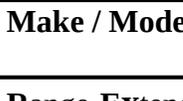
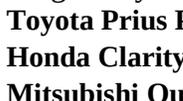
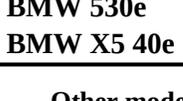


Electric Vehicles on U. S. market

updated April 2019

(sorted by purchase price after tax credits; see other side for important info about leasing)

Make / Model	Electric Range	0-60 MPH time	DCFC power	MSRP (w/o dest.)	after Federal tax credit
 Nissan Leaf	226 miles	8.0-10 sec	100 kW	\$30.0k-\$42.6k	\$22.5k (base) (+\$2k/\$6k)
Gen2 Leaf arrived in early 2018, long range "Plus" in Spring 2019. Base "S" model is stripped of key features; at least get DCFC option, or upgrade to SV / SL. A used Gen1 Leaf is huge bargain!					
 Kia Soul & Niro	200+ miles	~7.8 sec	100 kW	\$38.0k	\$30.5k
Two models coming to US later in 2019, including to Georgia due to Kia presence in West Point. Generous 10/100 drivetrain warranty. Switching from Chademo DCFC to SAE CCS. Rave reviews.					
 Chevy Bolt EV	238 miles	6.3 sec	60 kW	\$36.6k	\$32.9k
Chevy's affordable long-range game changer, on market since Dec 2016. Powerful drivetrain. Optional DCFC enables roadtrips. No adaptive cruise control.					
 Tesla Model 3	220-325 mi	3.2-5.6 sec	250 kW	\$39.5k-\$58k	\$35.8k-\$54.3k
Price shown is for base model, stripped of options. Long range, groundbreaking "autopilot", also available in AWD and "Performance" models. Unique spartan interior. Google "production hell"					
 BMW i3 BEV	153 mi	6.3-7.6 sec	50 kW	\$44.5k	\$37.0k
RWD, very fast & fun car. Slow DCFC. "BEV" version is pure electric; see below for "REx" version. Sporty "i3s" adds power & tweaks. Lagging in some specs but still desirable, if pricey.					
 Tesla Model S	315-335 miles	2.3-5.5 sec	120 kW	\$79k-\$114k w/ o options	\$75k-\$110k+ w/o options
Large, extremely powerful luxury sedan. Multiple power / range options, standard all-wheel drive. Proprietary "supercharging" DCFC at Tesla sites countrywide. Optns like Autopilot can add \$20k!					
 Tesla Model X	289-295 miles	2.8-6.0 sec	120 kW	\$88k-\$119k w/ o options	\$84k-\$115k+ w/o options
Extremely powerful luxury SUV. All-wheel drive. Unique "falcon wing" rear doors open UP. Can tow 3500-5000 pounds. Ditto supercharging and options notes as with Model S above.					

Make / Model	Electric Range	0-60 time	Gas range	MSRP (w/o dest.)	after Federal tax credit	Notes
Range-Extended EVs: full performance electric drivetrain -- accel hard & go 90 mph in EV mode, but gas mode too:						
Chevrolet Volt	53 miles	7.3 sec	400+ miles	\$33.2k	\$29.5k	original REX, being discontin'd
BMW i3 REX	126 mi	8.0 sec	93 miles	\$48.3k	\$40.8k	fastest REX car on market
Plug-in Hybrid EVs: weaker electric drivetrain, smaller battery and electric range, but still fun to drive & killer MPG:						
Toyota Prius Prime	25 miles	10.3 sec	300+ miles	\$27.4k	\$22.9k	hard to get in Georgia
Honda Clarity PHEV	47 miles	7.7 sec	300+ miles	\$33.4k	\$25.9k	great EV power and range
Mitsubishi Outlander PH	22 miles	9.2 sec	300+ miles	\$34.6k	\$28.8k	AWD, Chademo DCFC
Ford Fusion Energi	20 miles	8.0 sec	400+ miles	\$33.1k	\$29.1k	battery in cargo area
Chrysler Pacifica Hybrid	33 miles	7.8 sec	400+ miles	\$42.0k	\$34.5k	impressive minivan
BMW 330e	22 miles	5.7 sec	300+ miles	\$43.7k	\$39.7k	getting updated in 2020
BMW 530e	30 miles	6.0 sec	400+ miles	\$51.2k	\$46.5k	larger luxury sedan
BMW X5 40e	13 miles	6.2 sec	400+ miles	\$55.7k	\$50.8k	luxury SUV, all wheel drive

Other models avail in GA but difficult to get and low volume:

Audi etron SUV, BMW i8 and 740e, Jaguar i-Pace, Porsche Cayenne + Panamera, VW e-Golf

Other models coming "soon" or available in California only:

Cadillac CT6, Fiat 500e, Honda Clarity BEV, Hyundai Ioniq & Sonata & Kona, Kia Optima & Niro, multiple Mercedes models, Mini Countryman, Smart ED, Volvo XC60+XC90+S90

See www.OutsideEVs.com "monthly sales report" for full list.

Federal tax credit: \$7,500 discount on most plugins, some starting to sunset, including Tesla and Chevy

Leasing is extremely popular with EVs, see other side for more.

See website below for model-specific guidance on used EVs. A used Nissan Leaf or Chevy Volt is a screaming bargain!

Electric Vehicle Basics

Read this first if you are new to EVs like the Chevy Volt, Nissan Leaf, Tesla Model S/X/3, BMW i3, Chevy Bolt ...



What is an electric vehicle? An electric vehicle (EV) is propelled via an electric motor and an electric energy storage system like a battery, instead of an internal combustion engine and a gas tank.

Why now? Battery tech improvements have been driven by massive growth in portable consumer electronics (cell phones, cameras, laptops) – better performance with lower cost. Car makers have now engineered them to last 10-15 years.

Electric motors are fundamentally more efficient. Electric motors are FAR more efficient at converting energy into motion than internal combustion engines (ICE) -- 95% thermodynamic efficiency compared to 15-20% for an ICE.

Electric motors have full torque at zero RPM. They don't have a *minimum* operating RPM (idle RPM) like ICE engines do. So no clutches, no shifting, no parasitic transmission losses, and no "idling". EVs are stealth muscle cars!

Even with a dirty coal power plant, an EV is cleaner than an ICE. The most common misconception about EVs is that you are just transferring the point of emissions. But power plants are more efficient at converting fuel to power than a regular car's ICE could ever be – 33-50% compared to 15-20%. The transmission efficiency of the electric grid is also around 95%. Look into "well to wheels efficiency" analyses. Further, EVs are the only cars that get *cleaner* over time as the power grid gets cleaner with newer technologies.

EVs are far cheaper to maintain and fuel. The operating cost becomes virtually negligible. Plus you get to fuel your car at home, overnight, and it only takes a few seconds to plug / unplug.

EV sales are accelerating. As of Sept 2018 there are nearly a million EVs on US roads, and they are selling at a rate of well over 20,000 per month.

Google for "top electric car myths".

Lease new, buy used. For EVs, leasing is smarter than buying, and 80% of EV sales are actually leases. You expose yourself to less technology risk, or being burdened later on with terrible resale value. Typical monthly payment is \$200-\$400, offset by fuel savings. Leases are also great for low-income buyers (w/ low tax liability) – you still benefit from the tax credits! Used EVs are incredible bargains; new EV tech pushes down value of old EVs, but they work fine and are reliable (just w/ less range).

Battery technology:

- Thermal Management System (TMS) matters!
- charging rate (DCFC) doesn't hurt, just do it
- typically warranted for 8 years / 100,000 miles

Public charging infrastructure: All EV drivers simply charge at home overnight and start every day with a full battery every morning. But public charging stations are now widespread, nationwide, and are used when you are driving further than one charge can take you. Note that public charging is largely irrelevant to plug-in hybrids like the Chevy Volt and Ford C-Max Energi. See website for separate fact sheet on public charging.

EV creates choice in how you power your car. With ICE you have no choice: it's oil or nothing. Electric power is cleaner, domestically produced, much cheaper than oil and will get cheaper and cleaner as more solar/wind capacity comes online.

Plug-in hybrids like the Chevy Volt are transitional vehicles between an oil-based transportation sector and an electricity-based sector. Being based on electricity gives us flexibility of energy sources. ICE cars can only be fueled by oil extracted from the ground; electricity can be generated from multiple energy sources.

We are witnessing the beginning of another technology revolution. Like the 1993-1995 Internet wave, EVs are disruptive technology. Think about the birth of digital photography in the late 90's -- who still uses film? CRT vs. LCD ...