Prompt: using the above context generate question and answer pairs in the following format [{"question":"What is Python?", "answer":"A programming language"},{"question":"Who created Python?", "answer":"Guido van Rossum"}]

https://www.kbb.com/car-advice/electric-cars-101/

Electric Vehicle Recharging Cost
A common question from potential electric car buyers is: How much does it cost to charge an EV? For charging at home, the answer requires some math and depends on several factors, primarily how much you drive and the price you pay for residential electricity.

Consider this rough example where you put 1,000 miles on your vehicle each month and pay the national average of 16 cents for each kilowatt-hour of electricity. Your at-home EV recharging bill will be $40 to $53 per month (based on the calculation of 3-4 driving miles equaling kWh). If your electricity rate is in the high range at 25 cents per kWh, your electric car recharging cost would be $63 to $83 each month in this scenario.

Now, look at the cost of filling a tank with gasoline. Let's say you're driving an economical car that has a combined average of 30 mpg during a mix of city and highway driving. Using a 12-gallon tank as a reference point, you'll have 360 miles of driving range for each fill-up.

If you're driving the same 1,000 miles monthly, you'll need to refuel at least three times each month. With the average price of gas about $3.68 per gallon as of this writing, according to AAA, your monthly fuel expense will be about $132.

There Are 3 Types of Chargers for Electric Cars

- **Level 1** — This level refers to household three-prong outlets like those your computer or a desk lamp will use. Few electric car users charge their vehicles this way simply because of how long it takes. A Chevrolet Bolt EV, for instance, adds about 4 miles of range per hour this way and can take at least 36 hours to charge.
- **Level 2** — Most people prefer Level 2 charging capability, whether at home or at a public charging station. These chargers provide 240 volts of power and require an external device that plugs into a receptacle like that of an electric clothes dryer. For example, according to the car manufacturer, Level 2 charging can add 25 miles of range per hour to a Chevy Bolt EV.
- **Level 3** — Also called a "DC fast charger," the fastest-charging option is Level 3. These quick chargers can add 100 miles of range to a Chevy Bolt EV in 30 minutes. But you will only find Level 3 options in public charging stations that typically cost money to use.

Charging times are rough guidelines and estimates because electric cars also don't charge at a constant rate. When looking at figures for the 5 Fastest-Charging Electric Cars, remember that manufacturers can claim whatever they want. No one is verifying what they say.

Electric Vehicle Range

Electric car range can contribute to apprehension that buyers might feel when deciding to give up their vehicle that uses a traditional gasoline engine. This apprehension is often called "range anxiety." Even while today's EVs can easily accommodate most daily driving, electric car battery manufacturers continue to improve capacity and recharge times.

- Many EVs can travel more than 250 miles on a full battery charge, and the most advanced models can go about 400 miles between charges. Both long-range and short-range EVs can perform well in start-and-stop driving during rush hour.
- EVs consume significantly more of their battery at steady speeds on highways when used for more extended getaways.
- Hot weather and cold temperatures reduce the range of electric cars, partly because of air conditioner and heater use but also the negative effect extreme temperatures have on battery chemistry.

Tips for Buying a Used EV

- **Use the battery life as a bargaining chip**. Just like a mobile phone or laptop, an electric car's battery begins to degrade over time. If you're buying a used electric car for your commute, a shorter range may be just fine, but it's a bargaining point if the battery is not new.
- **Find out if the battery got replaced**. Battery failure may be rare, but it does happen. Higher-mile electric cars are more likely to have had their batteries replaced entirely. If this has happened — and the seller can provide documentation confirming the work — it means that someone before you went through the effort and expense of having this job performed.
- **Investigate how much battery warranty is left**. All mainstream automakers include more warranty coverage for battery packs. Many used electric cars will still be under warranty. But read the fine print to learn whether it is transferable. Most battery coverage runs for 8 years or 100,000 miles after the initial purchase,

whichever comes first. However, not all warranties are transferable to subsequent owners.

- **Check the value of the vehicle**. Use the Kelley Blue Book valuation tool to determine the vehicle's fair purchase price.
- **Look for repeated recalls**. Check the EV you want to buy for recalls. Use our recall tool to know what recall items may affect your used electric vehicle purchase. Also, if you notice repeated recalls on the electric vehicle you want, you'll want to weigh that information to determine if you want to go through with the purchase or use it as leverage for the final sales price.

Choosing All-Electric or Hybrid

Choosing the right car takes a lot of research. Take a look at our lists of Best EVs of 2024 and Best Hybrids of 2024 to help narrow your choices.

What to Know About All-Electric Cars

Owning an EV has many benefits, whether it's a fully electric model or a plug-in hybrid. For starters, all EVs have lower overall fuel costs.

Fully electric vehicles often have lower maintenance costs because they have fewer components than gas-powered cars. Battery-powered electric cars don't require oil changes or tune-ups, typically only rotating their specialized tires and wiper replacement. Fully electric cars never need to stop at a gas station for fuel before running errands around town because their batteries can be charged at home when not in use.

What to Know About Plug-in Hybrids

PHEVs strike a balance between eco-friendly motoring and go-anywhere flexibility. Most commuters can drive to and from work on electric power alone, while the gas engine stands in reserve waiting for longer road trips.

When charged, a PHEV's battery pack powers an electric motor. Once that battery pack depletes, a gas engine kicks on seamlessly. Then the car alternates between gasoline and electric power depending on how much is needed. The car's regenerative braking system captures otherwise lost energy when coasting or slowing down and feeds it to the battery, further reducing its reliance on its gas engine.

EV Safety Features

Driving an electric car is no more dangerous than operating a traditional gas-powered vehicle. EVs are relatively new in the mainstream, but cutting-edge safety and driver-assist features are standard or available options for most models.

Price isn't necessarily an indication of what level of advanced safety technology an electric vehicle packs.

Most of the following innovative safety features come standard in a 2024 Nissan Leaf S, which starts at $29,235, including destination charges of $1,095. Others, such as adaptive cruise control and 360-degree camera, are standard on the higher-grade SV Plus.

- **Adaptive cruise control** paces the speed of the car as the flow of traffic ahead slows and speeds up as the traffic does. See more information about adaptive cruise control.
- **Blind-spot monitoring** with rear cross-traffic alert senses vehicles in adjacent lanes and warns of objects behind your vehicle or crossing behind while backing up.
- **Forward collision warning with emergency braking** detects a possible crash as your vehicle closes the distance with a vehicle or other object ahead. It can automatically apply the brakes if you don't respond to a warning sound. Find out how Forward Collision Warning works.
- **Lane-departure warning** alerts when it senses the vehicle drifts out of its lane.
- **Lane-keeping assist** nudges the vehicle back into its lane when a driver fails to respond to the lane-departure warning.

- **Lane-centering assist** serves to keep the vehicle in the center of its lane as a companion technology to lane-departure warning and lane-keeping assist.
- **Rear automatic emergency braking** senses obstacles behind your vehicle and automatically hits the brakes to avoid bumping them when you put the car in reverse. Read more about automatic emergency braking.
- **360-degree surround camera system** provides a series of cameras placed around the vehicle for an all-around view to help with parking.
- **Automatic high-beam technology** detects lights ahead of the vehicle and deactivates the high beams when the system senses the distance closing between one car and another.

https://www.americanprogress.org/article/5-facts-you-should-know-about-electric-vehicles/

With the transportation sector accounting for 28 percent of U.S. greenhouse gas emissions, the electric vehicle (EV) revolution is an essential part of the fight against climate change. EVs have far lower greenhouse gas emissions than their gas-powered counterparts, even when accounting for their higher battery mineral needs. Beyond their climate benefits, here are five additional reasons why EVs are gaining momentum.

The electric vehicle revolution is an essential part of the fight against climate change.
1. EVs are growing in popularity, and prices are falling
Despite misleading headlines that might suggest otherwise, EV sales continue to increase, hitting record highs. By the end of November 2023, the United States had reached 1 million annual fully battery-powered vehicle sales for the first time, a year-over-year growth of 50.7 percent and an increase of 30.6 percent compared with November 2022 for all EVs, including plug-in hybrids. Overall, more than 1.4 million EVs were sold in 2023 in the United States, a new annual record, totaling 9.1 percent of new passenger vehicle sales that year. The rising adoption of EVs is propelled by a confluence of factors, including increasing model variety and consumer economics. EVs cost significantly less to fuel and maintain than gas-powered vehicles. On top of this, the average purchase price of new fully battery-powered EVs is expected to decline by nearly 25 percent over the next few years, from $40,300 in 2022 to about $30,800 by 2030.

2023 saw a particularly sharp drop in EV prices, with the cost of the Ford Mustang Mach-E, Kia EV6, and Tesla Model S falling from July 2022 to July 2023 by 32.1 percent, 32.7 percent, and 42.1 percent, respectively. In addition to falling upfront prices, EVs provide lifetime savings of up to $18,440 compared with gasoline-powered vehicles. Thanks to decreasing lithium prices and EV incentives through the Inflation Reduction Act, the falling price of EVs means they will cost about the same as gas-powered vehicles in the next two years—and some of them already do.

The rise in the popularity of EVs has even caused analysts to predict that oil consumption from the use of gas-powered vehicles will peak and then steadily decline worldwide by 2027, with consumption likely already having reached its peak in the United States and Canada.

2. EV manufacturing is revitalizing American industry

The EV and battery industries, jump-started by the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act, are driving an American manufacturing boom. Since the passage of the Inflation Reduction Act in August 2022, automakers and battery manufacturers have announced more than $92 billion in domestic investments in EV supply chains. This has translated to 38,635 new jobs in EV manufacturing and 102,229 new jobs in battery manufacturing. Thanks to the EV revolution, helped in large part by the IIJA and the Inflation Reduction Act, overall investment in U.S. industry was three times greater in 2023 than the yearly average from 2010 to 2020.

3. Most EVs bought in the United States are made in America

EVs rank highly across a variety of "American-made" metrics. In 2022, more than half of the 931,314 EVs sold in the United States were assembled in North America. Tesla leads in driving this trend, with 100 percent of its U.S.-sold vehicles assembled in the United States. Tesla's Model Y, its highest-selling model in 2022, featured 60 percent North American parts by value. That's higher than the bestselling Ford F-150 pickup truck, which is made of 50 percent North American parts by value. However, being made in America doesn't guarantee high-quality jobs: Tesla has a negative record in this regard, with the National Labor Relations Board finding that Tesla has committed "unfair labor practices," as well as separate allegations of workplace safety violations, highlighting the importance of the United Auto Workers' renewed efforts to increase union membership across the auto sector.

A large and growing percentage of American EVs are powered by batteries manufactured in the United States. However, foreign supply chains invested in EV manufacturing much earlier than many American firms and thus continue to play a major role in global EV supply chains. IIJA and Inflation Reduction Act investments have started shifting this paradigm, however, with $34.81 billion invested to supplement existing battery manufacturing, such as General Motors' Ultium Cells facility in Lordstown, Ohio. Domestic investments are expected to increase U.S. battery manufacturing capacity by nearly 20 times by 2030, relative to 2021. The incentives will further encourage the renaissance in domestic manufacturing, a boon not only to fighting climate change but also to ensuring good jobs for Americans.

4. The EV charger network is quickly growing

The number of EV chargers in the United States is increasing rapidly. As of the second quarter of 2023, there were more than 140,000 public Level 2 and fast-charging stations in the country, with an estimated 54,000 installed in 2022. Since 2021, the private sector has invested an estimated $21.5 billion in charger development and deployment, which is anticipated to lead to the installation of 800,000 chargers by 2030, meeting 70 percent of demand for Level 2 charging and more than 100 percent of demand for Level 3 fast charging in that year. The momentum is building, with large retail outlets such as Walmart and Target, as well as major travel centers such as Pilot, now committed to installing chargers at some or all of their locations.

The private sector's major investments in chargers get a further boost from the IIJA and the Inflation Reduction Act. The IIJA will invest $7.5 billion in charger deployment through the National Electric Vehicle Infrastructure Program and the Charging and Fueling Infrastructure Grant Program, while the Inflation Reduction Act increased the 30C alternative fuel vehicle credit maximum to $100,000 per EV charger for businesses, provided the charger is in a low-income or rural census tract.

5. Automakers have what they need to complete the transition to EVs

With skyrocketing profits and expanding domestic manufacturing, U.S. automakers have everything they need to help the country switch from fossil fuel-powered vehicles to electric. In addition to the array of federal incentives described above, many of the minerals used in making EV batteries are now more available to manufacturers than ever before.

One of the most important minerals for EVs is lithium. Global supplies of lithium have increased to such a degree that prices have been falling and are expected to continue to decline. New sources of lithium within the United States also continue to show promise; federal, state, and local governments should require the mining industry to act in a responsible manner that protects the environment, communities, and the sovereign rights of Tribal governments and people.

Because lithium is used to make batteries, higher availability and lower costs for this mineral mean lower costs for batteries—and therefore EVs. The prices of other battery minerals, such as nickel and cobalt, have also fallen substantially over the course of 2023, further contributing to decreased battery costs. With lower costs for batteries, U.S. automakers have yet another reason to fully embrace the clean energy future.

Conclusion

The EV revolution is quickly gaining speed, with more than 1 million domestic EV sales achieved in 2023 and more than a dozen new large-scale manufacturing facilities under construction in the United States. These changes are the direct result of legislation passed in 2021 and 2022. Combined, the Inflation Reduction Act and the IIJA contain more than 12 policy incentives propelling the country toward a leadership position in clean technology development and manufacturing. Not only does this bode well for the fight against climate change, but it is also a testament to American innovation and a decisive step toward a sustainable and prosperous future.