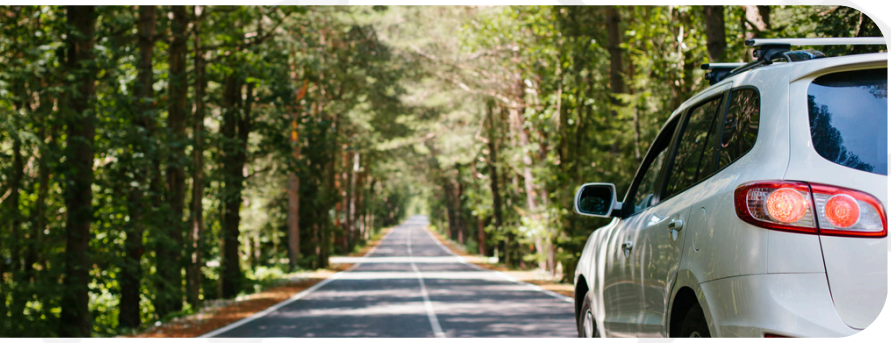
Gasoline and Electric Vehicles:

What Goes the Distance for the Right Price?



Takeaways

Electric Vehicles (EVs) lead in fuel efficiency

EVs generally achieve the highest fuel efficiency across all vehicle classes, resulting in significantly lower annual fuel costs and zero direct emissions

Consider driving range

While gasoline and hybrid vehicles typically offer longer driving ranges, EVs are rapidly improving. The Ford F-150 Lightning provides a range of 240 miles, which is substantial for an electric truck, though still shorter than gasoline models in the same category (U.S. DOE, Fuel Economy Data)

EVs offer the lowest fuel costs

Electricity for the Chevrolet Bolt costs about $1.26 for the equivalent of a gallon of gasoline for a typical car. Because gas costs about $3.21 per gallon, fueling an EV costs less than half of what it costs for a gas car (calculated based on a U.S. average electricity rate of $0.15/kWh and DOE methodology)

Key Terms to Know

MPG (Miles Per Gallon): A measurement of how far a vehicle can travel on one gallon of gasoline. Used for gasoline and hybrid vehicles and rated for both highway and city driving

MPGe (Miles Per Gallon Equivalent): A measurement used for electric vehicles (EVs) to indicate the travel distance using the same energy content as one gallon of gasoline. Rated for both highway and city driving

Combined Rating: The weighted average of the city and highway MPGe or MPG ratings

MSRP (Manufacturer's Suggested Retail Price): The recommended retail price set by the manufacturer for a vehicle. This is the cost before taxes, fees, or discounts

Cost per kWh (Kilowatt-hour): The cost of electricity for one kilowatt-hour of energy, used to calculate how much it costs to charge an EV

Miles per kWh: The distance a vehicle can travel with a kilowatt-hour of energy

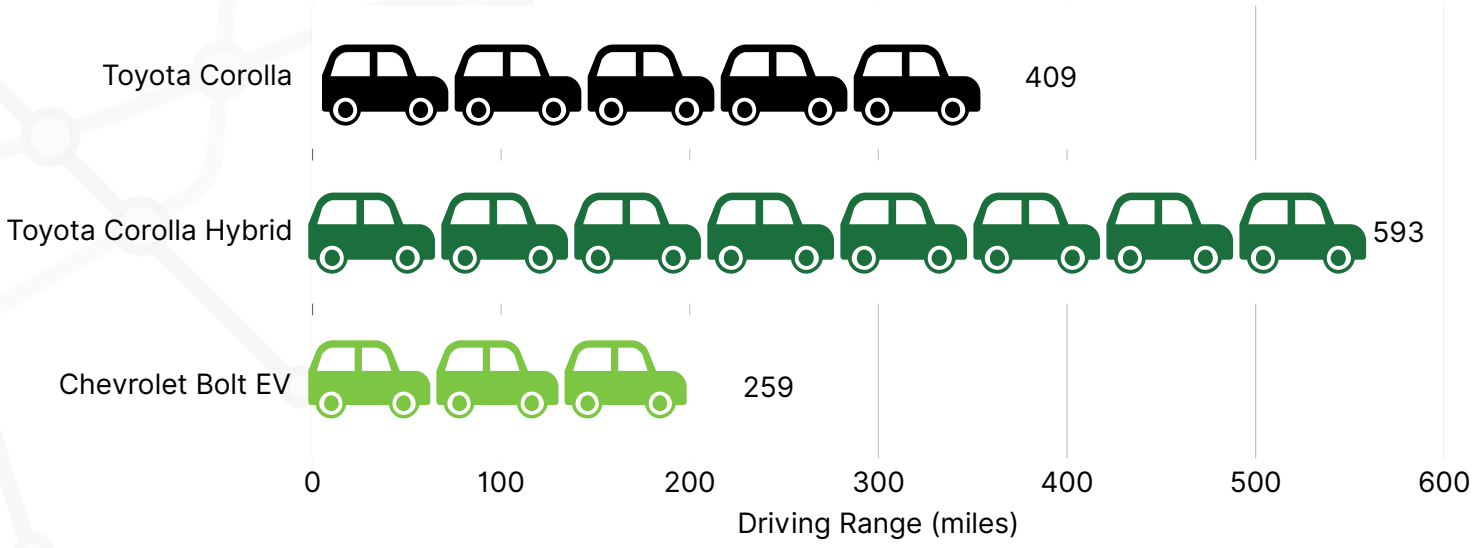
Equivalent Cost Per Gallon for EV: The cost of driving an electric vehicle as if it were using gasoline

Compact

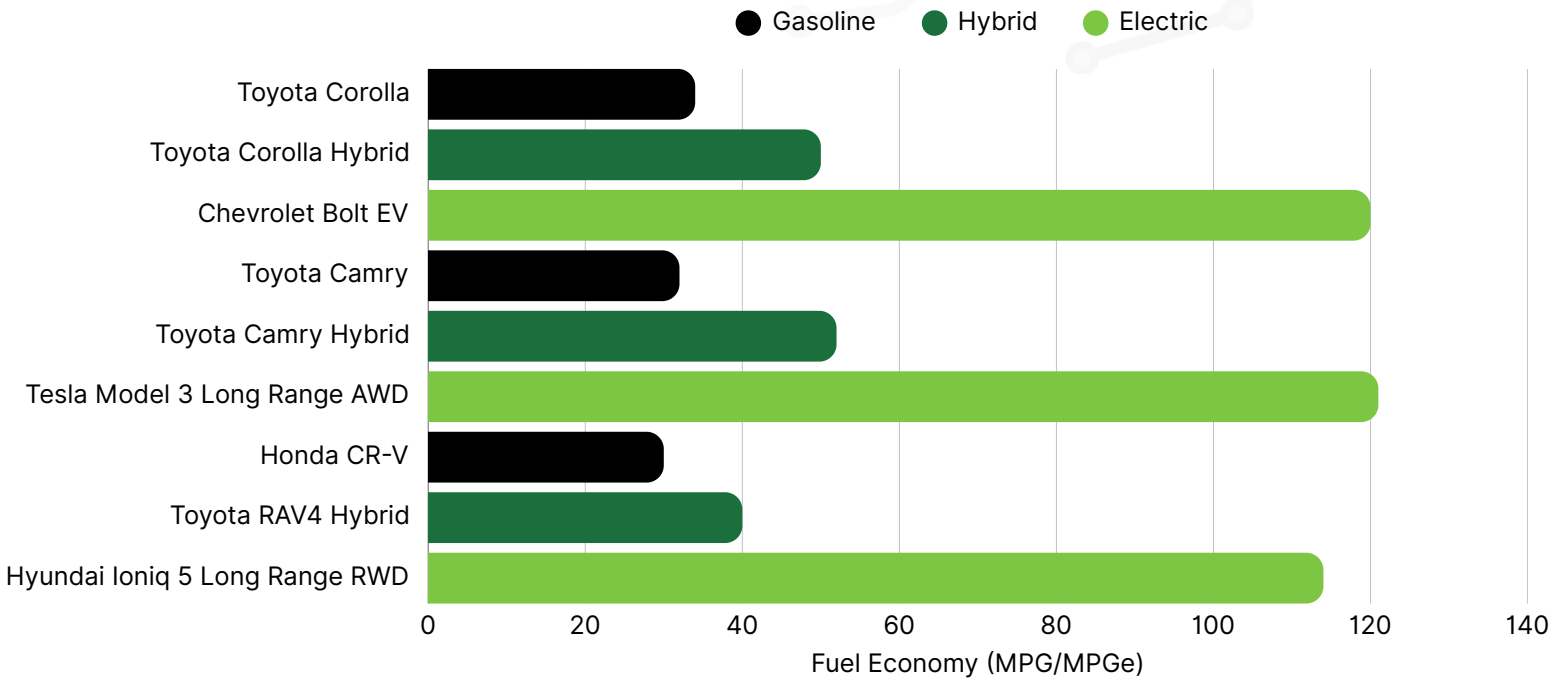
Vehicle	Fuel Type	MSRP	Fuel Economy (MPG/MPGe)	Annual Fuel Cost	Annual Operating Cost	CO_2 Emissions (g/mi)	Driving Range (miles)	Cumulative Cost of Ownership (over 10 years)
Toyota Corolla	Gasoline	$21,550	34 MPG combined	$1,300	$3,779	261	409	$59,015
Toyota Corolla Hybrid	Hybrid	$24,000	50 MPG combined	$900	$3,457	178	593	$57,342
Chevrolet Bolt EV	Electric	$26,500	120 MPGe combined	$500	$3,195	0	259	$59,320

Data is sourced from www.fueleconomy.gov and the Alternative Fuels Data Center's Vehicle Cost Calculator. Please see the footnote after the final chart for further information on assumptions and methodology

Driving Range of Compact Cars (in miles)



Fuel Economy for Select Compact, Midsize, and Small SUV Models



Midsize

Vehicle	Fuel Type	MSRP	Fuel Economy (MPG/MPGe)	Annual Fuel Cost	Annual Operating Cost	CO_2 Emissions (g/mi)	Driving Range (miles)	Cumulative Cost of Ownership (over 10 years)
Toyota Camry	Gasoline	$25,945	32 MPG combined	$1,350	$3,924	277	468	$65,510
Toyota Camry Hybrid	Hybrid	$28,430	52 MPG combined	$900	$2,993	171	686	$59,079
Tesla Model 3 Long Range AWD	Electric	$47,240	131 MPGe combined	$450	$3,078	0	358	$79,619

Small SUVs

Vehicle	Fuel Type	MSRP	Fuel Economy (MPG/MPGe)	Annual Fuel Cost	Annual Operating Cost	CO_2 Emissions (g/mi)	Driving Range (miles)	Cumulative Cost of Ownership (over 10 years)
Honda CR-V FWD	Gasoline	$28,410	30 MPG combined	$1,500	$4,081	261	450	$70,984
Toyota RAV4 Hybrid	Hybrid	$30,725	40 MPG combined	$1,150	$3,639	178	580	$68,105
Hyundai Ioniq 5 Long Range RWD	Electric	$41,450	114 MPGe combined	$500	$3,347	0	303	$82,305

Standard SUVs

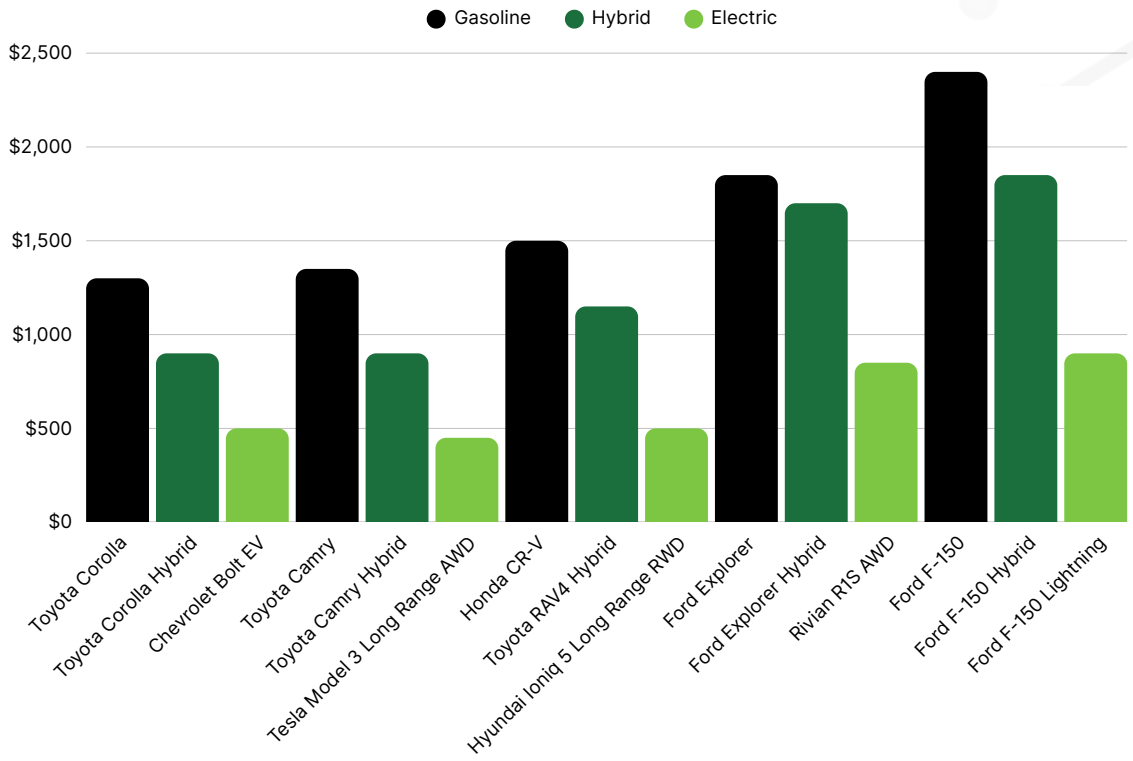
Vehicle	Fuel Type	MSRP	Fuel Economy (MPG/MPGe)	Annual Fuel Cost	Annual Operating Cost	CO_2 Emissions (g/mi)	Driving Range (miles)	Cumulative Cost of Ownership (over 10 years)
Ford Explorer	Gasoline	$36,760	24 MPG combined	$1,850	$4,550	367	420	$85,287
Ford Explorer Hybrid	Hybrid	$50,075	27 MPG combined	$1,700	$4,408	326	450	$101,738
Ford Mustang Mach-E	Electric	$42,995	103 MPGe combined	$750	$3,302	0	247	$76,957

Pickup Trucks

Vehicle	Fuel Type	MSRP	Fuel Economy (MPG/MPGe)	Annual Fuel Cost	Annual Operating Cost	CO_2 Emissions (g/mi)	Driving Range (miles)	Cumulative Cost of Ownership (over 10 years)
Ford F-150	Gasoline	$34,585	20 MPG combined	$2,400	$4,923	444	400	$89,861
Ford Maverick Hybrid	Hybrid	$22,595	37 MPG combined	$1,300	$3,742	240	511	$59,632
Ford F-150 Lightning	Electric	$49,995	68 MPGe combined	$900	$3,758	0	240	$77,716

*MSRP, fuel economy, annual fuel cost, CO2 emissions, and driving range data are from www.fueleconomy.gov. First year annual operating costs and the cumulative cost of ownership calculations are from the Alternative Fuels Data Center's Vehicle Cost Calculator using a gasoline price of $3.21, a 45% highway driving, and an annual driving distance of 15,000 miles, to reflect the assumptions built into fueleconomy.gov. Electricity prices reflect those for the state of Connecticut for the latter calculations, and a national average for all other metrics. All vehicles are 2023 models.

These figures are based on default assumptions that may not reflect all individual financing arrangements, tax incentives, or regional cost differences. To get the most accurate estimates for your vehicle and location, please use the above calculators with your personal factors.



Annual Fuel Costs for Gas, Hybrid, and Electric Vehicles

Limitations

- **Electric rates variability:** Electricity rates vary by region and provider. The EV fuel cost estimates in this resource are based on a national average electricity price of $0.13/kWh. For a more precise estimate, check with your local utility provider
- **Manufacturer's Suggested Retail Price (MSRP):** MSRP values are approximate and may differ based on trim levels, optional features, and regional pricing variations. For the most accurate pricing, refer to the manufacturer or an authorized dealer
- **Range estimates:** EV range estimates are based on standard battery capacity and EPA testing but can be affected by driving style, terrain, weather, and other conditions
- **Annual fuel costs:** Estimated annual fuel costs are calculated using national average fuel prices and an assumed annual mileage of 15,000 miles. Actual costs may differ based on local fuel prices and individual driving patterns
- **Annual operating costs:** Operating cost estimates include fuel, tires, maintenance, registration, license, and insurance for the first year of ownership. These costs are based on national averages, which may differ from actual expenses depending on the vehicle model, location, insurance provider, and driving habits
- **Emissions data:** CO_2 emissions data is based on EPA estimates, reflecting only tailpipe emissions for gasoline and hybrid vehicles. While EVs have zero tailpipe emissions, their full lifecycle emissions depend on electricity generation sources in a given region
- **Cumulative cost of ownership:** Cumulative cost calculations assume a five-year loan with a 10% down payment. These figures are based on default assumptions that may not reflect all individual financing arrangements, tax incentives, or regional cost differences

Search for incentives from your state or local utility to make buying an EV more affordable:

Electric for All

Electric for All

DOE Incentives Tracker

DOE Incentives Tracker

All data and information presented here and not directly cited was drawn from www.fueleconomy.gov

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