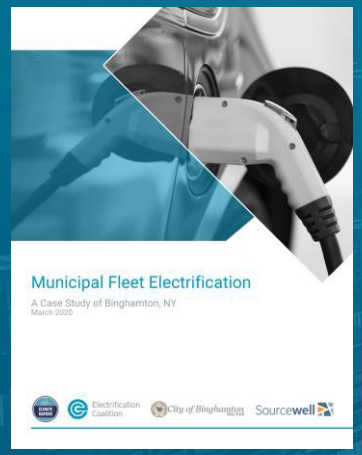
Ann Arbor, MI

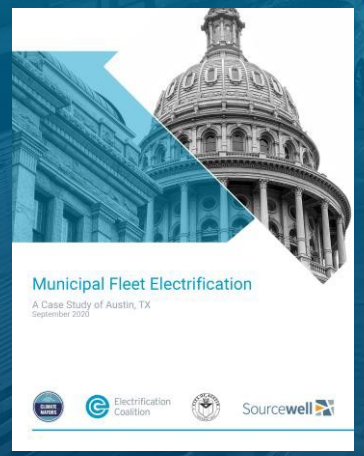
- Added 20 EVs to their fleet in 2020
- Achieved historic passage of A2Zero Carbon Neutrality Plan

Des Moines, IA

- Discusses success of fleet EVs in subzero temperatures with frequent snowfall and occasional blizzards
- Construction underway for a new facility that will support charging for 160 electric fleet vehicles







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Case Study Updates

Cincinnati, OH

- Reallocated operational cost savings from EVs to capital procurement, increasing ability to purchase EVs.
- Implemented an "EV First" procurement policy that rapidly increased EV purchasing from 2-5 vehicle purchases annually to 75+.

Ann Arbor, MI

- Passed EV Readiness Ordinance
- Continues to transition the fleet to electric

Des Moines, IA

- Purchased an all-electric refuse hauler


INCENTIVES

Bipartisan Infrastructure Law

Dedicated Funding:

- **National EV Infrastructure Program (NEVI)** - $5 billion for EVSE build-out along highways
- **Charging and Fueling Infrastructure Program (CFI)** - $2.5 billion competitive grants; 50% set aside for community grants with priority for rural and underserved communities
- **Other Programs** - $2.5 billion for electric school buses, $2.5 billion zero emission and low emission buses

Additional Programs:

- Congestion mitigation and air quality improvement program
- Reduction of Truck Emissions at Port Facilities
- Carbon Reduction Program
- Grants for Buses and Bus Facilities
- Deployment of Technologies to Enhance Grid Flexibility
- Grants for Energy Efficiency Improvements and Renewable Energy Improvements at Public School Facilities

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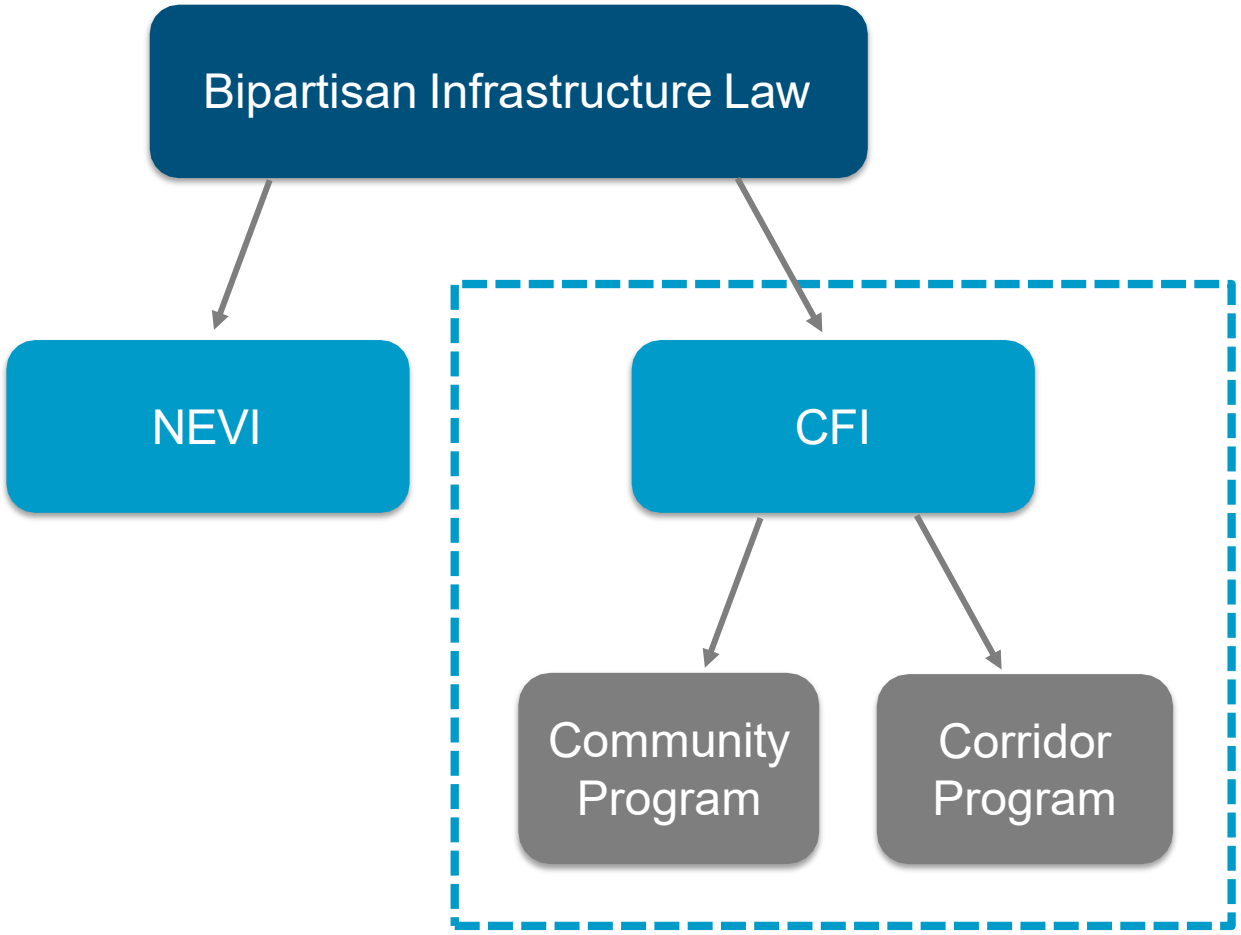
Charging and Fueling Infrastructure Grant (CFI)

Round 1 for the Charging and Fueling Infrastructure Grant submitted on June 13th, providing first $700M tranche of $2.5 Billion in funding from the BIL.

- This funding is discretionary
- Divided between community and additional corridor deployment projects
- Available for public and quasi-public entities to pursue
- Allows for additional programming, such as charging education.



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CFI Program Top Takeaways

1. **Community vs. Corridor Programs**
   - Balance of pursuit of charging along highways and within communities.
   - Can submit for both within same grant application.
2. **Station Placement**
   - *Must* be publicly accessible
   - Station contracts *must* be competitively bid procurement.
3. **Selection Priority**
   - Underserved community and Justice40 Initiative general priority.
   - Projects also encouraged to consider future-proofing and scalability within charging site design.
4. **Education and Engagement Collaboration**
   - Public Private Partnership overall encouraged.
   - Charging Education and other Consumer Educational Practice also allowable cost.
5. **Regional Approaches**
   - Overall, many projects looked at broader regional collaboration.
   - FHWA *may* ask some neighboring applicants to merge projects.

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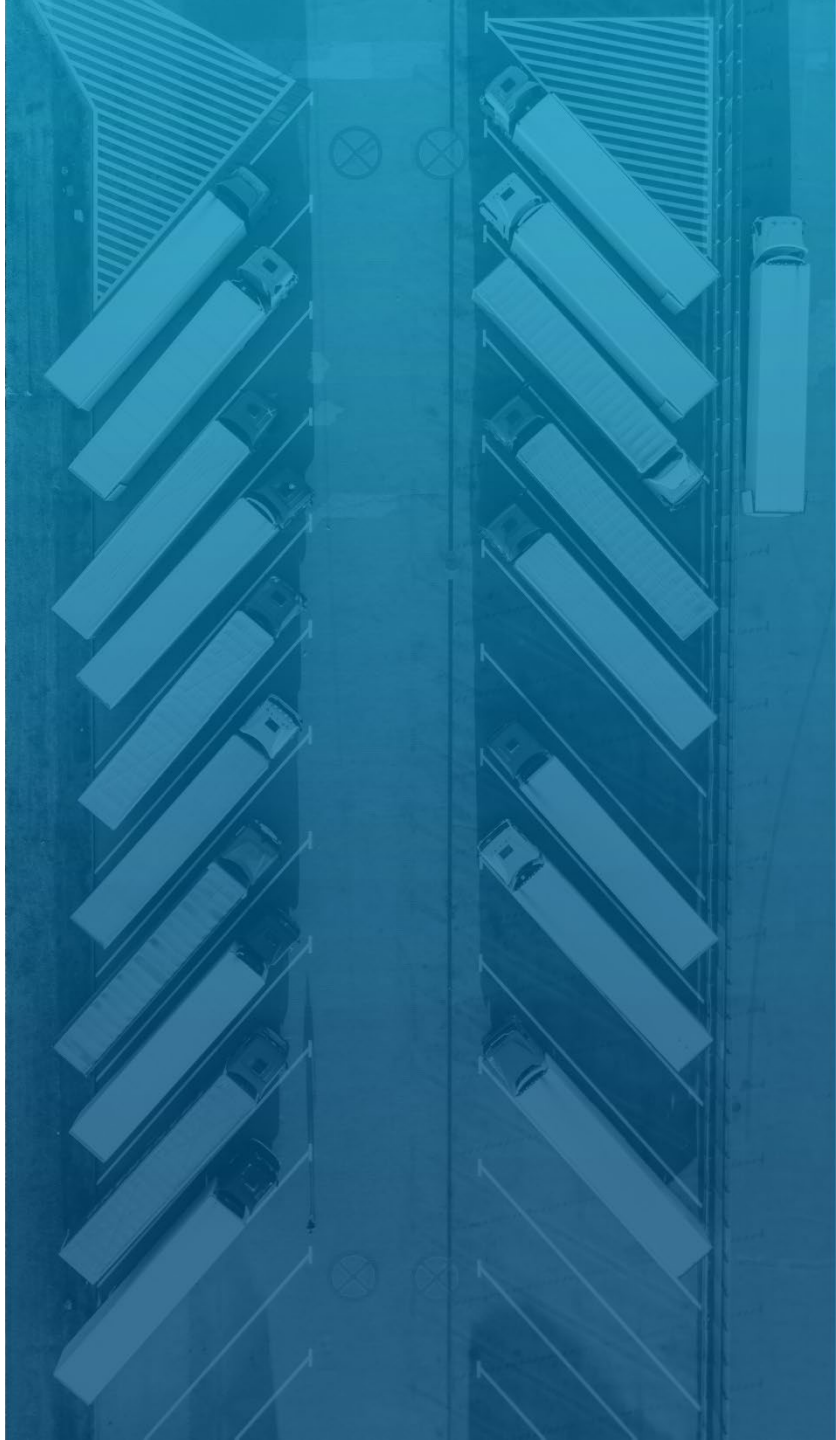
Staying Competitive In Application

- Never Underestimate Need for Community Engagement
  - More and more Federally-funded program require Community Engagement Plans.
- Regional Approaches Encouraged!
  - Can allow for greater pursuit of federal funds/cost-share, while allowing rural/underserved communities approach.
- Justice40, Workforce Development, and Other Critical Topics To Address
  - Continuing constant of BIL funding; always look for details within NOFO.
- It's Always a Good Time to Talk about Project Teaming
  - Infrastructure projects especially often require time rarely granted in federal grant-funding pursuits.
- Never Forget FAQ and Q&A!
  - Provides greater clarity, especially for new federal programming.



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Elective Pay (Direct Pay)

- Proposed guidelines from the IRS released in June, awaiting final guidance.
- Elective pay credit allows tax-exempt and governmental agencies to benefit from tax credits from which they were previously ineligible based on their lack of federal tax burdens; the credit comes as a refund
- Applies to 12 of the Inflation Reduction Act's tax credits

Vehicles	**Credit for Qualified Commercial Clean Vehicles** (§ 45W)	**For purchasers of commercial clean vehicles**. Qualifying vehicles include passenger vehicles, buses, ambulances, and certain other vehicles for use on public streets, roads, and highways. **Credit Amount:** Up to $40,000 (max $7,500 for vehicles <14,000 lbs) [9]
	Alternative Fuel Vehicle Refueling Property Credit (§ 30C)	**For alternative fuel vehicle refueling and charging property**, located in low-income and non-urban areas. Qualified fuels include electricity, ethanol, natural gas, hydrogen, and biodiesel. **Credit Amount:** 6% of basis for businesses and can increase to 30% if PWA is met.

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Elective Pay Credits

- Energy Credit (48), (Form 3468, Part VI)
- Clean Electricity Investment Credit (48E), (Form 3468, Part V)
- Renewable Electricity Production Credit (45), (Form 8835, Part II)
- Clean Electricity Production Credit (45Y)
- Commercial Clean Vehicle Credit (45W), (Form 8936, Part V)
- Zero-emission Nuclear Power Production Credit (45U), (Form 7213, Part II)
- Advanced Manufacturing Production Credit (45X), (Form 7207)
- Clean Hydrogen Production Credit (45V), (Form 7210)
- Clean Fuel Production Credit (45Z)
- Carbon Oxide Sequestration Credit (45Q), (Form 8933)
- Credit for Alternative Fuel Vehicle Refueling / Recharging Property (30C), (Part 8911, Part II)
- Qualifying Advanced Energy Project Credit (48C), (Form 3468, Part III)

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What does this mean for pursuing Grants *and* Tax Incentives?

- Can minimize the need for complicated leasing structures for local governments to get tax credits. (e.g. Pre-IRA EV Tax Credit)
- Able to combine grants and forgivable loans with the tax credits

- For example:
  - A school district receives a tax-exempt grant in the amount of $300,000 to purchase an electric school bus. Under IRA, clean commercial vehicles are eligible for a tax credit of up to $40,000.
  - The school district purchases the bus for $400,000, using the grant and $100,000 of the school district's unrestricted funds.
  - The school district's basis in the electric bus is $400,000 and the school district's section 45W credit is $40,000.
  - Since the amount of the restricted tax-exempt grant plus the amount of the section 45W credit ($340,000) is less than the cost of the electric bus, the school district's 45W credit is not reduced.

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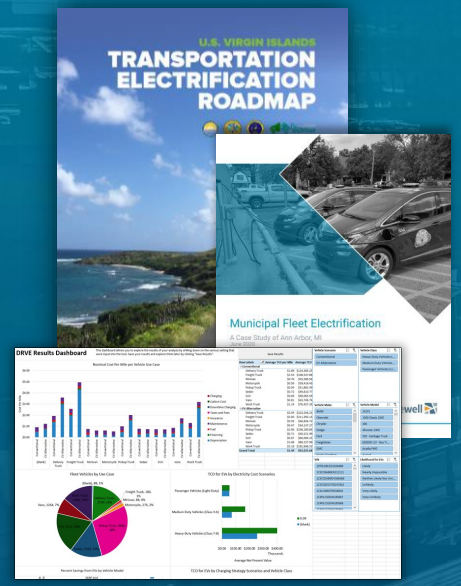

Find these tools, case studies, and more at:
electrificationcoalition.org/resource

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Tools and Resources

Dashboard for Rapid Vehicle Electrification (DRVE) Tool

- www.electrificationcoalition.org/resource/drve
- Dashboard for Rapid Vehicle Electrification (DRVE) Tool – light, medium, and heavy-duty fleet assessment tool.
- Free-to-use analysis for finding TCO-derived EV recommendations.

EV Funding Finder

- www.electrificationcoalition.org/ev-funding-finder
- EC-curated federal funding tool, updated to match new funding as announced.
- “Choose your own” style to sort and search based on organizational type and project.

EV Purchasing Collaborative

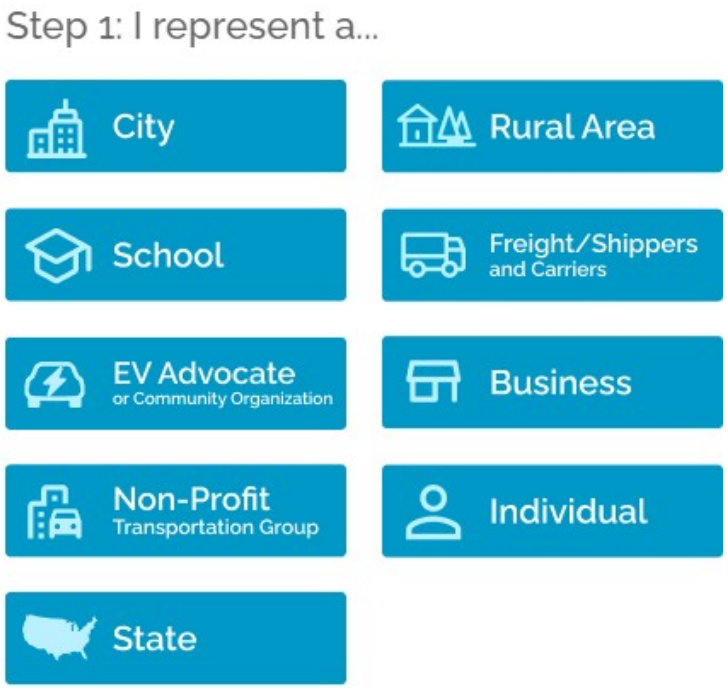
- www.driveevfleets.org
- Vehicle and charging procurement platform, run with partners at Sourcewell.
- Designed as additional procurement option, to expedite traditional RFP process.

EV Funding Finder Tool

A user-friendly tool to identify federal funding opportunities, including BIL and IRA

The future of transportation is electric, given the massive benefits everyday Americans, businesses, local governments, cities and states stand to gain. Not only does electric transportation save drivers money through stably priced fuel, but it also benefits air quality, public health, and the job market. With unprecedented investment at the federal level to aid in the electric transportation transition, businesses, local governments, cities, and states have an exciting opportunity to participate in this transition. But they must work together.

All of the funding available can make identifying and applying for the proper funding streams daunting. This tool helps eligible recipients sort through available federal funds for transportation electrification and helps recipients understand how investments can be matched. It can also help users identify where technical assistance is available.



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www.electrificationcoalition.org/ev-funding-finder


Thank you!
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