

2022-23 Rogue Valley Plug-in Buyers' Guide

Finding Your Ideal EV or PHEV



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*“Twenty-five years ago, people could be excused for not knowing much, or doing much, about climate change. **Today we have no excuse.**”*

Desmond Tutu (1931 – 2021)

Former Archbishop of Cape Town

Recipient of The Nobel Peace Prize, 1984

On the cover, clockwise: Lucid Air, Kia EV6, Ford F-150 Lightning, Mercedes-Benz EQS

Note: This is an interim edition prepared for Drive Electric Week 2022. Some content is incomplete and subject to change and augmentation, in particular regarding federal tax credits under the new IRA legislation and status of vehicle availability at local dealers.

This document contains active links to supplementary information. Although the print version is handy for quick reference, we recommend you download the PDF version from www.sheva.net to take advantage of the links.

Introduction

Welcome to the modified successor to the *Rogue Valley Green Car Guide*, first introduced in 2017. This new format is designed to work as a step-by-step guide to buying a new plug-in vehicle, either a full battery electric vehicle (BEV) or a plug-in hybrid vehicle (PHEV). Unlike the old guide, this new edition includes only those vehicles able to run on electricity alone, if only for relatively short distances, with at least the potential of zero tailpipe emissions. Note that this guide is structured so you don't have to read it all; you can skip to the sections that do not apply to your specific needs.

As with the previous version, I'm including complete listings only for new vehicles either sold by dealers in the Rogue Valley, or that do not have dealers anywhere (Tesla, Rivian and Lucid). Car dealers provide local jobs and also support local community organizations and causes. I believe they deserve our first look. However, I do note the other new plug-in makes that are not available locally, though you will have to find detailed information elsewhere.

I started this project because of my concerns about climate change and the leading role played by transportation in production of greenhouse gas emissions. I hope you share those concerns. But even if you don't, most plug-ins are more fun to drive and cost less for fuel and maintenance.

Finally, the effects of pent-up demand and supply chain issues have drastically changed automotive retailing. All vehicles have been affected, but recent high gasoline prices have exacerbated the problems with EVs in particular and, only somewhat less so, with plug-in hybrids. Less than two years ago you still could find a wide selection of new models waiting on the lot, with the possibility of negotiating meaningful discounts. No more. In a few cases, dealer stock may be on the way and not yet spoken for. But more often than not you will have to place your order and wait for a car that may not roll off the assembly line for weeks or months. And you may be hit with a "market adjustment" on top of MSRP that can raise the price thousands of dollars. Also, if you have your eyes on a model not yet in production, it might be a good idea to plunk down a (usually refundable) deposit to reserve one. Otherwise, you may have to wait in line for many months after production starts.

IMPORTANT NOTE: This guide includes only vehicles that are EPA rated at less than 300 grams per mile of greenhouse gas emissions in typical driving and when charged from the local grid. Several plug-in hybrids, typically larger SUVs, exceed this limit and therefore are excluded.

Preliminary Decision: Tesla or No?

We begin with a crucial fork in the road.

Most Tesla buyers don't even consider other EVs. It's a Tesla or nothing. Elon Musk's upstart enterprise undeniably is in a category by itself, not only in terms of dominant market share but also in its business model, its complete integration of vehicles and charging infrastructure, and the way it sells and services its cars. In many ways, Tesla is like the Apple Computer of car companies. It goes its own way.

If you already know you're not Tesla material, skip this and proceed to Part I below.

However, if you're on the fence about whether or not to pledge loyalty to Tesla Nation, consider the following:

Tesla Pros

Advanced technology in general - Too many exclusive whiz-bang features to detail here, but suffice it to say that Tesla leads the way in a comprehensive and (mostly) user-friendly fusion of cutting-edge computer and automotive technologies.

Autonomous driving (?) – Until recently, Tesla’s Full Self-Driving (FSD) has been the undisputed leader of the pack in autonomous driving for EVs. However, there have been a few glitches, with Ralph Nader (yes, he lives!) demanding a recall. Also, some automotive critics give an edge to GM’s SuperCruise in highway driving, introduced as an option on the 2022-23 Bolt EUV and Cadillac Lyriq.

Breathtaking performance – Put it this way: there is no such thing as a slow Tesla with poor ride and handling. Hang on, take a deep breath, and quietly go ZOOM!

Exclusive nationwide charging network – It’s a package deal, giving you full confidence to hit the open road. For now, a huge plus for those who take long road trips. But that could be changing soon. See Appendix VII on local and regional charging.

Styling – Sleek yet understated, without the Star Wars excesses or general geekiness of some recent plug-in hybrids. (What were they thinking in Japan?)

Joining a club – Some might say you’re joining a cult, but I wouldn’t go that far. If you take the plunge, you will find an engaging esprit de corps among your fellow Tesla owners.

Tesla Cons

No low budget model – The lowest-cost basic new Tesla (Model 3 Standard), with delivery and document fees, will set you back close to \$50,000. True, that’s on par with lower-end BMWs (many of which a Model 3 will leave in the dust) but a big jump up from a Corolla.

Reliability – This has been a weak point for Tesla, with only the Model 3 earning an “average” rating from Consumer Reports. The S, Y and X fall below average. But Tesla owners don’t seem to mind, as overall satisfaction is consistently high.

No local dealerships or service – You can order a Tesla and then return it, but you can’t test drive one locally. Service in the Rogue Valley is on-call at your place, which has its own pros and cons.

Maybe Pro, Maybe Con

Pricing policy – The bottom line showing when you fill out your order is what you pay. No horse-trading here. Prices are all up front. And going up frequently. However, you won’t see the “market adjustments” added by some dealers to other EVs, which have ranged from \$2,000 to \$10,000 on top of MSRP.

Elon Musk’s personality – If you admire a brilliant, visionary CEO (official title now “Technoking of Tesla”) who is also brash, bluntly outspoken and headstrong, then you’re Tesla material. But I have encountered a couple EV shoppers who have pledged “never Tesla” for this reason.

So, a Tesla Convert?

Buying a New Tesla - If you’ve ever ordered a new computer from the Apple Store, you know the procedure. You start with a basic platform and customize to your liking and your budget. It’s pretty

much the same with a Tesla, though you will have more decisions to make so allow plenty of time. What you see is what you pay, and financing options will be offered. You get started by clicking here: <https://www.tesla.com/>.

Buying a Used Tesla – This is essentially no different than buying any other used EV. Proceed to Part III and simply focus your search on the Tesla model that fits your needs and budget.

Or Open to Alternatives?

If you're not yet fully convinced Tesla is the one and only, continue to Part I following and explore other options.

Following the Tesla Model: Rivian and Lucid

Rivian makes a premium pickup (R1T) and SUV (R1S) while, for now, Lucid makes only various versions (very expensive and whoa, baby!) of the Air sedan. Both companies basically follow the Tesla model. For us, at least, you order and buy online. Rivian has announced it will open 10 showrooms, but none are slated anywhere near us. Lucid has a couple dozen "studio showrooms, with the closest in the Bay Area.

Part I: The Basics

Realistically, what is your budget?

Note: Costs given below are approximate and subject to continuing upward adjustment. Used EV prices are going up at more than double the rate of ICE cars. New prices assume a federal tax credit which may or may not be available. More on this later.

That said, even if your budget is \$10,000 to \$15,000, you still can afford a first-generation EV with fewer than 30,000 miles. (You can expect between 60 and 100 miles of maximum range.) A recommended PHEV will be a few years older and probably with 40,000 miles or more. That's still a good deal if at least half the miles were electric. If you qualify for the Oregon Charge Ahead rebates, and with the new federal tax credit for used EVs, your net cost could drop into the \$5,000 to \$7,000 range – far below an ICE vehicle of the same age and miles.

Between \$15,000 and \$20,000, you'll find some PHEV's five to eight years old, or maybe an older generation BMW i3. MAYBE a used gen 2 Leaf or Bolt if you get the used federal tax credit.

At \$20,000 to \$30,000 you can get a used second-generation Leaf or Bolt (up to 250 miles range) or, with a decent deal, a new PHEV sedan like a Prius Prime.

Around \$30,000 you're at the threshold for brand new second generation EVs, depending on your status for tax credits and rebates. This is also the approximate threshold for a used Tesla Model 3.

The range between \$35,000 and \$60,000 is the sweet spot for Tesla Model 3, Kia Niro EV, and Mustang Mach-E along with the AWD RAV-4 Prime. For listings of EVs and PHEVs sold locally or only direct, see Appendix I. For details on tax credits and rebates, see Appendix II.

How important is reducing your carbon footprint?

If keeping GHG emissions to a minimum is critical, refer to the chart in Appendix I, which ranks current vehicles according to tailpipe (if any) and upstream emissions. Battery electric vehicles (BEVs) are rated considerably higher based on typical driving patterns. **Note that all plug-ins listed are far better than comparable ICE (internal combustion engine) vehicles, which emit an average of about 500 grams per mile, with some large pickups emitting over 750 grams per mile.** (This is an estimate for all personal vehicles now on the road; brand new ICE models are better, averaging 421 grams per mile.) In light of this large gap, a difference of 10 or 20 grams per mile when comparing plug-ins is of minor significance – and the real-world difference will vary depending on your driving patterns. The EPA rating is based on 45% highway and 55% city driving.

Is all-wheel drive available? Is it necessary?

It is available, but first you need to answer an important question, regarding both your budget and the planet: Do you really **need** all-wheel drive (AWD)?

AWD not only costs more but it also adds weight, which in turn reduces overall efficiency. Modern cars, equipped with computerized traction and stability control, and with good tires, will perform extraordinarily well in all but the most extreme conditions with only two-wheel drive, particularly if front wheel drive (FWD).

So, unless you are a skier who wants to go up the mountain no matter what, or you commute to Klamath Falls through the winter, or you have a job that demands you get to work on time even when schools and many businesses are closed, or you have a long and extremely steep driveway, then you probably do NOT need AWD. Good tires and FWD will get you through the winter just fine.

If you do honestly need it, AWD drive is standard or optional on many EVs and PHEVs. A quick way to find out what's available with AWD is to check the excellent charts posted on [InsideEVs](#) showing color-coded icons for rear-wheel drive (RWD), front-wheel drive (FWD) or all-wheel drive (AWD). The good news is that, although the initial cost increase may be considerable, the additional penalty in GHG emissions for AWD is substantially less than with gas-powered cars. About 10 grams per mile additional is typical.

Will this be your only car, or will you retain/purchase another vehicle for your household?

If you will have **only one car** AND you are not particularly patient about charging AND you will use it for long trips AND your budget is under \$30,000 new and \$15,000 used, then look at a plug-in hybrid, particularly if you do most driving locally and within the electric range of your chosen PHEV. If you honestly need to add AWD, used options will be scarce but new options start around \$40,000.

However, if you have reasonable patience and flexibility now, and if you are a lucky shopper, you can get a late model used BEV for around \$20,000 that will take you up to 250 miles and then move you along another 200 miles after about an hour or so of charging. And charging opportunities will only get better in the future. If your budget is \$45,000 and up, there is really no reason not to go new all electric – as here you enter Tesla Supercharger territory – unless you HONESTLY need AWD. Then you're looking at \$60,000 and up for AWD from Elon.

Two car households have many more options. For example, if one family member has a 30-mile round-trip commute, you could purchase a used first-generation EV for under \$10,000, or a used PHEV with a longer range (e.g., Chevy Volt or Honda Clarity) and keep all your local driving electric. A late model used Prius could do the long-distance driving if you go the BEV route, still keeping your total budget for two cars under \$35,000.

Okay, let's say you honestly need AWD and you are a two-car, two-person household with a roughly \$40,000 budget for both cars. In this case you might look at a used second-generation BEV for about \$20,000, and then get a used, fuel-efficient compact SUV which would be driven only when you *really* need AWD, or used as the shorter-trip car when the BEV is making the longer trip.

No matter how you mix and match, the idea is to drive electric as much as you possibly can, using fossil fuel power – whether in the same PHEV or a separate ICE vehicle – as sparingly as possible.

How reliable are plug-in cars?

Unfortunately, there is no single, simple answer, as reliability varies with make and model. But there are a few valid generalizations.

- Battery-only EVs are more reliable than plug-in hybrids because of the simpler drive train.
- More basic (less complicated) EVs are more reliable than fully loaded luxury EVs.
- Mature EV platforms are more reliable than recently introduced EVs.

Also, as a rule, EV reliability problems tend not to be major drivetrain issues, but with other issues common to all cars: infotainment systems, power accessories, fit and finish, etc.

Should I shop locally, or go to Eugene or Portland? California?

Again, I think it is preferable to support local businesses that provide jobs and support civic groups and activities in our community. True, on new vehicles it is possible in many cases to find a lower price in the Portland metro area. (The same goes for California, but you will have to pay sales tax unless you have the car shipped to you, which negates most of the savings.) Before the recent market craziness, in my experience, savings on new vehicles priced under \$30,000 are rarely more than \$1,000, which makes the money and time spent on the trip questionable. (You can use their advertised price or email offer to bargain with local dealers.) However, I have heard reports of differentials of far greater amounts in recent months.

True, it is more likely that a Portland dealer will have the model with the features you want, if not in current inventory, at least on the way. So, you may get it sooner than if dealing locally and making a new order. But you probably will still have to go up there to pick it up, which is an additional hassle. It may be worth paying a bit more and/or waiting a few more weeks.

Used plug-ins will be scarce locally, so you likely will have to head north to purchase what you want. Find your preferred vehicle using the shopping tools in Appendix IV.

Part II: Choosing a New Plug-in

Note: If you've already decided to go for a used vehicle instead, skip to Part III.

What new plug-ins are currently sold and serviced locally?

New EVs and PHEVs currently sold locally are:

- BMW i4, iX, 330e and 530e PHEV (Medford BMW)
- Chevrolet Bolt EV and Bolt EUV (Airport Chevrolet, Jim Sigel Automotive, TC Chevy)
- Chrysler Pacifica PHEV (Lithia Chrysler-Jeep-Dodge, Grants Pass Chrysler-Jeep-Dodge)
- Ford Mustang Mach-E and F-150 Lightning EVs; Escape PHEV (Butler Ford, Crater Lake Ford, Mock's Ford)
- Hyundai Kona and Ioniq 5 EVs; Ioniq, Tucson and Santa Fe PHEVs (Hyundai Medford)
- Kia Niro and EV6 EVs and Niro PHEV (Kia Medford)
- Lincoln Corsair PHEV (Crater Lake Ford – Lincoln)
- Mercedes – Benz EQS (Mercedes-Benz of Medford)
- Nissan Leaf and Leaf Plus EVs – (Medford Nissan, Jim Sigel Automotive)
- Subaru Crosstrek PHEV (Southern Oregon Subaru)
- Toyota Prius Prime and RAV-4 Prime PHEVs; bZ4Z EV (Lithia Medford Toyota, Grants Pass Toyota)
- Volkswagen ID.4 EV (Medford Volkswagen)

Only those cars that have been EPA rated for GHG emissions below 300 grams per mile are included above and in all later listings.

What new plug-in cars will be coming later this year (or early next)?

A number of new vehicles are now in production and some dealers are taking orders (though ordering on others is suspended as initial production sold out). For others, dealers are not yet taking actual orders but will let you reserve. These cars not listed in Appendix I as they are not yet rated for GHG emissions by the EPA. Vehicles *possibly* open now for ordering or reservation include the Cadillac Lyriq, Chevrolet Blazer and Equinox, GMC Hummer EV, Nissan Ariya, and Subaru Solterra

How does Consumer Reports rate the new plug-ins?

The table below summarizes ratings from the April, 2022 issue of Consumer Reports. Cars are listed here in three price categories, as with CR, based on MSRP and likely tax credits and rebates. Some may bump up with current “market adjustment” increases.

Since I don't have CR's slick graphics, the Reliability and Owner Satisfaction scores are converted to numbers, with 1 the lowest and 5 the highest. “Recommended” is based on combined performance, reliability and overall value.

\$25,000 - \$35,000	Recommended?	Overall Score	Reliability	Owner Satisfaction
Chevrolet Bolt BEV	No	62	2	4
Chevrolet Bolt EUV	No	65	2	4

Hyundai Ioniq PHEV	No	64	3	4
Nissan Leaf BEV	Yes	78	4	3
Subaru Crosstrek PHEV	Yes	84	5	4
Toyota Prius Prime	Yes	79	5	4
\$35,000 - \$55,000				
BMW 330e PHEV	Yes	80	3	4
Chrysler Pacifica PHEV (minivan)	No	59	1	4
Ford Escape PHEV	No	60	1	3
Hyundai Ioniq 5 BEV	Yes	80	3	4
Hyundai Kona BEV	Yes	66	3	3
Kia EV6	Yes	79	3	4
Kia Niro BEV	No	88	5	4
Lincoln Corsair PHEV	No	56	1	3
Tesla Model 3 BEV	Yes	79	3	5
Tesla Model Y BEV	No	59	1	5
Toyota RAV-4 Prime PHEV	Yes	88	5	4
\$55,000 and up				
BMW 530e PHEV	Yes	85	3	4
Mercedes – Benz EQS	No	68	2	5
Tesla Model S BEV	No	70	1	5
Tesla Model X BEV	No	65	1	4

BMW i4 and iX, Ford F150 Lightning, Lucid Air, Mazda MX-30, Toyota bZ4X, and Rivian R1T and R1S are all too new to rate.

Worthy of note: Bolt lost its former recommended status following the battery recall but may regain when battery replacements are completed. Mustang Mach E was ranked by CR prior to some sudden major failure issues, presumably now resolved. Curious why the Kia Niro EV is not recommended.

Which local dealers usually offer the best selection and prices for plug-in vehicles?

This section is admittedly subjective, and we have to recognize three key factors:

1. Local demand
2. Availability of product
3. Commitment of the dealership

Local demand is – and has been for years – strongest in Ashland, and the two Ashland dealerships, *Butler Ford* and *TC Chevy*, have responded accordingly. Availability of plug-in cars has fluctuated with what Ford and Chevy were offering at the time. Butler usually had a good supply of C-Max and Fusion Energi PHEVs when these models were current, but both are now discontinued. The new Mustang Mach-E and Escape PHEV are the only models currently available as reservations on the wildly popular F-150 Lightning have been closed.

Availability of Chevrolet product has been much better on average, starting with the Volt in 2011, continuing with the Spark EV from 2013 to 2016, and now with the Bolt from 2017 onward. *TC Chevy* has maintained a good inventory throughout with attractive pricing. (I remember the long row of Spark EVs with \$139 a month lease deals back around 2015.) The days of \$10,000-plus discounts are long gone, but I have heard reports of EVs sold at TC with no upward “market adjustments.”

Airport Chevrolet also has benefited from ample supplies of Bolts, with comparable pricing, but usually with somewhat less inventory.

Availability at other local dealerships has been sporadic, perhaps because of fluctuating availability from the manufacturers, limited demand, or both. The situation is in flux, both because of the limited availability and the new selling model where the customer orders the car and takes delivery weeks or months later. Links to local dealers with vehicle ordering status, see Appendix VIII.

What other new plug-ins can be purchased outside the Rogue Valley?

You will have to go at least as far as Eugene to purchase a new BEV or PHEV from Audi, MINI, Mitsubishi, Polestar, Porsche or Volvo.

Should I commit to purchase without a test drive of the car I want to buy?

Personally, I never have purchased a car – new or used – without first driving that particular car. But that may not be possible with the new car-buying model, and with the short supply of plug-ins. In some cases, a dealer may have a demo car of the same model available to drive, but even this is rare. With Tesla, Rivian and Lucid, you can visit a showroom, but you won’t drive the car you’re buying.

In any case, I advise against buying a new plug-in unless you have driven the same model, though perhaps not the exact same trim or model year. If you can’t find one at a dealer or travel to a showroom, see if you can find a local owner willing to let you drive his or her car. If you don’t have a friend with one, contact SOHEVA, our regional electric vehicle club and they may be able to refer you to a willing owner.

What tax credits and rebates will I qualify for on a new plug-in?

Federal Tax Credits

What the #*&^ is going on here?! The simple answer: It’s complicated.

A few points are clear: There is now an income limit to qualify for the new car credit. Those with an adjusted gross income of more than \$150,000 for single tax filers, \$225,000 for head of household or \$300,000 filing jointly, will not qualify.

There is also a limit on the price of the vehicle, but exactly how that will be calculated is not yet clear. In general, very expensive luxury EVs will be ineligible.

Used EVs now will be eligible for a credit of up to \$4,000 or 30% of the purchase price, whichever is less.

There is good news for Tesla, GM and Toyota: The 200,000-vehicle sale cap has been lifted, so buyers of cars from these companies will again be eligible for the credit, but not until 2023.

The complicated part has to do with what vehicles will qualify for the credit, and for what amount. For example, only vehicles assembled in North America will qualify so check the sticker before you buy. (A Volkswagen ID4 from Germany won't qualify, but one from Tennessee will.) Some vehicles may qualify for the whole rebate, some for only a partial rebate. And we won't know for sure until we have a definitive list from the government. See Appendix II for helpful links that will help with untangling the confusion.

Oregon rebates

All new EVs and PHEVs purchased in Oregon by Oregon residents qualify for a rebate of up to \$2,500 on vehicles costing under \$50,000. Low to moderate income Oregonians can qualify for an additional \$5,000 Charge Ahead rebate on new or used plug-ins. A limited time \$1,500 rebate for Ashland residents only is primarily targeted at used vehicles (\$30,000 maximum purchase price. A few new plug-ins may still qualify, but it will be close. For more details on this and Ashland utility rebates, see Appendix II.

Should I buy or lease?

This can be a bit more complicated if it involves the tax credit. See Appendix III.

Part III: Used Plug-in Cars

Are you looking for local transportation only, or for taking longer trips as well?

This is a crucial question, because if you are looking for transportation around the Rogue Valley only, you can get a first-generation (range under 100 miles) in good condition for LESS than a comparable ICE car, perhaps many thousands less if you qualify for the Oregon Charge Ahead rebate. If you do most of your driving in a 50-mile radius, or if you commute to a location with charging available, you can do all that driving electric. If you estimate that you drive more than half your annual miles locally, and you have a two-car household, you could have a low-cost EV for local travel and use a standard hybrid or high-mileage ICE vehicle for longer trips.

If you want a single car for both local and long-distance trips, you will need either a PHEV or a second-generation EV with range over 200 miles. Cost for used PHEVs in good condition range from \$15,000 to \$25,000, with generation 2 EVs also starting around \$25,000 – but with a much lower net cost if you qualify for the Charge Ahead rebate.

What are good resources for finding a used EV or PHEV?

Two good resources for a used car search of newer models are [Autotrader](#) and [Cargurus](#) with Facebook Marketplace also good for older models from private parties. (Craigslist has fallen behind as it now charges for car ads.)

With Autotrader and Cargurus you can adjust your search for distance from your location, type of powering (EV/plug-in, hybrid) and price. Both will show a number of EV and PHEV options in if you search at least as far as Eugene, with a range of prices – all up from last year. Note that Autotrader and Car Gurus listings, though exhaustive, are not definitive; many more cars are available than are listed, with some from private party sellers. However, be aware that private party sales do not qualify for the Oregon Charge Ahead rebate but presumably will qualify for the federal tax credit.

Platt Auto Group is a highly regarded Portland EV specialist worth checking at [this link](#). Although Platt usually lists cars on the search sites above, this link gives you all their cars in one place.

Note: As of this writing (September, 2022) many used models seem to be in short supply with substantial increases in prices. Recent high gasoline prices are no doubt a major factor.

What should I watch out for when buying a used EV or PHEV?

Always get the Carfax report (\$40, though some dealers offer for free) and avoid EVs – often purchased by dealers at auctions – that come from very hot climates, particularly the desert southwest, as high heat can degrade the battery and shorten its life. Also, avoid newer cars with high mileage (more than 15,000 miles a year) as this could indicate repeated fast charging, which also can shorten battery life in some EVs, though reportedly less a problem with Teslas.

Battery degradation averages about 2.3% a year, and there is an online tool here based on the actual results from over 6,000 EVs from Geotab. You can put in the specific year, make and model in this [interactive battery degradation predictor](#). It is also good to note that the battery warranty, typically 8 to 10 years or 100,000 miles, stays with a car after it is sold to a new owner. A good guide to EV battery details can be found at this [GREENCARS](#) website.

Recommended Used Plug-ins

The following plug-in cars were listed as best picks in the 2022 **Consumer Reports** Auto Issue. Only the years in parentheses are recommended. Models in **bold** indicate vehicles that performed well when tested new and have shown consistent years of reliability.

Battery Electric Vehicles (BEV)

Nissan Leaf (2013 – 2020 except 2014)

Plug-in Hybrid Vehicles

Chevrolet Volt (2013 – 14)

Ford C-Max* (2014 – 2017)

Toyota Prius Prime (2017 – 2021)

*The Energi PHEV not distinguished from standard hybrid version by CR.

However, this does not mean other vehicles and other years should not be considered. A well-maintained EV or PHEV with low miles will still cost less to drive and repair than most ICE cars. Also, apparently not taken into consideration by CR, the LEAF uses the CHAdeMO charging connector, which is slowly being phased out in favor of the CCS connector. (The only other plug-in using CHAdeMO still sold in US is the Mitsubishi Outlander PHEV.) Leaf is best for local area travel.

Other Used First Generation EVs Recommended by the Author

Consumer Reports requires a minimum number of responses to owner questionnaires before cars are rated for reliability. Because most first generation EVs were sold in limited numbers in only a few states, they never crossed the threshold and therefore never were rated by CR. The following three are recommended based on various other sources, including the author's own experience, other local users,

reliability of ICE versions of the same car, and various publications and web sites. No specific model years are cited as all years are basically the same car.

- Chevrolet Spark EV
- Kia Soul Electric
- Volkswagen e-Golf

Be Wary - You can get some very good pricing on the Fiat 500e, Ford Focus Electric, Mitsubishi iMiEV and Smart for Two Electric Drive, but I would be hesitant to recommend.

Appendix I: New Plug-in Cars Ranked by GHG Emissions

Cars are ranked “best to worst”; from lower GHG emissions to higher. (Then alphabetically by maker when emissions are the same.) GHG emissions include upstream based on the northwest power grid. Note that the average internal combustion car on the road today emits about 500 grams per mile, combined tailpipe and upstream.

Car models shown in bold are recommended by Consumer Reports based on broad measures of quality, reliability and performance.

Cost is for the lowest priced variant of the model listed in broad price ranges.

\$ = Less than \$35,000
 \$\$ = \$35,000 to \$55,000
 \$\$\$ = \$55,000 and up
 \$\$\$+ = Over \$100,000

Cost estimate here is MSRP minus any applicable tax credits and/or standard Oregon rebate. (Assumption here is that most new vehicle buyers will not qualify for the Charge Ahead Rebate.) Models with MSRP above \$55,000 likely will not qualify for the standard Oregon rebate. Prices for all Teslas and the Ford Mustang Mach-E can vary considerably depending on battery and drive options.

Only those 2022 - 23 model year vehicles EPA rated at less than 300 g/mile GHG emissions are listed here. This is only a sample cross section as GHG emissions will vary somewhat (usually only 10 grams/mile) with battery size, wheel size and drive (two or all wheel). Costs will vary even more.

Make	Model (Bold = CR recommended)	Type	GHG Emissions	EV/PHEV elec. range	Notes	Cost
Lucid	Air G Touring	EV	80 g/mile	516 miles		\$\$\$+
Tesla	Model 3 Long Range	EV	80 g/mile	353 miles	See note above	\$\$
BMW	i4 eDrive Gran Coupe	EV	90 g/mile	301 miles		\$\$
Chevrolet	Bolt	EV	90 g/mile	259 miles	UAW assembly	\$
Chevrolet	Bolt EUV	EV	90g/mile	247 miles	UAW assembly	\$
Hyundai	Ioniq 5	EV	90 g/mile	220 miles		\$

Hyundai	Kona	EV	90 g/mile	258 miles		\$
Kia	EV6 Long Range	EV	90 g/mile	303		\$\$
Kia	Niro	EV	90 g/mile	259 miles		\$
Nissan	Leaf	EV	90g/mile	149 miles	CHAdEMO connector	\$
Nissan	Leaf Plus	EV	90 g/mile	215 miles	CHAdEMO connector	\$
Tesla	Model 3 AWD	EV	90 g/mile	303 miles		\$\$
Tesla	Model Y	EV	90 g/mile	326 miles		\$\$
Toyota	bZ4X	EV	90 g/mile	252 miles		\$\$
Mercedes	EQS	EV	100 g/mile	350 miles		\$\$\$
Tesla	Model S Perf.	EV	100 g/mile	387 miles		\$\$\$
Tesla	Model X	EV	100 g/mile	371 miles		\$\$\$
Tesla	Model Y AWD	EV	100 g/mile	303 miles		\$\$
Toyota	bZ4X AWD	EV	100 g/mile	228 miles		\$\$
Volkswagen	ID.4	EV	100 g/mile	250 miles		\$\$
Ford	Mustang Mach-E	EV	110 g/mile	230 miles		\$\$
Mazda	MX-30	EV	110 g/mile	100 miles		\$
Ford	Mustang Mach-E AWD Extended	EV	120 g/mile	270 miles		\$\$
BMW	iX M60	EV	130 g/mile	324 miles		\$\$\$
Ford	F150 Lightning	EV	140 g/mile	230 miles	Basic model	\$\$
Hyundai	Ioniq	PHEV	140 g/mile	29 miles	630 miles total range	\$
Rivian	R1T	EV	140 g/mile	316 miles		\$\$\$
Toyota	Prius Prime	PHEV	140 g/mile	25 miles	640 miles total range; roomy but seats 4 only	\$
Rivian	R1S	EV	150 g/mile	314 miles		\$\$\$
Ford	Escape	PHEV	160 g/mile	37 miles	520 miles total range	\$
Kia	Niro	PHEV	170 g/mile	26 miles	560 miles total range	\$
Toyota	RAV-4 Prime	PHEV	170 g/mile	42 miles	AWD; 600 miles total range	\$\$
Hyundai	Tucson	PHEV	200 g/mile	33 miles	AWD; 420 miles total range	\$\$
Chrysler	Pacifica	PHEV	210 g/mile	33 miles	570 miles total range; seats 7 CAW union assembly	\$\$
Hyundai	Santa Fe	PHEV	220g/mile	31 miles	AWD; 440 miles total range	\$\$
Lincoln	Corsair	PHEV	220 g/mile	28 miles	AWD, 430 miles total range, UAW assembly	\$\$
Subaru	Crosstrek	PHEV	240 g/mile	17 miles	AWD; 480 miles total range	\$
BMW	330e	PHEV	270 g/mile	23 miles	320 miles total range	\$\$
BMW	530e	PHEV	290 g/mile	21 miles	340 miles total range	\$\$\$

Appendix II: Rebates and Tax Credits

Federal Tax Credit

The credit has been expanded to include used vehicles, but there are new restrictions on income, cost of the vehicle, country of assembly and origin of battery materials. For a summary of the situation as of August, 2022 see linked articles from [Consumer Reports](#) and [Elektrek](#).

Oregon Plug-in Rebates

Oregon is offering a rebate on purchases of EVs and most PHEVs. This is a true rebate program, which means you can apply the rebate at time of purchase or get a check later.

Standard rebate: no income restrictions:

- Purchases and leases (minimum 24 months) are eligible but for new vehicles only.
- EVs and PHEVs with a MSRP of more than \$50,000 will not be eligible. (If you want a rebate on a Tesla, you may be limited to a Model 3.)
- All purchasers/lessees will be eligible for a rebate based on the size of the vehicle battery. This will be similar to the old federal tax credit, with the maximum amount of \$2500 for all EVs. A smaller rebate amount will apply to most PHEVs.

Oregon “Charge Ahead” Rebate

Low- and moderate-income purchasers may be eligible for an *additional* “Charge Ahead” rebate of up to \$5,000 based on annual family income. Threshold to qualify is about \$53,000 for an individual and \$60,000 for a two-person household. Used plug-in vehicles are eligible for the “Charge Ahead” rebate but must be purchased from a dealer licensed by the DMV. Updated information on the Oregon rebates is available at [this link](#).

Ashland City Utility Customers Rebate

Ashland’s city-owned electric utility is – or was? – offering an additional \$1500 rebate on the purchase of EVs or PHEVs, new or used, that are listed as eligible for the state rebate program. Final price must be less than \$30,000 and purchased from a licensed dealer. Funding is limited, and as of August, 2022 only 30 rebates were still available. Complete updated information at [this link](#).

Appendix III: Buy or Lease?

This is a critical question if the vehicle qualifies for the federal tax credit and you have limited federal tax liability. Be aware that, to the best of this author’s knowledge (it may have changed with the new laws), the federal credit *cannot* be applied to a tax refund. In other words, the amount of your EV credit is limited by the amount of tax you owe. If you only owe \$5000 in federal income taxes, then a \$7,500 tax credit (if applicable) is effectively reduced to \$5,000.

This is one reason why many EV and PHEV transactions are leases. Because the leasing company (often a division of the car maker) is technically the purchaser, the company takes the federal tax credit and applies most of it to the lease as a “capital cost reduction,” lowering the price of the car. That in turn lowers your lease payment and the residual amount – what you have to pay if you choose to buy the car at the end of the lease. You may want to check out general tips on [this link](#) from Consumer Reports.

Appendix IV: Shopping Resources

[Fuel Economy.Gov](#) – This web site is a treasure trove of information, with relevant details on all cars sold in America plus helpful background information on a variety of topics related to GHG emissions. The core content held validity during the prior federal administration (apparently controlled by “deep state operatives” with data from a semi-independent laboratory) and can only improve going forward.

[Ashland City EV Pages](#) - A first-rate overview on EVs and PHEVs, containing nearly all the general information here and presenting a great tutorial on the basics of the technology. It includes a nifty calculator for comparing your current gasoline vehicle's operating costs to battery-only EVs (not PHEVs), but has no further information relating performance and features of specific makes or models. Note that for a fair, apples-to-apples comparison, you need to make sure all taxes for both gasoline and electricity are included. Taxes are included in the pump price but are separate on your Ashland utility bill.

[SOHEVA](#) - SOHEVA is the electric vehicle organization for the Klamath – Siskiyou ecoregion, and its website has resources for local advice along with a wealth of recent news – and even more links to EV-related sites.

[Consumer Reports](#) – A reliable and comprehensive guide. Emphasis here is on bread-and-butter issues like safety, economy and reliability. It remains independent and trustworthy. But you do have to pay to access the details. (\$39 annually for digital access.)

[Car and Driver](#) – The magazine and web site are geared toward automotive enthusiasts who are interested in technology and driving pleasure as well as the basics. You'll find more of an emphasis on performance – acceleration, handling and driver involvement – in their reviews and rankings.

[Edmunds](#) – A comprehensive free resource for detailed information, specifications, expert reviews and user reviews (including a couple of mine). Particularly useful is their [comparison feature](#) which lets you do detailed, side-by-side comparison of pricing and specifications on up to four cars.

[GreenCars](#) is a project of Medford-based Lithia Motors, and it offers a wealth of information on plug-ins as well as conventional hybrids. Information is objective and unbiased (Tesla is included in proper perspective), but if you click on the “Shop” button you will see only cars at Lithia dealerships.

[Green Car Reports](#) – This web site covers all green cars, including hybrids. It is wide-ranging and comprehensive on every topic and includes exhaustive staff and user reviews. It is independent in the sense that it is not tied to any maker, but it obviously promotes the green vehicle industry as a whole.

[Plug-in America](#) – The focus here is exclusively on EVs and PHEVs. But it offers a wealth of information within that category. The same holds for a similar site, [PluginCars](#).

Appendix V: What About Common Criticisms?

If you buy a plug-in, you may run into nay-sayers who will tell you that you wasted your money, or even that EVs are worse for the environment than gas cars. You may hear the following:

Electric cars won't make a significant difference in greenhouse gas emissions.

EVs produce zero tailpipe emissions. As for upstream emissions from charging, in Oregon (and all along the West Coast) mile for mile you will be responsible for about FIVE TIMES LOWER GHG emissions compared to a conventional gasoline car of equivalent size. And if you charge from your own home solar, your EV is infinitely better!

Manufacturing an EV produces more greenhouse gases than making a similar fossil fuel car.

This is true, mainly because of the battery. However, a 2015 cradle-to-grave study by the Union of Concerned Scientists determined that the “manufacturing penalty” will be offset by the lower GHG

emissions in use. How long this takes depends on the size of the battery and the relative cleanliness of the grid used for charging. With a small, first-generation EV (range under 100 miles), the penalty could be offset in as little as 3,700 miles. A large, 250+ mile EV on the dirtiest grids could take as much as 39,000 miles, says the study, but this last figure is likely outdated as all US grids have “cleaned up their act” considerably in the past six years. Also, because most of the additional GHG emissions in the penalty are from generation of electricity used in manufacturing, as the grid gets greener this differential will steadily shrink in years to come.

Charging an EV from the local grid only ends up burning more coal.

This is a myth that just won't die. Yes, the western power grid is interconnected, and yes there remain large coal-fired plants in Montana and Wyoming, some owned by Pacific Power. But to avoid transmission losses, electricity grids draw power from distant sources only when closer sources are tapped out. That means all the renewable (hydro, solar, wind) and natural gas (marginally better than coal!) resources between here and the distant coal plants have to be pushed to near capacity first. So no, plugging your EV into the local grid here does not automatically “pour on the coal” in Montana. Regardless, electricity in the Northwest is far greener than across the nation as a whole. Even when factoring in the remaining coal plants across our region, charging an EV from the Northwest grid yields the equivalent of better than 96 mpg in a conventional car, according to the latest comparison by the Union of Concerned Scientists.

EV batteries can't be recycled, and mining for the metals used for them is bad for the environment and for the workers.

The first part is false. Batteries can be recycled in two stages. First, once they can't hold enough charge for long enough to be useful on the road, they can be put to use for stationary power storage, with large numbers hooked together to store energy from solar through the night or from wind during calm days. When no longer suited for this application, most heavy metals in the battery can be extracted and recycled. Admittedly, this process is difficult and not yet cost-competitive to mining new ore.

The part regarding mining is, alas, true in many instances. But EVs are not entirely at fault. Remember, lithium-ion batteries are everywhere, from cell phones to lawn mowers. All contribute to the problem. Yes, the labor practices and local environmental conditions at some third-world mining sites are deplorable, but pressure can and should be applied to both the companies responsible and the local governments using any and all “carrots and sticks” to ensure compliance with best practices. Continuing to drive fossil fuel vehicles will not solve this problem. And, if we don't drastically cut greenhouse gas emissions now, environmental conditions will be much worse in years to come for everybody, mine workers included.

Appendix VI: Registration Fees and By-the-Mile Option

Because Oregon relies on the gasoline tax for most of the revenue for road building and maintenance, and because EVs use no gas, the legislature raised the two-year registration renewal fee for EVs to \$306. However, you can avoid the hike by registering for OreGO pay-by-the-mile program, which reduces the fee to \$86. You install a module that tracks your mileage and pay \$0.018 per mile (just under two cents). The break-even point is around 6,000 miles annually.

Appendix VII: Local and Regional Charging for Non-Tesla Vehicles

There is absolutely no question that the cheapest way to charge your EV is at home. For example, I pay the equivalent of about \$1.70 “a gallon” to fuel my Chevy Bolt from the Ashland grid. How do I figure? My Bolt is comparable in size, quality and cost to a 2021 Toyota Corolla hatchback, which gets an excellent 38 mpg combined on gas. However, driving my Bolt 38 miles costs about \$1.70, taxes included, when I charge at home.

On the road is another matter. Costs can vary widely, though DC fast charging will cost more than Level 2 charging per kWh, except of course in the very rare cases where DC fast charging is free. The more expensive DC fast chargers, at up to 50 cents a kWh, puts you up close to the \$3.50 to \$4.00 gasoline equivalent. If you have a couple open hours – as I did for a leisurely stroll around Trinidad, California – a Level 2 charge will cost around 25 cents a kWh.

The good news is that there are plenty of chargers out there right now throughout Southern Oregon and Northern California, both DC fast charge and Level 2. If you have an EV with more than 200 miles of range, and you are willing to do minimal preparation before your trip and you have some patience and flexibility, you WILL be able to charge your car. Yet, to be safe, you need to always have two options within your remaining range, preferably three.

That’s because the charger you expected to use might not be working, or it might be in use, or the space occupied by somebody who is through charging but left their car in the space. You need to take such circumstances into account, just to be safe.

To know your options, you need to know which charging networks have the most chargers in our region. Then you need to check their reliability and find out how you can access them.

One way to do this is on the PlugShare web site. (I don’t think this can be done on the phone app.)

1. Zoom the map in or out until it shows most of Oregon and Northern California.
2. Click on the Menu icon in the upper left-hand corner under the PlugShare logo.
3. Scroll down to Networks and click on Toggle All. (All will disappear.)
4. Click on each of the following in turn to see how many chargers the network has in the region, and of what type. DC fast charge will be yellow and Level 2 green. Broken or not yet in service will show a wrench. After you click on the network and check it, click to toggle it off before clicking the next one.

Blink
ChargePoint
EVCS
EVgo
SemaConnect

These are the major players in our region, though SemaConnect and Blink are questionable as they show no DC fast chargers. Electrify America, on the other hand, has fewer charge stations but all are DC fast charge and all have multiple plugs, usually six or more. EVGo is strong in Central and Southern California.

I personally would recommend ChargePoint as a foundation. I’ve been using the ChargePoint card for five years and never found a charger *shown on their app* that didn’t work. Or you can use the Charge

Point app if your phone has NFC (nearly all newer ones do). Side note: The ChargePoint chargers at the Ashland Safeway are permanently disabled and do not show on the ChargePoint app.

The other nice feature of PlugShare is the rating system, which shows reliability based on user check-ins. It shows when you hover your mouse over the station icon. A 9 or a 10 means that most drivers were successful charging. Below 8, problems might be expected. For example, Ashland Safeway chargers still show on PlugShare (why?!) but are rated a 1.

Another good option is Electrify America as all are DC fast charge and you can use a credit card. But I did encounter one card reader that didn't function and I had to go across town to a ChargePoint location.

EVCS is growing fast on the West Coast and might be worth checking out.

The bottom line, for now, is this: Make sure you can access at least two charge stations within planned remaining range for that leg of your trip, with at least one charger rated 8 or above on PlugShare. If both are below 8, have a third option ready.

Good news on the horizon! First, Tesla has promised to open up its extensive and reliable Supercharger network to non-Tesla vehicles. Supposedly this is in the works, and Tesla has to do it if it wants federal subsidies. But even Elon hasn't made any bold promises about when this will happen.

Another hopeful sign is the recent partnership announced by EVGo, GM and Pilot to install 2,000 chargers at 500 Pilot Travel Centers nationwide. This is a step forward for several reasons. Locations are brightly lit and staffed 24/7. Restrooms, food, travel necessities – and even showers! – are always available. And, presumably since they are full partners, Pilot management will take some responsibility for monitoring and maintaining the chargers. This is NOT the case in nearly all other situations (including Tesla), where nobody at the location has any direct responsibility for monitoring and maintaining the chargers. Obviously, this has been a big part of the current problem.

Appendix VIII: Local Dealers - Vehicle Availability

Following are links to local dealer websites (click on dealer name) for vehicles qualifying for inclusion here. You can search for the EV or PHEV of interest and see if any are available in inventory. Good luck! EVs will be extremely scarce, PHEVs somewhat less so. Be aware that some (or all) cars showing in inventory may be in transit and already sold. However, if you see several cars "in the pipeline" it may mean that particular dealer is serious about serving the EV/ PHEV market. (Some dealers seem stuck in "ICE-land.")

Time from ordering to delivery will vary widely, from a few weeks to six months or more, depending on model and the dealer allocation.

Ordering times from different dealers may vary widely because of an entrenched and somewhat arcane system of allocation, where dealers have access to production based on prior sales, customer satisfaction, market conditions and other mysterious factors. In general, dealers in major metro areas will have larger allocations, but likely will have more customers in line so your wait may be just as long. Dealers with a past history of high EV and/or PHEV sales may be given higher allocations of those models, even if overall sales were modest.

BMW - Medford BMW

In production / orders accepted: i4 and iX EVs; 330e and 530e PHEVs

Chevrolet

In production / orders accepted: Bolt EV, Bolt EUV

Coming soon / reservations open: Blazer EV, Equinox EV, Silverado EV

[Airport Chevrolet](#)

[Jim Sigel Automotive](#)

[TC Chevy](#)

Chrysler

In production / orders accepted: Pacifica PHEV

[Lithia Chrysler Medford](#)

[Lithia Chrysler Grants Pass](#)

Ford

In production / orders accepted: Mustang Mach E, Escape PHEV

Note: Reservations for the F-150 Lightning have been closed.

[Butler Ford](#)

[Crater Lake Ford](#)

[Mocks Ford](#)

Hyundai – Hyundai Medford

In production / orders accepted: Ioniq PHEV, Ioniq PHEV, Ioniq 5, Kona Electric, Santa Fe PHEV, Tucson PHEV

Kia – Kia Medford

In production / orders accepted: EV6, Niro PHEV, Niro EV

Lincoln – Crater Lake Lincoln

In production / orders accepted: Corsair PHEV

Mazda – Crater Lake Mazda

In production / orders accepted: MX-30

Mercedes – Benz – Mercedes-Benz of Medford

In production / orders accepted: EQS

Nissan

In production / orders accepted: Leaf, Leaf Plus

Note: Reservations for the Ariya have been closed.

[Medford Nissan](#)
[Jim Sigel Automotive](#)

Subaru – [Southern Oregon Subaru](#)

In production / orders accepted: Crosstrek PHEV

Note: Reservations for the Solterra EV have been closed.

Toyota

In production / orders accepted: bZ4X EV, Prius Prime PHEV, RAV-4 Prime PHEV

[Lithia Toyota of Medford](#)
[Grants Pass Toyota](#)

Volkswagen – [Medford Volkswagen](#)

In production / orders accepted: ID.4

About the Author

An Ashland resident since 1989, Bruce Borgerson is a self-employed technical writer and a member of SOCAN (Southern Oregon Climate Action Now) and SOHEVA, the electric vehicle organization for the Klamath – Siskiyou Ecoregion. He has purchased more new and used cars in his lifetime than he cares to admit. Current vehicles in his household are a 2021 EV (90 grams/mile) and a 2017 compact SUV *without* AWD (356 grams/mile). Total household gasoline consumption has been less than 200 gallons annually, or about 1/6 the national average, since 2017. Please e-mail any questions or corrections to wave@mind.net.



SOHEVA

Electric Mobility in the Klamath – Siskiyou Ecoregion

A Chapter of the Electric Vehicle Association

www.soheva.net