

# 2021 Rogue Valley Plug-in Buyers' Guide

Finding Your Ideal EV or PHEV



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# **“Let us face it, there is no Planet B.”**

French President Emmanuel Macron addressing the United States Congress on climate change, 2018

**Preface to September edition: Much of the pricing and availability information held over from the first edition in March, 2021 is now out of date due to the chip shortages and withdrawal of the Chevy Bolt from the market.**

On the cover, clockwise:

GM Hummer EV, Volkswagen ID.4, Lincoln Corsair PHEV, Ford Mustang Mach-E

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## 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 it 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 (for now, only Tesla). Car dealers provide local jobs and also support local community organizations and causes. I believe they deserve our first look. I do note the other new plug-in makes that are not available locally, but you will have to find detailed information elsewhere.

I started this project because of my concerns about climate change and the leading role of 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 than typical fossil fuel cars.

**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 on page 4.

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* - Tesla's Full Self-Driving (FSD) has been the undisputed leader of the pack in autonomous driving for EVs. However, some automotive critics give an edge to GM's SuperCruise in highway driving; the GM technology is currently available as an option on the 2022 Bolt EUV.

*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 confidence to hit the open road.

*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 Plus), with delivery and document fees, will set you back around \$42,000. According to a 2019 Bloomberg survey of 5,000 owners, the average price paid for a Model 3 was a bit more than \$50,000. True, that's on par with an average BMW (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. It's all upfront. However, you won't see the sale prices of other EVs, which has been as much as \$8,000 to \$10,000 – and more – off 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 (p. 9) 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.

## Part I: The Basics

### Realistically, what is your budget?

Even if your budget is \$10,000 or less, 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. (Still a good deal if at least half the miles were electric.)

Between \$10,000 and \$15,000, you'll find some PHEV's five to eight years old, or maybe an older generation BMW i3.

At \$15,000 to \$25,000 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.

At \$25,000 you're at the threshold for brand new second generation EVs. 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 complete listings in three broad cost categories, see Appendix I. For details on tax credits and rebates, see Appendix II (p. 12).

### How important is reducing your carbon footprint?

If keeping GHG emissions to a minimum is critical, refer to the chart in Appendix I (p. 11), which ranks all 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 500 grams per mile, with some large pickups emitting over 750 grams per mile.** In light of this large gap, a difference of 10 or 20 grams per mile in 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?

Yes, 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, then you probably do NOT need AWD. Good tires and FWD will get you through the winter just fine, as it did for us except when our son was on the Grizzlies ski team. (He now has that CR-V in northern Indiana, where the AWD is a bit more useful.)

If you do honestly need it, AWD drive is standard on the Tesla Model X BEV and the Hyundai Santa Fe, Lincoln Corsair, Subaru Crosstrek and Toyota RAV-4 PHEVs; AWD is optional on all other Teslas as well as Ford Mustang Mach-E, and Volkswagen ID.4.

If you want to wait, AWD is standard on the Hummer EV and Ford F-150 Lightning pickup and optional on the Nissan Ariya.

### **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 from Subaru and Toyota start around \$35,000.

However, if you have reasonable patience and flexibility now, you can get a late model BEV for around \$15,000 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 \$40,000 and up, there is really no reason not to go all electric – as here you enter Tesla Supercharger territory – unless you HONESTLY need AWD. Then you're looking at \$50,000 and up, at least for the time being.

**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. Volt or 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 \$30,000.

Okay, let's say you honestly need AWD and you are a two-car, two-person household with a roughly \$30,000 budget for both cars. In this case you might look at a used second-generation BEV for about \$15,000 to \$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 – 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 other problems common to all cars: infotainment systems, power accessories, fit and finish, etc.

## **Should I shop locally, or go to Eugene or Portland?**

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.) However, 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.)

The exception is when you simply cannot find the new model you want in the color you want with the options you want. Local inventory on some plug-ins may be limited or non-existent. Then you may have to make the trip.

Used plug-ins are another matter. Historically, inventory has been rather scarce locally, so you may have to head north to purchase what you want. Find your preferred vehicle using the shopping tools in Appendix IV (p. 13).

## **Part II: Choosing a New Plug-in**

*Note: If you've already decided to go for a used vehicle instead, skip to Part III on page 9.*

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

New EVs and PHEVs currently sold locally are:

- BMW i3 EV, i3REX and 330e PHEV (Medford BMW)
- Chevrolet Bolt EV (Airport Chevrolet, Jim Sigel Automotive, TC Chevy)
- Chrysler Pacifica PHEV (Lithia Chrysler-Jeep-Dodge, Grants Pass Chrysler-Jeep-Dodge)
- Ford Mustang Mach-E EV and Escape PHEV (Butler Ford, Crater Lake Ford, Mock's Ford)
- Hyundai Kona EV; Ioniq, Tucson and Santa Fe PHEVs (Butler Hyundai)
- Honda Clarity PHEV (Lithia Honda)
- Kia Niro EV and PHEV (Butler Kia)
- Lincoln Corsair PHEV (Crater Lake Ford – Lincoln)
- Nissan Leaf EV – (Medford Nissan, Jim Sigel Automotive)
- Subaru Crosstrek PHEV (Southern Oregon Subaru)
- Toyota Prius Prime and RAV-4 Prime PHEV (Lithia Medford Toyota, Grants Pass Toyota)
- Volkswagen ID.4 EV (Medford Volkswagen)

Only cars that have been EPA rated for GHG emissions are included above and in later listings. For a snapshot of current inventory, see Appendix VI (p. 15).

### **What new plug-in cars will be coming later this year?**

Promised to arrive from brands sold locally are the Nissan Ariya SUV and the GMC Hummer EV, and Ford is now taking orders for its F-150 Lightning electric pickup. Rivian, the brash start-up following the Tesla model (no dealerships), has announced a “release date” of early summer for its pickup and SUV,

but what this means in terms of actual deliveries is uncertain. None has yet been tested by the EPA for GHG emissions so these four are not shown in the full listings.

The new Ford Mustang Mach-E, Chevy Bolt EUV and Volkswagen ID.4 have been EPA tested and are listed here, but availability is largely limited to advance special order.

### How does Consumer Reports rate the new plug-ins?

The table below summarizes ratings from the April, 2021 issue of Consumer Reports. Cars are listed here in three price categories, as with CR, though I adjusted the lower amounts to better reflect typical selling prices rather than MSRPs.

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.

<b>\$25,000 - \$35,000</b>	Recommended?	Overall Score	Reliability	Owner Satisfaction
Chevrolet Bolt BEV	Yes	78	5*	4
Honda Clarity PHEV	Yes	80	5	4
Hyundai Ioniq PHEV	No	64	3	4
Nissan Leaf BEV	Yes	72	3	3
Subaru Crosstrek PHEV	Yes	84	4	4
Toyota Prius Prime	Yes	77	5	4
<b>\$35,000 - \$55,000</b>				
BMW 330e PHEV	No	83	4	3
BMW i3e REX PHEV	No	64	3	2
Chrysler Pacifica PHEV (minivan)	No	70	2	4
Ford Escape PHEV	No	50	1	3
Hyundai Kona BEV	Yes	74	3	4
Kia Niro BEV	No	55	1	4
Lincoln Corsair PHEV	No	53	1	5
Tesla Model 3 BEV	Yes	78	3	5
Tesla Model Y BEV	No	50	1	5
Toyota RAV-4 Prime PHEV	Yes	79	3	4
<b>\$55,000 and up</b>				
BMW 530e PHEV	Yes	81	3	4
Tesla Model S BEV	No	70	2	5
Tesla Model X BEV	No	65	2	5

Note: Chevy Bolt EUV, Ford Mustang Mach-E, Hyundai Santa Fe and Tucson, and Volkswagen ID.4 are too new to rate. \*Bolt rating may be subject to change due to battery recall.

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

This section is admittedly somewhat 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; Butler hopes to keep a Mach-E demo available for test drives and has pledged to carry as much inventory as the limited nationwide availability allows.

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.) Sale pricing is frequent and TC does occasionally advertise their EVs, a rarity in local media.

*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 *Butler Kia and Hyundai* dealerships usually have at least two or three EVs or PHEVs in stock, with buyers I've met saying they were happy with the deals.

*Medford Nissan* usually has at least a few Leafs in stock. Advertised pricing often shows only modest discounts, but this can vary with manufacturer incentives.

*Subaru* is relatively new to the plug-in game, but the local dealership has a solid reputation for service and fair pricing. A good selection of the Crosstrek PHEV is on hand as of this writing.

*Lithia Honda* continues to keep a few Clarity PHEVs in current inventory. However, the local Chrysler dealer seems to take a largely passive role regarding the Pacifica PHEV minivan, making it a special order item.

*Lithia Medford Toyota* usually has a few Prius Prime PHEVs in stock, but the in-demand RAV-4 Prime is scarce nationwide and may involve a wait.

For a snapshot of availability as of publication, see Appendix VI (p. 15). This will be updated regularly on the SOHEVA web site.

### **What new plug-ins can only 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, Polestar, Porsche or Volvo.

### **Where are the new plug-ins assembled?**

Like all new cars, plug-in vehicles use parts that are sourced globally, in some cases importing complete drive trains. Final assembly for new cars listed in this guide (as known) is as follows:

- *United States:* Chevrolet Bolt and Bolt EUV(Michigan); Tesla – all models (California, Nevada, Texas in 2022); Nissan Leaf (Tennessee), Lincoln Corsair (Kentucky). Coming soon: GMC Hummer EV (Michigan), Rivian SUV and pickup (Illinois).
- *Mexico:* Ford Mustang Mach-E
- *Canada:* Chrysler Pacifica
- *Japan* – Honda Clarity, Subaru Crosstrek, Toyota RAV-4 Prime and Prius Prime. Coming soon: Nissan Ariya
- *South Korea* – Hyundai Kona, Santa Fe, Tucson and Ioniq; Kia Niro
- *Germany* – Volkswagen ID.4 (Tennessee starting 2022), BMW i3, BMW 330e

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

As of this update (August 2021), EVs and PHEVs except those made by GM and Tesla still qualify for up to \$7,500 in federal income tax credits. However, a number of changes are working through Congress which could change the credit, though unlikely until 2022. 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 \$2,500 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), but a few new plug-ins will still qualify. For more details, see Appendix II (p. 12)

### **Should I buy or lease?**

This can be a bit more complicated if it involves the tax credit. See Appendix III (p. 13).

## **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 thousands less if you qualify for the Oregon Charge Ahead rebate. If you do most of your driving in a 50 miles 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 range in good condition range from \$7500 to \$15,000, with generation 2 EVs starting around \$13,000 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 come up with good selections, with

many EV and PHEV options in the \$8,000 to \$15,000 range if you search at least as far as Eugene. Note that Autotrader and Car Gurus listings, though exhaustive, are not definitive; many more cars are available than are listed, mostly from private party sellers. However, be aware that private party sales do not qualify for the Oregon Charge Ahead rebate.

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 (April, 2021) many used models seem to be in short supply with some increase in prices. Perhaps folks are spending stimulus payments appropriately?

### **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 of over 6,000 of 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 2021 **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)

BMW i3 (2017)

**Chevrolet Bolt** (2017 – 2020) Author's note: All years now subject to recall for potential battery fires. This could affect rating next year.

**Nissan Leaf** (2011 – 2020 except 2014 and 2018)

#### Plug-in Hybrid Vehicles

Chevrolet Volt (2011 – 2015)

Ford C-Max\* (2013 – 2018 except 2015)

Honda Clarity (2018)

**Toyota Prius Prime** (2017 – 2020)

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

### **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 and Smart for Two Electric Drive, but I would be hesitant to recommend.

## Appendix I: 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 emits about 500 grams per mile, tailpipe and upstream.

**Cars 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, here the same as the Consumer Reports ratings above:

- \$ = Less than \$35,000
- \$\$ = \$35,000 to \$50,000
- \$\$\$ = \$55,000 and up

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 2021 model year vehicles EPA rated at less than 300 g/mile GHG emissions are listed here.

Make	Model ( <b>Bold</b> = CR recommended)	Type	GHG Emissions	EV/PHEV elec. range	Notes	Cost
Hyundai	Ioniq	EV	80 g/mile	170 miles		\$
Tesla	<b>Model 3 Long Range</b>	EV	80 g/mile	353 miles	See note above	\$\$
BMW	i3s	EV	90 g/mile	153 miles	Seats 4	\$\$
Chevrolet	<b>Bolt</b>	EV	90 g/mile	259 miles	UAW assembly	\$
Chevrolet	<b>Bolt EUV</b>	EV	90g/mile	247 miles	UAW assembly	\$
Hyundai	<b>Kona</b>	EV	90 g/mile	258 miles		\$\$
Tesla	<b>Model 3 AWD</b>	EV	90 g/mile	303 miles		\$\$
Tesla	Model Y	EV	90 g/mile	326 miles		\$\$

Kia	Niro	EV	100 g/mile	259 miles		\$\$
Nissan	<b>Leaf</b>	EV	100 g/mile	151 miles		\$
Nissan	<b>Leaf Plus</b>	EV	100 g/mile	215 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		\$\$
Ford	Mustang Mach-E	EV	110 g/mile	230 miles		\$\$
Volkswagen	ID.4	EV	110 g/mile	250 miles		\$\$
BMW	i3sREX	PHEV	120 g/mile	126 miles	200 miles total range; Seats 4	\$\$
Ford	Mustang Mach-E AWD Extended	EV	120 g/mile	270 miles		\$\$
Honda	<b>Clarity</b>	PHEV	140 g/mile	48 miles	340 miles total range	\$
Hyundai	Ioniq	PHEV	140 g/mile	29 miles	630 miles total range	\$
Toyota	<b>Prius Prime</b>	PHEV	140 g/mile	25 miles	640 miles total range; roomy but seats 4 only	\$
Ford	Escape	PHEV	160 g/mile	37	520 miles total range	\$
Kia	Niro	PHEV	170 g/mile	26 miles	560 miles total range	\$
Toyota	<b>RAV-4 Prime</b>	PHEV	170 g/mile	42 miles	AWD; 600 miles total range	\$\$
Hyundai	<b>Tucson</b>	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	<b>Crosstrek</b>	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 federal tax credit applies to new EV and PHEV purchases only.

The credit amount is based on the size of the battery with most EVs qualifying for the maximum \$7500 tax credit. Lower credits apply to PHEVs. The amount of the credit for each vehicle is given at [this link](#). Note that the tax credit is phased out starting at the point when a manufacturer sells 200,000 qualifying vehicles. Tax credits for Tesla and GM are now fully expired.

### Oregon Plug-in Rebate

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'll have to buy 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 federal tax credit, with the maximum amount of \$2500 for all EVs. A smaller rebate amount will apply to most PHEVs. Unlike the federal tax credit, the Oregon rebate remains valid regardless of manufacturer sales thresholds (Tesla and Chevrolet not reduced).

### **Oregon “Charge Ahead” Rebate**

Low- and moderate-income purchasers may be eligible for an *additional* “Charge Ahead” rebate 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 March 15, 2021 only 50 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 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 your \$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. As an example, this arrangement enabled us to lease a PHEV in 2017 for \$199 a month (\$2200 at signing), which was competitive compared to similar ICE-only vehicles.

The flip side of the coin is that the up-front reductions have depressed used EV prices, so many first generation EVs and PHEVs have an end-of-lease residual cost (“buy-out”) price that is well above current market value. In most cases, you can only negotiate with the leasing company (not the dealer) on a lower price, and it’s rare they will do so – even if you offer above current market value.

Note that the federal tax credit has expired for GM (Chevrolet) and Tesla, though there is a move in Congress to restore it to these U.S. makers as well as extend it for all manufacturers.

### **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 previous 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 utility bill.

[SOHEVA](#) - Web site of Southern Oregon Hybrid and Electric Vehicle Association has resources for local advice along with a wealth recent news and 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 are 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. Electricity in the Northwest is far greener than across the nation as a whole. Even when averaging 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 local 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, these 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 New Inventory Snapshot

Date for this PDF/print version: May 22, 2021. For latest update, see the Plug In-Inventory page on the SOHEVA web site. Note: Some vehicles may be in transit and already sold.

Number in parentheses after dealer indicates cars on hand or enroute at the time. If the dealer name shows a link, it is pre-filtered to show current inventory for that model.

### BMW – Medford BMW

i3e No current inventory; some on order; special order  
330e No current inventory; some on order; special order  
530e No current inventory; some on order; special order

### Chevrolet

Bolt: [Airport](#) (0); Jim Sigel Chevrolet (0); [TC Chevy](#) (0)

### Chrysler

Pacifica PHEV: Lithia Chrysler Medford (No current inventory; some on order; special order)  
[Lithia Chrysler Grants Pass](#) (0)

### Ford

Mustang Mach-E: [Butler Ford](#) (1)  
[Crater Lake Ford](#) (0)  
[Mock's Ford](#) (0)

### Hyundai – Butler Hyundai

[Ioniq](#) EV (1)  
Ioniq PHEV (some on order; special order)  
[Kona EV](#) (1)

### Honda –Honda of Medford

[Clarity](#) (4)

### Kia – Butler Kia

[Niro EV](#) (1)  
[Niro PHEV](#) (0)

### Lincoln – Crater Lake Lincoln

Corsair PHEV: (special order)

### Nissan Leaf

Leaf: [Medford Nissan](#) (0), [Jim Sigel Automotive](#) (1)

### Subaru – Southern Oregon Subaru

Crosstrek PHEV (0)

### Toyota

Prius Prime PHEV: [Lithia Toyota of Medford](#) (0) ; Grants Pass [Toyota](#) (0)

RAV-4 Prime PHEV: [Lithia Toyota of Medford](#) (7); [Grants Pass Toyota](#) (0)

### **Volkswagen – Medford Volkswagen**

ID.4 EV (special order only; demo may be available for test drive)

### **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 (Southern Oregon Hybrid and Electric Vehicle Association). 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 (1/6 the national average) since 2017. Please e-mail any questions or corrections to [wave@mind.net](mailto:wave@mind.net).