NXG INVESTMENT MANAGEMENT

The Next Generation of Investment Management

EV Owners Save $2,890 Annually

January 2023

EVs (electric vehicles) are starting to take over. As of year-end 2022, there were 72 fully-electric passenger vehicle models offered in North America, triple the number available at the end of 2021[1]. EVs are no longer a niche, virtue-signaling product, but are becoming a realistic option for many mainstream vehicle buyers. By the third quarter of 2022 in the US, one out of every twelve vehicles sold was an EV, up from one out of every 42 in 2020[2]. The increased adoption may be thanks at least in part to the considerable operating cost savings of driving an EV.

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Fuel Savings $1,650

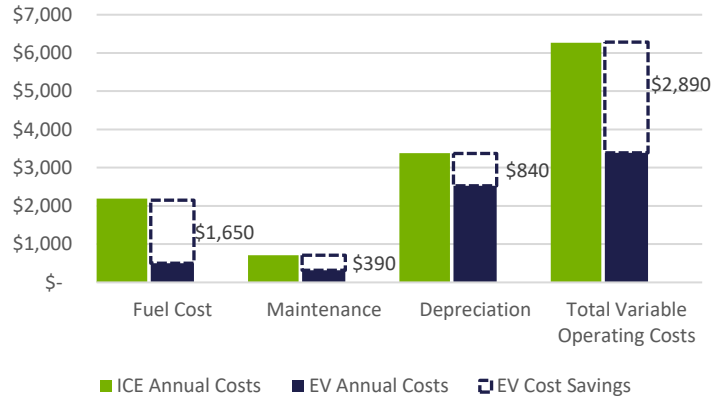
The most obvious cost savings of an EV come from fueling. Electricity to charge an EV is not free, but for a base Tesla Model 3 the cost is a mere $0.04 per mile based on the national average electricity costs of $0.11 cents per kilowatt-hour (kWh). A similar-sized vehicle using an internal combustion engine (ICE) cost $0.16 per mile with gasoline at $4 per gallon[3]. Fueling an EV costs 76% less than ICE and leads to savings of $1,650 annually for an average American driver.

Gasoline prices would need to fall to $1.05 nationally for fueling cost to be equivalent to charging, assuming the national average electricity price. Local results vary; in California, for instance, charging is more expensive and higher ICE fuel economy is mandated –which should make higher gasoline prices more competitive– but gasoline prices there would need to fall -65%, to $1.67, for ICE vehicles to be cost neutral[5]. Fueling savings are thanks to low electricity prices and structural improvements in battery technology that allow more energy from the grid to be stored without increasing the vehicle weight and hurting range.

Other Savings $1,240

EVs have considerably fewer moving parts than ICE vehicles, which means fewer things that can break or that need routine service. Consequently, EVs experience lower maintenance costs than ICE vehicles. Auto rental company Hertz, which operates over 530,000 vehicles,[6] observes that EVs are 50-60% less expensive to maintain. This equates to $390 in annual savings to the average driver[7].

EV Annual Cost Savings vs Internal Combustion Engine[4]



Depreciation is not a direct cash cost, but it is one of the largest costs of owning a car. Depreciation on a vehicle is realized on trade-in, where EVs have so far retained their value better than ICE vehicles. Hertz has seen 25% lower costs (that is, better value retention) for EVs[8]. On average this higher value retention equates to $844 in annual savings[9].

[1] BNEF, as of 12/21/2022 and compared to 4Q21.
[2] BNEF "Long-Term Electric Vehicle Outlook 2022" 6/1/2022
[3] NXG, Energy Information Agency, and Bureau of Transportation Statistics. Assumes EV with 50KWh battery and 220mi range that charges 75% of the time at home, for $0.11/KWh, and balance at fast chargers, for $0.30/KWh; ICE cost calculated at 2020 average mile per gallon of 25.3.
[4] NXG. May not sum due to rounding.
[5] Assumes average California retail electricity price of $0.1965/KWh, per EIA on 11/10/2022; 30mpg gasoline efficiency; and 90-day average California gasoline price of $4.70, per Bloomberg on 1/23/2022.
[6] Hertz Global, 3Q22 earnings conference call 10/27/2022
[7] 55% cost savings relative to AAA's estimate cost per mile for maintenance cost. Assumes average annual mileage of 13,746 per Federal Highway Administration.
[8] Hertz Global, 2Q22 earnings conference call 7/28/2022
[9] 25% cost savings relative to AAA's estimate cost per mile for depreciation cost. Assumes average annual mileage of 13,746 per Federal Highway Administration.

Summary

The $2,890 in annual operating cost savings that EVs enjoy over ICE vehicles is helping to increase their adoption among mainstream drivers. There are other costs associated with owning a car, like registration fees or insurance, that are similar irrespective of propulsion type. We expect that EV momentum will continue as more of the public becomes aware of the cost benefits of electric over internal combustion power. Longer-term, we expect adoption to accelerate as lower battery costs and larger-scale production make the upfront cost of buying EVs more competitive with ICE vehicles.

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