WHY BUY AN ELECTRIC CAR?

Electric vehicles (EVs) are fun to drive, safe, comfortable, and convenient to refuel. They also cost less to operate per mile and produce no tailpipe emissions. Electric cars are available in almost every vehicle class, from subcompact to SUV. Today’s electric cars do everything a gas car can do—and more. Drivers love the high performance, the silent, instant acceleration, and the additional technology and safety features associated with electric vehicles.

A growing network of public charging sites nationwide lets more consumers consider purchasing an electric car, though most EV drivers tend to charge at home—because it’s convenient, and it usually saves money.

By replacing gasoline with domestic electricity, EVs cut fossil-fuel use and emissions, which benefits public health. Electrifying all forms of transport could reduce greenhouse gas emissions in 2050 by 57% versus 2015 levels.

About 46 EV models are available new today and 127 models, including pickup trucks, are expected by 2023.

EV 101

This guide highlights the two types of electric vehicles that plug into the electric grid to recharge their batteries. They are battery-electric—or all-electric—vehicles, and plug-in hybrids.

**All electric vehicles** run solely with an electric motor and battery power. They burn no gasoline or diesel fuel, so they emit no emissions and have no tailpipe at all. Because battery technology is rapidly advancing, their costs are declining and their range between charges is increasing.

**Plug-in hybrids** pair an electric motor and battery with an internal-combustion engine. Plug-in hybrids drive solely on electricity until the battery is mostly empty. Then the engine turns on, and the car drives like a conventional hybrid.

**Conventional hybrids**, sometimes called “electrified vehicles,” refuel only with gasoline. They don’t plug in, so they’re not considered electric cars, and aren’t covered here.
ELECTRIC VEHICLE AVAILABILITY

Sales of electric cars today are about 2% of all U.S. light-duty vehicles. That number is expected to rise due to a global shift toward vehicle electrification. One forecast shows global EV sales increasing from 10 million a year in 2025 to 56 million in 2040.1 Another forecasts the number of EVs on the road surging to 125 million globally by 2030.2 Government regulations in China and Europe will likely drive the market in the near term.

Today, U.S. consumers can buy an electric car in almost every vehicle class (Figure 1). Automakers are offering more choices in body styles and trims. Some offer a variety of powertrains—gasoline, battery-electric, and plug-in hybrid—in the same car.

Thanks to better batteries and growing production, EV range is rising and costs are falling. According to a recent analysis by EPRI, the average range of all-electric vehicles will increase from 235 miles in 2020 to 279 miles by 2023.

Some EV models are available nationwide, but others aren’t. Some are available only in states that have adopted zero emission vehicle (ZEV) regulations. Some can be ordered online and delivered at a local dealer, even if that dealer is in a non-ZEV state or doesn’t usually stock electric cars. Used electric cars are also available. Earlier generations of EVs now offered in the used-car market can serve as affordable EV options.

In addition, several ultra-luxury or limited-edition models priced over $150,000 are available. They are listed in the tables but are not featured in detail on the following pages.


Figure 1. The number and variety of EV models continues to grow. By the end of 2020, about 63 different models are expected to be available in the U.S. By 2023, approximately 127 models are projected.
# AVAILABLE NOW

## BATTERY-ELECTRIC VEHICLE

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>RANGE (MILES)</th>
<th>WHERE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUV/CROSSOVER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audi e-tron</td>
<td>204</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Jaguar I Pace</td>
<td>234</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Tesla Model X</td>
<td>258–328</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Tesla Model Y</td>
<td>315</td>
<td>Nationwide</td>
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</table>

<table>
<thead>
<tr>
<th><strong>COMPACT/HATCHBACK</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BMW i3</td>
<td>153</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Chevrolet Bolt EV</td>
<td>259</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Mini Cooper SE</td>
<td>110</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Nissan Leaf and Leaf Plus</td>
<td>150 and 226</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Hyundai Ioniq Electric</td>
<td>170</td>
<td>Select Markets</td>
</tr>
<tr>
<td>Hyundai Kona Electric</td>
<td>258</td>
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</tr>
<tr>
<td>Kia Niro EV</td>
<td>239</td>
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<tr>
<td>Volkswagen e-Golf</td>
<td>123</td>
<td>Select Markets</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>SEDAN</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tesla Model 3</td>
<td>220/330</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Tesla Model S</td>
<td>287/373</td>
<td>Nationwide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>SUBCOMPACT</strong></th>
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<tr>
<td>Fiat 500e</td>
<td>84</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ULTRA LUXURY/LIMITED EDITION</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Porsche Taycan Turbo</td>
<td>201</td>
<td>Nationwide</td>
</tr>
</tbody>
</table>

1 Range for battery-electric vehicles is all-electric range. Range for plug-in hybrids is all-electric/combined (electric + gas) range. Sources for vehicles available now: www.fueleconomy.gov and manufacturer websites.

## PLUG-IN HYBRID

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>RANGE (MILES)</th>
<th>WHERE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUV/CROSSOVER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audi Q5 PHEV</td>
<td>20/390</td>
<td>Nationwide</td>
</tr>
<tr>
<td>BMW X3 xDrive30e</td>
<td>18/340</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Land Rover Range Rover PHEV</td>
<td>19/480</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Land Rover Range Rover Sport PHEV</td>
<td>19/480</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Mitsubishi Outlander Plug-in Hybrid</td>
<td>22/310</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Porsche Cayenne E Hybrid</td>
<td>13/450</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Volvo XC60 T8 eAWD</td>
<td>19/520</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Volvo XC90 T8 eAWD</td>
<td>18/520</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Lincoln Aviator Grand Touring</td>
<td>21/460</td>
<td>Select Markets</td>
</tr>
<tr>
<td>Subaru Crosstrek</td>
<td>17/480</td>
<td>Select Markets</td>
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<table>
<thead>
<tr>
<th><strong>COMPACT/HATCHBACK</strong></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>BMW i3 REx</td>
<td>126/200</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Toyota Prius Prime</td>
<td>25/640</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Hyundai Ioniq Plug-in Hybrid</td>
<td>29/630</td>
<td>Select Markets</td>
</tr>
<tr>
<td>Kia Niro Plug-in Hybrid</td>
<td>26/560</td>
<td>Select Markets</td>
</tr>
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<table>
<thead>
<tr>
<th><strong>SEDAN</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Audi A8 L PHEV</td>
<td>17/420</td>
<td>Nationwide</td>
</tr>
<tr>
<td>BMW 530e and 530e xDrive</td>
<td>21/350 and 19/330</td>
<td>Nationwide</td>
</tr>
<tr>
<td>BMW 745e xDrive iPerformance</td>
<td>16/290</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Ford Fusion Plug-in Hybrid</td>
<td>26/610</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Porsche Panamera 4 E Hybrid</td>
<td>14/490</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Volvo S60 T8 eAWD</td>
<td>22/510</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Volvo S90 T8 eAWD</td>
<td>21/490</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Honda Clarity Plug-in Hybrid</td>
<td>47/340</td>
<td>Select Markets</td>
</tr>
<tr>
<td>Kia Optima Plug-in Hybrid</td>
<td>28/630</td>
<td>Select Markets</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>MINIVAN/WAGON/VAN</strong></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Chrysler Pacifica Hybrid</td>
<td>32/520</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Porsche Panamera 4 E Hybrid Sport Turismo</td>
<td>14/490</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Volvo V60 T8 eAWD</td>
<td>22/510</td>
<td>Nationwide</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>ULTRA LUXURY/LIMITED EDITION</strong></th>
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<th></th>
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<tbody>
<tr>
<td>Bentley Bentayga Hybrid</td>
<td>18/390</td>
<td>Nationwide</td>
</tr>
<tr>
<td>BMW i8 Roadster</td>
<td>18/320</td>
<td>Nationwide</td>
</tr>
<tr>
<td>BMW i8 Coupe</td>
<td>18/320</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Karma Revero GT</td>
<td>61/330</td>
<td>Nationwide</td>
</tr>
</tbody>
</table>
COMING LATER IN 2020

### BATTERY-ELECTRIC VEHICLE

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>RANGE (MILES)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUVR/CROSSOVER</strong></td>
<td></td>
</tr>
<tr>
<td>Audi e-tron Sportback</td>
<td>218</td>
</tr>
<tr>
<td>Ford Mustang Mach e</td>
<td>300</td>
</tr>
<tr>
<td>Rivian R1S</td>
<td>400</td>
</tr>
<tr>
<td>Volvo XC40 Recharge</td>
<td>200</td>
</tr>
<tr>
<td><strong>COMPACT/HATCHBACK</strong></td>
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<tr>
<td>Volkswagen ID.4</td>
<td>310</td>
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<tr>
<td><strong>SEDAN</strong></td>
<td></td>
</tr>
<tr>
<td>Polestar 2</td>
<td>TBA</td>
</tr>
<tr>
<td><strong>PICKUP TRUCK</strong></td>
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</tr>
<tr>
<td>Rivian R1T</td>
<td>400</td>
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</table>

### PLUG-IN HYBRID

<table>
<thead>
<tr>
<th>MODEL NAME</th>
<th>RANGE (MILES)</th>
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</thead>
<tbody>
<tr>
<td><strong>SUVR/CROSSOVER</strong></td>
<td></td>
</tr>
<tr>
<td>Audi A7 PHEV</td>
<td>TBA</td>
</tr>
<tr>
<td>Ford Escape Plug in Hybrid</td>
<td>20/TBA</td>
</tr>
<tr>
<td>Lincoln Corsair Grand Touring</td>
<td>25/TBA</td>
</tr>
<tr>
<td>Mercedes Benz GLC 350e</td>
<td>TBA</td>
</tr>
<tr>
<td>Mini Cooper S E Countryman All4</td>
<td>18/300</td>
</tr>
<tr>
<td>Porsche Cayenne E Hybrid Coupe</td>
<td>TBA</td>
</tr>
<tr>
<td>Toyota RAV4 Prime</td>
<td>40/TBA</td>
</tr>
<tr>
<td><strong>SEDAN</strong></td>
<td></td>
</tr>
<tr>
<td>BMW 330e</td>
<td>22/TBA</td>
</tr>
<tr>
<td>Mercedes Benz S560e</td>
<td>19/510</td>
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<tr>
<td><strong>ULTRA LUXURY/LIMITED EDITION</strong></td>
<td></td>
</tr>
<tr>
<td>Polestar 1</td>
<td>60/300</td>
</tr>
</tbody>
</table>

1 Range for battery-electric vehicles is all-electric range. Range for plug-in hybrids is all-electric/combined (electric + gas) range. Sources for vehicles coming later in 2020: manufacturer and industry news websites; numbers shown are maximum estimated range; data subject to change.
Electric cars available nationwide as of April 2020; discontinued models or older model years may still be available.


Range per hour of charging assumes home or workplace charging; see FAQs, page 12.

Fast-charging times are provided by automakers or calculated from automaker statements.

Starting MSRPs are retrieved from automaker websites and may vary.

Five-door vehicles are categorized as hatchbacks unless offered with all-wheel drive. Carmakers have taken to calling five-door vehicles “crossovers” to market them as SUVs, but without available AWD, they are just hatchbacks. We expect this distinction to shrink further in the future.

2020 Audi A8 L PHEV
Plug-in hybrid    Sedan
EPA electric range: 17 miles
EPA total range (gas+electric): 420 miles
Range/hour of charging: 7 miles
Starting MSRP: $94,000

2019 Audi e-Tron
Battery-electric    SUV/Crossover
EPA electric range: 204 miles
Range/hour of charging: 22 miles
Fast charging: 160 miles in 30 minutes
Starting MSRP: $74,800

2020 Audi Q5 PHEV
Plug-in hybrid    SUV/Crossover
EPA electric range: 20 miles
EPA total range (gas+electric): 390 miles
Range/hour of charging: 8 miles
Starting MSRP: $52,900

2020 BMW 530e and 530e xDrive
Plug-in hybrid    Sedan
EPA electric range: 21 and 19
EPA total range (gas+electric): 350 and 330
Range/hour of charging: 7 miles
Starting MSRP: $53,900 and $56,200
2020 BMW 745e xDrive iPerformance
Plug-in hybrid    Sedan
EPA electric range: 16
EPA total range (gas+electric): 290
Range/hour of charging: 4 miles
Starting MSRP: $95,500

2020 BMW i3
Battery-electric    Compact/Hatchback
EPA electric range: 153 miles
Range/hour of charging: 30 miles
Fast charging: 120 miles in 40 minutes
Starting MSRP: $44,450

2020 BMW i3 REx
Plug-in hybrid    Compact/Hatchback
EPA electric range: 126
EPA total range (gas+electric): 200 miles
Range/hour of charging: 18 miles
Fast charging: 100 miles in 40 minutes
Starting MSRP: $48,300

2020 BMW X3 xDrive30e
Plug-in hybrid    SUV/Crossover
EPA electric range: 18 miles
EPA total range (gas+electric): 340 miles
Range/hour of charging: 6 miles
Starting MSRP: $48,550

2020 Chevrolet Bolt EV
Battery-electric    Compact/Hatchback
EPA electric range: 259 miles
Range/hour of charging: 26 miles
Fast charging: 100 miles in 30 minutes
Starting MSRP: $36,620

2020 Chrysler Pacifica Hybrid
Plug-in hybrid    Minivan/Wagon/Van
EPA electric range: 32 miles
EPA total range (gas+electric): 520 miles
Range/hour of charging: 16 miles
Starting MSRP: $39,995
2020 Ford Fusion Plug-in Hybrid
Plug-in hybrid    Sedan
EPA electric range: 26 miles
EPA total range (gas+electric): 610 miles
Range/hour of charging: 13 miles
Starting MSRP: $35,000

2020 Jaguar I-Pace
Battery-electric    SUV/Crossover
EPA electric range: 234 miles
Range/hour of charging: 18 miles
Fast charging: 187 miles in 85 minutes
Starting MSRP: $69,850

2020 Land Rover Range Rover PHEV
Plug-in Hybrid    SUV/Crossover
EPA electric range: 19
EPA total range (gas+electric): 480
Range/hour of charging: 6 miles
Starting MSRP: $95,950

2020 Land Rover Range Rover Sport PHEV
Plug-in Hybrid    SUV/Crossover
EPA electric range: 19
EPA total range (gas+electric): 480
Range/hour of charging: 6 miles
Starting MSRP: $79,000

2020 Mini Cooper SE
Battery-electric    Compact/Hatchback
EPA electric range: 110 miles
Range/hour of charging: 27 miles
Fast charging: 88 miles in 36 minutes
Starting MSRP: $29,900

2020 Mitsubishi Outlander Plug-in Hybrid
Plug-in Hybrid    SUV/Crossover
EPA electric range: 22 miles
EPA total range (gas+electric): 310 miles
Range/hour of charging: 6 miles
Fast charging: 18 miles in 25 minutes
Starting MSRP: $36,295
2020 Nissan Leaf and Leaf Plus
- **Battery-electric**
- **Compact/Hatchback**
- EPA electric range: 150 and 226 miles
- Range/hour of charging: 19 miles
- Fast charging: 120 miles in 40 minutes (Leaf)
- Fast charging: 180 miles in 60 minutes (Leaf Plus)
- Starting MSRP: $31,600 and $38,200

2019 Porsche Cayenne E-Hybrid
- **Plug-in hybrid**
- **SUV/Crossover**
- EPA electric range: 13 miles
- EPA total range (gas+electric): 450 miles
- Range/hour of charging: 5 miles
- Starting MSRP: $81,100

2020 Porsche Panamera 4 E-Hybrid
- **Plug-in hybrid**
- **Sedan**
- EPA electric range: 14 miles
- EPA total range (gas+electric): 490 miles
- Range/hour of charging: 5 miles
- Starting MSRP: $103,800

2020 Porsche Panamera 4 E-Hybrid
- **Plug-in hybrid**
- **Minivan/Wagon/Van**
- EPA electric range: 14 miles
- EPA total range (gas+electric): 490 miles
- Range/hour of charging: 5 miles
- Starting MSRP: $107,800

Tesla Model 3
- **Battery-electric**
- **Sedan**
- EPA electric range: 220–330 miles
- Range/hour of charging: 25–38 miles
- Fast charging: Up to 172 miles in 15 minutes
- Starting MSRP: $39,900

Tesla Model S
- **Battery-electric**
- **Sedan**
- EPA electric range: 287–373 miles
- Range/hour of charging: 31–46 miles
- Fast charging: Up to 130 miles in 15 minutes
- Starting MSRP: $79,990
Tesla Model X
Battery-electric    SUV/Crossover
EPA electric range: 258–328 miles
Range/hour of charging: 28–41 miles
Fast charging: Up to 115 miles in 15 minutes
Starting MSRP: $84,990

Tesla Model Y
Battery-electric    SUV/Crossover
EPA electric range: 315 miles
Range/hour of charging: 31 miles
Fast charging: Up to 158 miles in 15 minutes
Starting MSRP: $52,990

2020 Toyota Prius Prime
Plug-in hybrid    Compact/Hatchback
EPA electric range: 25 miles
EPA total range (gas+electric): 640 miles
Range/hour of charging: 12 miles
Starting MSRP: $27,750

2020 Volvo S60 T8 eAWD
Plug-in hybrid    Sedan
EPA electric range: 22 miles
EPA total range (gas+electric): 510 miles
Range/hour of charging: 7 miles
Starting MSRP: $56,045

2020 Volvo S90 T8 eAWD
Plug-in hybrid    Sedan
EPA electric range: 21 miles
EPA total range (gas+electric): 490 miles
Range/hour of charging: 7 miles
Starting MSRP: $63,845

Volvo V60 T8 eAWD
Plug-in hybrid    Minivan/Wagon/Van
EPA electric range: 22 miles
EPA total range (gas+electric): 510 miles
Range/hour of charging: 7 miles
Starting MSRP: $67,300
2020 Volvo XC60 T8 eAWD
Plug-in hybrid    SUV/Crossover
EPA electric range: 19 miles
EPA total range (gas+electric): 520 miles
Range/hour of charging: 6 miles
Starting MSRP: $54,595

2020 Volvo XC90 T8 eAWD
Plug-in hybrid    SUV/Crossover
EPA electric range: 18 miles
EPA total range: 520 miles
Range/hour of charging: 6 miles
Starting MSRP: $67,000
Electric cars available in select markets as of April 2020; discontinued models or older model years may still be available.


Range per hour of charging assumes home or workplace charging; see FAQs, page 12.

Fast-charging times are provided by automakers or calculated from automaker statements.

Starting MSRP are retrieved from automaker websites and may vary.

Five-door vehicles are categorized as hatchbacks unless offered with all-wheel drive. Carmakers have taken to calling five-door vehicles “crossovers” to market them as SUVs, but without available AWD, they are just hatchbacks. We expect this distinction to shrink further in the future.
2020 Kia Niro EV
Battery-electric Compact/Hatchback
EPA electric range: 239 miles
Range/hour of charging: 25 miles
Fast charging: 100 miles in 30 minutes
Starting MSRP: $39,090

2020 Kia Niro Plug-in Hybrid
Plug-in hybrid Compact/Hatchback
EPA electric range: 26 miles
EPA total range: 560 miles
Range/hour of charging: 11 miles
Starting MSRP: $28,500

2020 Kia Optima Plug-in Hybrid
Plug-in hybrid Sedan
EPA electric range: 28 miles
EPA total range (gas+electric): 630 miles
Range/hour of charging: 10 miles
Starting MSRP: $36,090

2020 Lincoln Aviator Grand Touring
Plug-in Hybrid SUV/Crossover
EPA electric range: 21
EPA total range (gas+electric): 460
Range/hour of charging: 8 miles
Starting MSRP: $68,800

2020 Subaru Crosstrek Hybrid
Plug-in hybrid SUV/Crossover
EPA electric range: 17 miles
EPA total range (gas+electric): 480 miles
Range/hour of charging: 8 miles
Starting MSRP: $35,145

2020 Volkswagen e-Golf
Battery-electric Hatchback
EPA electric range: 123 miles
Range/hour charging: 21 miles
Fast charging: 100 miles in 60 minutes
Starting MSRP: $31,895
WHERE CAN I CHARGE AND HOW LONG DOES IT TAKE?

You can charge your electric car at home, at work, or in public. It’s as easy as charging your smart phone or computer. Simply plug it in and carry on with life. Your car charges while you sleep, work, or play.

Most drivers with a driveway or a garage prefer the convenience of charging at home. You simply plug into an up-to-date standard 120-volt household outlet, using the cord that comes with the car. This is called Level 1 charging. It’s the simplest and most economical home-charging solution because it requires no other equipment or installation. Charging at Level 1 delivers roughly 3 to 5 miles of range per hour.

For faster home charging, you can install a dedicated 240-volt charging station. It’s an appliance, like an electric clothes dryer. This is called Level 2 charging. Charging at Level 2 delivers roughly 8 to 24 miles of range per hour or more, depending on the car and the charging station.

Level 1 and Level 2 charging is available in public and at some workplaces.

For even faster charging, a growing number of DC Fast charging stations are available in strategic locations nationwide along highway corridors and near shopping centers. DC Fast charging cannot be installed at home. Most (but not all) electric cars are equipped to accept DC Fast charging, though all can charge at Levels 1 and 2. Fast-charging speed varies by car and installation. See details in Table 1. For more information, see “Consumer Guide to Electric Vehicle Charging,” October 2019 (EPRI Product ID 3002016961).

### Table 1. Charging levels and range replenished

<table>
<thead>
<tr>
<th>CHARGING LEVEL; DESCRIPTION</th>
<th>LOCATION</th>
<th>MILES OF RANGE REPLENISHED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1 (120 volts); cord comes with car; three-prong outlet or charging station</td>
<td>Home, Work, Public</td>
<td>3-5 miles of range/hour</td>
</tr>
<tr>
<td>Level 2 (240 volts); charging station</td>
<td>Home, Work, Public</td>
<td>8-24 miles of range/hour, more on some models</td>
</tr>
<tr>
<td>DC Fast; charging station - 50 kW</td>
<td>Work, Public</td>
<td>2-3 miles of range/minute; charges a 100 mile range car to 80% in 30 minutes</td>
</tr>
<tr>
<td>DC Fast; charging station - 150 kW</td>
<td>Work, Public</td>
<td>6-9 miles of range/minute; charges a 240 mile range car to 80% in 30 minutes</td>
</tr>
<tr>
<td>DC Fast; charging station - 350 kW</td>
<td>Work, Public</td>
<td>12-18 miles of range/minute; charges a 300 mile range car to 80% in 20 minutes</td>
</tr>
</tbody>
</table>

1 The amount of range replenished may vary beyond the numbers shown, depending on the charger type and vehicle.

2 Most current U.S. DC Fast chargers offer a maximum power level of 50 kW-150 kW. Tesla Superchargers offer 120 kW-150 kW. Tesla V3 Superchargers promise up to 250 kW, Porsche uses up to 270 kW at stations from Electrify America and other networks, and multiple networks promise 350 kW+ DC Fast chargers for future vehicles that can take advantage of them.
HOW MUCH DOES IT COST TO CHARGE?

Charging cost depends on several factors: the price of electricity, your car’s efficiency (how much electricity it uses to travel one mile), and how many miles you drive.

Home charging is the most economical. At the U.S. national average residential price of 12.8 cents per kilowatt-hour (kWh), fueling a car with electricity is roughly equivalent to buying gasoline at $1 a gallon. Many utilities offer discounted residential EV rates.

Public charging costs vary by region and network provider. Some public stations are free and open to all, with electricity subsidized by the property owner. Charging networks’ fee structure and membership requirements vary. Nonetheless, charging on the go usually costs no more than the current average cost of gasoline—but more than that of home charging, as shown in Table 2.

WHAT INCENTIVES ARE AVAILABLE?

A federal tax credit of up to $7,500 may be available for qualified EVs. Some state and local governments offer vehicle purchase and charging station incentives. In some states, electric cars can use carpool lanes with a single driver and receive parking and charging perks. Some utilities offer EV charging incentives. The U.S. Dept. of Energy Office of Energy Efficiency and Renewable Energy tracks currently available incentives nationwide.

WHAT SHOULD I CONSIDER IN EVALUATING AN EV?

Consider your driving needs and lifestyle. If you have only one car or often drive long distances, a plug-in hybrid with its backup internal-combustion engine can provide a worry-free transition to EVs.

If your daily driving patterns are predictable, or if you like the idea of a gasoline-free driving experience, an all-electric vehicle may be a good choice. Access to workplace or public charging can effectively double your range and may alleviate worries about range.

Consider costs and benefits. With lease options, discounted electricity rates, and government purchase incentives, EVs can cost less to operate over their lifetime despite higher sticker prices. And just like other innovations, EV costs are falling as technology improves and production volumes rise.

Consider environmental benefits. Electric cars have lower emissions than gasoline-powered vehicles, even in areas where much of the electricity is generated by power plants that burn fossil fuels. For more information, see “Environmental Assessment of a Full Electric Transportation Portfolio” (EPRI Product ID 3002006881).

<table>
<thead>
<tr>
<th>MILES DRIVEN</th>
<th>GASOLINE COST</th>
<th>ELECTRICITY COST HOME CHARGING</th>
<th>ELECTRICITY COST PUBLIC CHARGING LEVEL 2</th>
<th>ELECTRICITY COST PUBLIC CHARGING DC FAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>$2.80</td>
<td>$1.10</td>
<td>$1.50</td>
<td>$2.60</td>
</tr>
<tr>
<td>100</td>
<td>$9.30</td>
<td>$3.70</td>
<td>$4.90</td>
<td>$8.60</td>
</tr>
<tr>
<td>200</td>
<td>$18.60</td>
<td>$7.30</td>
<td>$9.70</td>
<td>$17.10</td>
</tr>
</tbody>
</table>

1 These calculations assume: an average U.S. light-duty vehicle efficiency of 25 mpg and a regular unleaded gasoline price of $2.33/gallon (a 2021 projection by the U.S. Energy Information Agency Short-Term Energy Outlook); an average electric vehicle efficiency of 3.5 miles/kWh; an average U.S. residential electricity price of $0.1279; and an average value of $0.17/kWh and $0.30/kWh for Level 2 and DC Fast public charging respectively.
FOR MORE INFORMATION:
Explore automakers’ websites for product updates and check your local electricity provider’s website for information about EVs.

Other sources:
Electric Drive Transportation Association: www.electricdrive.org and www.goelectricdrive.org
U.S. Dept. of Energy Alternative Fuels Data Center: www.afdc.energy.gov/fuels/electricity.html
Plug In America: www.pluginamerica.org

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