# **Promoting Electric Vehicles in Oregon**



# **Citizen Input for Legislative & Policy Development**

#### A Survey of State Chapter Members of the Electric Auto Association

Special Project of the Emerald Valley Electric Vehicle Association in Cooperation with the Oregon Electric Vehicle Association and the Southern Oregon Hybrid & Electric Vehicle Association, **the result of citizen volunteer efforts** in its development, design, implementation, participation, analysis and final report.

Al LePage, M.Ed. Science, PC Electric Cars\* Vice-President, Emerald Valley Electric Vehicle Association \*Professional Certificate in Electric Cars, Delft University of Technology

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# Introduction

Electric vehicles are an important part in moving forward to address climate change by decreasing overall emissions to improve public health from less air pollution, mitigation of greenhouse gases, and to transition to an economy that is more sustainable through using renewable energy. In essence, electric vehicles will play a significant role in the transition to a world adapting to the impacts of climate change and the very survival of humans on an earth with limited resources. Given the need to immediately begin to effectively address climate change and become a more sustainable society, the adoption of electric vehicles needs to be accelerated.

Policy and legislation already exists in the form of incentives, such as tax credits and cash rebates from the



- Ford is the only full line U.S. automaker committed to doing its part to reduce CO2 emissions in line with the Paris Climate Agreement
- To achieve its goal, Ford will focus on three areas that account for about 95 percent of its CO2 emissions vehicle use, supply base and company's facilities
- To date, Ford is investing more than \$11.5 billion in electric vehicles through 2022, including forthcoming zero-emission Mustang Mach-E, Transit Commercial and fully electric F-150
- Company on track to power all its manufacturing plants with 100 percent locally sourced renewable energy by 2035
   Image / Ford Expands Climate Change Goals, Sets Target To Become Carbon Neutral By 2050, June 28, 2020

<u>federal and state governments</u>, respectively, in terms of lowering the overall purchase price of electric vehicles to thereby encourage their purchase. However, <u>there's the potential</u>, <u>based on what still needs to happen to promote</u> <u>electric vehicles and accelerate the transition</u>, for additional policy and legislation, at local and state levels, respectively.

<u>Electric vehicle owners with real-life on-the-ground field experience</u>, and those seriously considering the purchase of electric vehicles, can provide the kind of <u>input in terms of what still needs to happen to best serve their needs</u> in terms of using or buying electric vehicles. And, their needs and ideas should be considered in developing, advocating, and implementing policy and legislation to successfully attain them.



Farwestern Photo, Gregg M. Erickson, Cropped "360° panorama on the grounds of the Oregon State Capitol as seen on an August afternoon" CC BY 3.0

Therefore, <u>as a resource</u>, <u>not only for future state legislation</u>, <u>but also state and local policy</u>, a survey was developed not only to better understand their needs, but also invite and encourage their creativity with possible solutions to the challenges that exist for the purchase, use and promotion of electric vehicles.

The author who crafted this report takes full responsibility for it's content and any errors, and therefore as the usual disclaimer, the views and opinions expressed do not necessarily represent the views or opinions of any of the participating or related organizations, nor its board of directors, officers or its members.

Now that we've got that legal stuff out of the way, let's learn about the survey itself.

### Survey

Promoting Electric Cars in Oregon

SUMMARY $ ightarrow$ design	SURVEY $ ightarrow$ preview &	Score $ ightarrow$ collect responses $ ightarrow$ analyze	results $ ightarrow$ prese	ENT RESULTS		
Survey Design		Responses and Status				ANALYZE RESULTS
Promoting Electri Created on 7/13/2020	c Cars in Oregon	total responses 73	over	ALL SURVEY STATUS	•	NOTIFICATIONS <b>O</b> Only you Edit
PAGES	QUESTIONS	Collectors	70	1000/	10	
Survey Language: English Theme: Simple		OPEN Web Link 1 Created: 7/13/2020	73 Responses	IOO% Completion rate	I2 mins Typical time s	i ipent 73 RESPONSES COLLECTED

SurveyMonkey

<u>"Promoting Electric Vehicles in Oregon" is a survey</u>, the specific questions developed from an initial draft with input from various members of the Emerald Valley Electric Vehicle Association, an area chapter of the Electric Auto Association, in July 2020. The <u>intended primary purpose was to collect input</u> from all three state chapters (including Oregon Electric Vehicle Association and the Southern Oregon Electric/Hybrid Association) <u>to develop potential legislation</u> for the upcoming session at the capitol in 2021 and beyond. It also began to expand our chapters working relationship with other state chapters with the idea that during the upcoming session <u>volunteer citizen advocates could speak with one</u> <u>voice in support of electric vehicles and of any legislation that was being proposed</u>, overall, to promote electric vehicles, which is also <u>consistent with the mission of the Electric Auto Association</u>.

A relatively quick, but <u>open-ended question approach</u> was chosen for it's design <u>to encourage</u> both the taking of the survey and <u>people's creativity</u>. It was a ten-question survey, therefore, and took less than 15 minutes to complete, both of which were clearly stated in the email forwarded to Oregon chapter members. Admittedly, some questions were in essence, redundant, however the idea, again, was to encourage creativity and as much depth and detail as possible from participants by asking the same thing using different words. And the survey parameters were set up such that all responses to the survey were anonymous, such that we would not know who participated.

Survey Monkey is an online software that lets you to create, send and analyze data to develop professional surveys, and is the platform that was used, opting for the free version. Here's the email that was sent . . .

Subject - "Promoting Electric Cars in Oregon - PLEASE do this Quick Survey Now, Thank You!"
Hello Electric Vehicle Enthusiast!
The Emerald Valley Electric Vehicle Association wants to know what YOU think needs to happen to promote the adoption and use of electric vehicles in Oregon.
We need your input to develop legislation to propose for the Oregon legislature during the 2021 session.
PLEASE take this 10 question, 15-minute survey TODAY, so we can collect and analyze the results immediately to meet upcoming legislative deadlines. AND Thank YOU Very Much!

This direct link goes to "Survey Monkey" where you can simply open and quickly take the survey.

https://www.surveymonkey.com/r/WVQZYYT

THANK YOU for taking this survey, it will provide the input needed to develop, prioritize, and propose Oregon legislation for the 2021 session.

"Charging Ahead to the Future!"

Emerald Valley Electric Vehicle Association, (A chapter of Electric Auto Association, in the southern Willamette Valley)

The questions in the final draft used for the survey were as follows:

Q 1. If you own or lease an electric/hybrid car(s), how many years have you had it? What make(s), model(s) and year(s)? OR . . . If you don't own or lease one, what has prevented you from getting one?

Q 2. What Oregon county and city/town do you live in or near?

Q 3. If you bought or leased an electric/hybrid car, did you take advantage of the existing state cash rebate incentives, the Oregon Clean Vehicle Rebate or the Oregon Charge Ahead Rebate? If so, did you qualify for only one or both?

Q 4. What other incentives could the state add for individuals, businesses, or public entities to promote electric/hybrid use?

Q 5. What challenges have you had in purchasing, owning and driving an electric/hybrid vehicle? How do you think these issues could be solved?

Q 6. What are your ideas for legislation that would help promote electric/hybrid cars, their purchase and being able to most effectively use them in Oregon? Please be as specific as possible.

Q 7. What policies do you think are important to develop to promote, purchase and most effectively use electric/hybrid cars?

Q 8. What input, comments or feedback do you have regarding electric vehicle charging infrastructure? Please be as specific as possible.

Q 9. Please share any other information or ideas you have regarding future legislation to promote electric vehicles in Oregon.

Q 10. Is there anything else you want to share with us about electric/hybrid vehicles?

# Analysis

Given the relatively <u>overwhelming response to open-ended questions</u>, the analysis is based on a reading and re-reading of all the questions to <u>determine emerging trends and themes in the data</u>, and in so doing, priorities also emerge. This researcher, who is aware of the potential for confirmation bias, thoughtfully kept this in mind while analyzing the results, such that the interpretation of the data was done with the intent to be objective. Also, **the raw data of the survey has been included in the appendix of this report**, thereby giving anyone the opportunity to analyze and interpret the actual data on their own. Beware of the potential for any cognitive bias you may have, of course, and "cherry picking," aptly defined by Wikipedia as "… suppressing evidence, or the fallacy of incomplete evidence is the act of pointing to individual cases or data that seem to confirm a particular position while ignoring a significant portion of related and similar cases or data that may contradict that position." As you will see in the conclusion section of this report, a related global survey research project was included that does not contradict, but supports the position – and overwhelming conclusion – of this report.

As a very quick "visual" of key concepts for each question, "word clouds," were generated for the responses to each question, showing the <u>relative quantity of words</u>, and thereby assumes and suggests, the emerging trends and priorities for each question, too. The <u>word cloud on the front page of this report actually represents a composite of all the</u> <u>survey questions</u>, so in essence is in itself a creative, visual and colorful way to summarize the entire survey ... and this is the kind of tool that can potentially be very effective in presenting written information to promote electric vehicles, versus the usual reams of written text, numbers and statistics – all in black and white – that legislators, policymakers, and their staff are so often overwhelmed with to further analyze and translate into more basic and useful language. But, I digress.

The survey was an apparent success. It was completed by the great majority of people within two days after it was sent via email (it did request it be done immediately, "today," since the input was needed to meet deadlines), and although the survey was completed by 73 people, some chose to "skip" some of the last ones, which were purposefully redundant to get as many ideas and details as possible. Average time was 12 minutes per survey, representing 14 hours of effort.

Again, if you look at the word cloud on the front page of this report, it is a composite of all the survey question responses, some 700 plus! *Since respondents "self-selected" (not randomly selected) this technically is not a statistically valid survey.* However, **the intent of this survey** was not to be statistically significant, but simply get a sense of <u>what</u> <u>electric car users n Oregon</u>, and those few who responded that are seriously considering their purchase, <u>wanted to tell</u> <u>us about what's needed to craft specific legislation and policy to address their challenges and provide the</u> <u>opportunities to promote electric cars</u>. Therefore, it definitely achieved its purpose, and this document could eventually be used to design and actually carry a survey that is statistically valid, if needed for other purposes to the industry standard of a 95% confidence level and with a margin of error of only 5%. As a significant and final note, however, in the conclusion section of this report, <u>a published research paper that was done on a global scale does appear to validate some of the significant results of this Oregon survey</u>.

As a couple of footnotes, first there were a few people who neither thought they had any challenges, nor needed any added opportunities. If you drive very little and stay close to home, then no challenges would seem to be accurate, but this was not the case for almost all the respondents. Of course, if all is good to go, then people wouldn't need any special opportunities. Also, there were a few people who were "wanna-be" or considering electric car ownership, however, again, most people not only drove, but also many of them had more than one electric car, either presently or especially over the past decade. So overall, the respondents, as you shall see, were not only EV drivers, but also expressed both challenges and the need for opportunities to address them and also to promote EV's, too.

<u>The appendix of the report contains all the raw data</u>, each response for each of the ten questions, and has been included not only to have it readily available for further analysis as needed in the future, but also because it could provide other useful information, from anonymous quotes to specific strategy and program ideas for future legislation and policy, as well as expressing the needs of existing owners and potential electric vehicles buyers to encourage the adoption and promotion of electric vehicles.

## Results

Ah, WOW! The rather incredible results of this survey are reflected in the thoughtful and creative responses of those who participated! The responses were diverse and many consistent with existing research on everything from incentives to charging infrastructure, from disincentives for driving gas cars to using solar energy to charge electric vehicles, and many other ideas, too! All in all, 74 participants averaged 12 minutes to take the survey, which means that close to 15 hours of time were generously provided. So, question by question, here's a quick summary of the emerging trends and themes, along with the associated word cloud for each one.

# Q1. Car Ownership

Most survey respondents own, some lease, their electric vehicles, and many have had more than one over the years, apparently since they really first appeared in the mass market at the beginning of the last decade. And many seem to be "early adopters" and committed to buying electric cars, too, given they keep buying them. Many though, also seem to be relatively new electric car owners, within just the last few years. There's also really quite a variety of models, although, as might be expected, the Nissan Leaf appears to be at the top of the list at least for this statistically not valid survey, though Teslas appear to be a close second with the "Chevy" Bolt and Volt in third.



What is really interesting, though, are those few who do not own electric cars. Their responses are very telling in a number of ways, and highlight the potential not only in terms of advocating for electric vehicles, but also in terms of specific information that people need to better promote electric cars, through educational programs for outreach and awareness. Here they are for your consideration, what do they suggest to you? (parenthesis are my comments)

- Initial cost, range, charging rate (some of the usual perceived challenges to purchase, good job, but they can be answered effectively)
- Trying to decide if it would pay, since I am no longer driving much. (Total Cost of Ownership analysis is needed here, perhaps more awareness of the social and environmental costs, too.)
- Since I got rid of my last car in 1983, I developed the habit of walking and using mass transit. (Here's a pitch for transportation without cars whatsoever, though car sharing and autonomous on call transportation might also serve this person, at least on certain occasions. This person would seem to be an ally though, in advocating for electric vehicles involving mass transit, like electric buses.)
- Right now, availability is VERY limited. I'd like to buy an EV like the Kia Niro but there are none at the dealer. (Ah, what can I say on this one, until car dealerships get serious about selling EV's, then that's one important part of the picture to promote them)
- I am waiting for the right vehicle to come to market. (This perhaps illustrates the need for better awareness and education, it would be great to better understand what they mean by "the right vehicle." Is it "the price is right"? Then they need to do a total cost of ownership analysis, especially on a used car. Is it "the technology isn't right" yet? In this case, it's a matter of, well, what is good enough, and just buy it, or if you want to ride along with technology improving constantly, then just lease it. If this is what they mean, then the answer does seem to be education.)

# Q2. Residence

Essentially, participants were in the Willamette Valley, responses from southern Oregon were very limited, perhaps due to the email about the survey apparently being forwarded later in time, perhaps a lack of interest?

As one can see in the word cloud, although the <u>majority of responses were from the</u> <u>Springfield/Eugene and Portland areas, respondents</u> <u>also lived not only in immediate nearby areas, but also</u> <u>further afield, such as Cottage Grove, Newberg and</u> <u>Corvallis.</u>

Salem is apparently not represented, perhaps from being located too far north or south from Eugene or Portland, respectively, to be interested in becoming the member of a chapter in Portland or Eugene? Perhaps it suggests a demographic that's not yet begun to embrace electric vehicles. We'll leave that question for others to answer.



# Q3. Oregon Rebates

This question generated a lot interesting responses, not only in terms of the <u>history of Oregon incentives</u>, apparently from early era state tax credits to the present cash rebates, but also in terms of, besides mentioning the federal incentives, federal tax credits, <u>the ever-changing</u> <u>complexity and evolution of incentives</u> generally. In other words, <u>what</u> <u>really seemed to be expressed is the overall "mess" these programs</u>, when they even exist, exhibit, in terms <u>of either not qualifying or the apparent</u> <u>struggle to get them if one does qualify</u>. Did I detect a subtle level of frustration in this regard, I think so.

Another thing of significance that also emerged was that some people weren't aware of such incentives, others seemed not to remember the specific program names.

Federal tax credits were also included in terms of participants responding to this question, and apparently took advantage of those, too.

The takeaway on all this seems to be that <u>besides enhancing awareness</u> <u>through outreach and education about state incentives, that Oregon</u> <u>needs to formulate a long-term strategy for incentives based on research</u>, and the experience of other states and countries, especially in Europe given their overall investment to promote electric vehicle adoption. Their needs to be a clear rationale, an flexible adaptive approach to change



things, not based on political whims, but again based on facts and experience, and <u>a plan with general goals, specific</u> <u>objectives and strategies moving forward</u>. There needs to be long-terms consistency in terms of implementing incentives and phasing them out when the time is right, versus when the time is wrong. And <u>the programs need to</u> <u>function efficiently</u> so that people aren't waiting an inordinate amount of time for cash rebates, especially when they could have used them to pay down the loan balance, and thereby accrue less interest on them. Finally, people need to be educated that these programs exist more effectively, it's apparent, that some were not even aware of them.

### **Q4.** Incentive Proposals



**WOW!** This is the first question that really required people to be creative! And what a brain storm it was! There were many, there were many "wild and (not so) crazy" ideas generated, and frankly, even if only person had a new idea, it could be worth considering as a priority for implementation.

All that said, it's eminently apparent from the word cloud, that charging, infrastructure, and electric vehicles, in terms of rebates and incentives, rose to the top of the list. There were some pretty wide-ranging ideas for charging, and one really needs to read the specific in the raw data for this question in the appendix.

Here's an edited sampling of others, not specifically related to charging.



- **DO NOT** increase the registration fees to an unrealistic amount that is far more than the gas tax would be for a comparable car. I am paying 3 times what I pay for my gas cars and even our SUV does not generate an equivalent gas tax (can you sense the frustration/anger there?)
- Incentives for smart charger and cheaper time of use electricity rates

- Cheaper registration, low miles insurance
- Vehicle registration discount, free parking, <u>rebate/tax credit for electric vehicle supply equipment at residences-</u> <u>multi-family buildings-businesses</u>, electric vehicle supply equipment <u>(charging stations) property tax exemptions</u>
- None instead <u>remove incentives for petroleum</u>. (Eliminate depletion allowance, hasten CAFE standards, military defense of oil production paid with fuel taxes)
- At the pump, have <u>a hybrid only pump with reduced state (gas) taxes</u>. Also, roll back the higher vehicle registration fees for energy efficient cars.
- Limiting or removing a road tax on EVs/hybrids would help.
- <u>Require city and state agencies to have a percentage of their fleet be electric</u>.
- Please <u>lower the cost of license plate stickers</u>. While electric vehicle owners do not pay for road costs through gas taxes, they also do not cause as much climate/environmental & public health damage as do fossil-fueled vehicles.
- They (the state) could <u>remove the gas tax **penalty**</u>
- The state could <u>add an annual tax credit to EV owners</u>. The issue with a tax rebate at the time of purchase, is dealerships tend to mark up the vehicle to try and take the credit for themselves. (fact check needed?)
- A break in higher electric vehicle registration fees for perhaps 2 years.
- Solar Electric for charging EV's
- More information on benefits and pricing of used EVs; building code changes to require conduit for future charging stations, and some charging station availability now (multi-cable shared L2 to charge multiple cars overnight? 110V everywhere?)
- Generous state tax credits/deductions.

As one can see, <u>people were not only providing solutions</u>, <u>but also expressing their frustration</u>, too, over things such as vehicle registration fees and taxes as they compare, apparently unfairly to them, than those that are paid by gas cars. And this is not unfounded, according to **Consumer Reports**, the story at this link.

More States Hitting Electric Vehicle Owners With High Fees, a Consumer Reports Analysis Shows, Some states passing EV fees far in excess of what average motorists pay in gas taxes



*"I have no doubt that the automotive industry will change more in the next five to 10 years than it has in the last 50..."* Mary Barra, chairperson and CEO of General Motors, the company who makes the all electric Chevy Bolt EV, January 2016



<u>What's striking about the responses relative to challenges</u> encountered for drivers of electric vehicles in general, is that <u>charging again rises to the top of the list</u>! What's also striking is that a few people actually answered, "none," which essentially means for them, at least in terms of how and where they drive, and perhaps owning a higher range vehicle, that they have adapted and are literally good to go!

However, for many others, <u>range and taking long trips seem to be significant issues</u>, of course, <u>better charging</u> <u>infrastructure could help to resolve that issue</u>, too. In essence, as the question asked, **what is lacking for you as an EV driver**, and some people offered solutions, at least in terms of what they needed in this regard around the state. This question is all about what people need, and they so expressed themselves. Here's a primary sampling on the next page of needs expressed along with suggested solutions. (The "thumbs-down" word cloud says it all!) (*Image, General Motors*)



#### Charging infrastructure expanded seems to be greatest need . . .

- Occasionally trip charging (long-distance) can be a bit of a challenge (i.e., going to Crater Lake)
- <u>High cost of (public) charging</u> when traveling outside Ashland.
- More charging stations in rural and coastal areas
- We need a statewide fast charge system for all types of vehicles.
- Needed to <u>upgrade electrical service</u> on 50 year old house to allow addition of charger. <u>Tax rebates for</u> <u>installation of EV charger helped</u>! (needs to be fact checked?)
- Lack of charging stations outside of metropolitan areas.
- I am concerned about driving outside the 100-mile range because of <u>scarcity/inconvenience of charging stations</u>.
- CCS charging infrastructure on secondary roads and locations off major interstate highways is a problem
- The Nissan leaf was a pain to take on long trips because of a lack of Chademo charging
- Charge/range security could be increased by <u>establishing public charging stations at freeway turn-outs</u>. These could be supplied by nearby wind turbines and/or solar panel banks.
- More chargers in parks and back country locations (tourist destinations)
- <u>Not enough *working* fast chargers for long distance travel</u>. Some chargers do not work. Especially a problem on OR Coast. I think the state should put fast chargers at many rest stops and <u>strategically along major state and</u> <u>federal highways like US 101 and US 20 and 26</u>. (reliability)
- Not enough fast charge stations along highway
- Charging infrastructure that either doesn't work, difficult to use, costly.
- More strategically placed easy charging stations.
- Really only in driving long distances due to the lack of infrastructure for charging where I have traveled. I think there needs to be charging available at least in major cities and towns around Oregon, perhaps locate them in rest areas, public areas accessible 24/7, and along state highways.

#### Education and awareness outreach opportunities for dealerships and consumers . . .

- The sales people are no help with operations of the vehicle once purchased, no surprise.
- <u>Poor dealership information</u> about product and incentives, no access to data about miles driven in gasoline mode vs. electric mode for hybrids
- Just waiting until used vehicle prices became affordable. I'm not interested in a new car. (used ones already are!)
- I am concerned about driving outside the 100-mile range because of scarcity/inconvenience of charging stations.
- Highest anticipated is learning how to use public charging facilities when on trips.
- In late 2019 it was difficult to find a vehicle that qualified for the federal tax rebate. (only Tesla and GM don't qualify)
- In-Shop service is in Portland (apparently it's far beyond where they live)
- I am waiting for the right vehicle to come to the market. (again, needs to clarify, and get better info)

## Access through standardization of technology, incentives and enforcement for equity and simplicity . . .

- Charging stations should all take visa without having to join. (interoperability)
- Incentives for Apartments to install charging.
- <u>Subsidies for chargers in residential buildings</u>.
- <u>Too many different styles/vendors of charging stations needs simplifying</u>! (standardization)
- ICE (Internal Combustion Engine) vehicles blocking charging stations. It seems police would not bother to write a ticket. (signage, consequences, enforcement)

Well, let's see what could potentially be done about all these challenges . . . read on!

## **Q6.** Legislative Ideas



**Creative brainstorm!** Here's what our participants proposed for legislation, with no holds barred! First and foremost, charging rises once again to the top, along with incentives and rebates for whatever one needs, from buying a car to installing charging infrastructure at home, at work, at businesses and everywhere else it's needed. People also got into the fees and taxes they pay for their electric cars, and what they thought needed to happen there, from being free to being fair relative to gas cars. Disincentives such as taxes for fossil-fuel based transportation and mandates such as no more new gas cars can be sold after a certain date were also noted. Inclusion and equity through making electric cars and charging infrastructure accessible and available to everyone, were also part of the mix. Public education, funding strategies and free perks for electric car owners, too! One could also definitely sense that for some, there was some real ANGER (!!!) at not being treated fairly in terms of fees and taxes, and also about people driving on fossil-fuel due to the emissions, lowering air quality, and failing to mitigate to address climate change.

<u>A statewide network of charging infrastructure as an important part of the transportation system and mandates</u> requiring charging installation in multifamily residences, in addition to disincentives for driving fossil-fuel cars in terms of taxes, seem to be emerging trends in this data.

# Envision an . . . Oregon Statewide Highway EV Network!



**<u>Be BOLD</u>**! And Imagine . . . being able to Travel Around the State, YES!

Image, Oregon Blue Book

## With Fast-charging stations EVERY 50 Miles (or less) along EVERY Oregon State Highway

The range of ideas are great (if only all electric cars had such great range, pun intended!). The question is, as always, which ones are politically feasible to pass, and to be aware of arguments in opposition, and how to address them. In the end, it's all about how to effectively work with others in constructive ways to really get things done that serve everyone.

Finally, there are just so many ideas proposed, some with specific details, too, one really needs to look at all of them. Again, they can be found in the appendix at the end of this report.

It would be great, in terms of <u>generating the proposed text of any legislation</u> to analyze all the questions and craft a bill(s) that not only includes all the details, but <u>also research emerging trends in electric</u> <u>vehicle and charging legislation and policy world-wide</u>, both in terms of what's been or is planned to be implemented, plus looking at actual research in this regard (Europe and China seem to do this kind of research and have experience) as <u>a reality check on how reasonable our participants proposals are for</u> <u>best outcomes</u>, overall, <u>in terms of promoting the adoption of electric vehicles</u> and for passage politically. Some may best be accomplished by <u>legislation</u>, <u>others perhaps by policy</u>, some at the <u>state</u> <u>level</u>, <u>some at the local level</u> of cities and counties. As will be seen in terms of what's already been done world-wide, this is included in great detail in this report's conclusion section at the end.



Ah, <u>didn't we already see this image</u>, isn't that the word cloud for Question 6 about Legislation Ideas? Nope! It is the same shape, a thumbs up with good ideas to solve the problems associated with electric vehicles. Even this researcher did a double take when I saw it, thinking somehow I had entered the same data perhaps, though I thought it was a glitch in the online word cloud generator. So, I pasted the two images together, and while there are many, many similarities, there are some differences, which again, is quite telling. It not only <u>shows how people perceive legislation versus policy</u>, it <u>also highlights the obvious overlap as well as differences in approach</u>. **Hint: See image below** . . . *"To give <u>or</u> take?"* 

Take a good look at both, it's the classic question, "Can you find what's different?"



**Legislation** seems to focus on primarily on providing **incentives** to electric vehicle car owners. Taxes in this area are more about how the **EV car owner can benefit through special** <u>state tax credits</u>.

**Policy** primary focus seems to be on **disincentives** through <u>state taxes</u> on *internal combustion engine cars*, for the continued <u>use of fossil-fuel vehicles and their associated emissions</u>. In essence, the policy approach is the use of taxation to transition from the internal combustion engine.

# Again, in this questions responses though, **if there was ANY one emerging theme throughout this survey**...<u>it's</u> charging infrastructure!

Here's an example of one person's very detailed, rational, and apparently well-thought out response.

<u>Oregon Electric Highway System</u>, as described above. 2) <u>Continue to offer tax incentives & rebates</u> for electric vehicle purchase. 3) <u>Offer tax incentives for car manufacturers to locate 100% electric car factories in Oregon</u>, requiring that the plants be powered by at least 80% <u>wind and solar power</u>, with a specific time-line for going 100% wind/solar. 4) Strong support for <u>electrification of all mass transit</u> <u>systems in Oregon</u>, as well as adequate support for making mass transit systems more robust in general.
 Development of electric inter-city mass transit to coordinate with local systems throughout the state.

**One point of note, dealerships.** If you look at the survey responses to this question, to put it mildly, <u>people were not too</u> <u>impressed with car dealerships, essentially and apparently, those not actively motivated in selling electric cars.</u>

Finally, more <u>frustration was expressed</u> in the comments to this question, and again, the question is how to channel that into constructive action to promote electric vehicles in the future, which apart from legislation and policy that's serves oneself, there was <u>also the apparent motivation to serve society in general through addressing climate change</u>. And this does seem to be THE primary motivation beyond any self-interest versus working for a transition to a clean energy society. In other words, it seems more about climate change than all the benefits of a clean energy economy based on renewable energy. Perhaps my assessment is incorrect, and although some mention renewables, like wind and solar, they seem to be offered more as solutions versus their motivation, which <u>does seem to be about emissions and</u> <u>climate change</u>. Read the raw data for yourself to see if your interpretation is the same, or different from my conclusion here.



## **Q8.** Charging Infrastructure



Going into this survey, based on my personal experience, educational background on electric cars, and input from our local chapter members, I knew <u>charging infrastructure was the apparent number one need and the greatest challenge</u> <u>that now needs to addressed</u>, which <u>the responses and results of this survey have validated</u>. Therefore, a specific survey question in this regard was created for specifics in this area. What a surprise to survey participants when after talking about it and highlighting it on their own in the two previous questions, there's just such a question. What's even more surprising to me, that after so much input already being provided, that participants could think even further and still provide more information!

If you really look at the more major words that appear in the word cloud, and put them together, it seems to clearly suggest what's needed, summarized as follows:

#### People in Oregon need <u>access now to chargers and charging infrastructure</u> at <u>home, businesses and along</u> <u>highways and roads statewide</u> and are <u>available, reliable, easy to use and find, and fast</u>!

Again, when one looks at all the specific responses, that indeed seems to be the primary message.

Two things of additional note that stood out in the comments, too, one involved the general concept of **standardization of charging technology and <u>cost</u> of electricity**, especially regarding public charging. Essentially, do what's needed so the prices are relatively known and fair with some kind of regulation in this regard, and also in terms of <u>how you can pay for</u> it, such as <u>simply using your own credit card</u> versus having to sign up for all the different charging vendors.



This question was the very last to squeeze even more ideas from people, <u>the amazing thing is that most people could</u> <u>actually say more</u>! It's obvious from the word cloud that <u>although charging continued to be a high priority</u>, <u>tax incentives</u> <u>– and disincentives</u> were about equally as important! Rebates and incentives were still mentioned, but not as highly as in the previous questions. What really struck me when reading over the comments, were two things . . . <u>the need for</u> <u>education and marketing to promote electric vehicles</u> and what I would describe as mandates, in the sense of something being required to both promote, encourage, and accelerate the transition to electric car use in the state. Here's some highlights on the next page!

# "... And the Survey Says ..."



# **Disincentives for Gas Cars & Incentives for Electric Cars**

#### Incentives

- Infrastructure is important, really important. I think people who charge with solar panels, they should get an extra special incentive perhaps, so we can charge them with renewable resources . . .
- Incentivize companies who choose to put in *charging stations*
- <u>Multi family complexes need incentives</u> to retro fit their parking areas to accommodate EV charging stations for the renters.
- . . . *larger rebates* for businesses and government agencies is important since those entities have the funds to buy multiple EVs.

#### Disincentives

- **Fuel surcharges** should be enacted to the **price of gas and diesel** for (funding of) EV charging infrastructure installation . . . Auto Dealerships should have property tax Incentives for numbers of EV autos sold in a year.
- ... Raise the gas tax to reflect the true cost of pollution.
- raise the gas tax as a carbon tax to promote evs

#### Education

- I think most people don't realize how cost effective and practical electric cars have become in the last few years. I'd like to see those aspects **promoted**.
- I'd like to see better marketing of the benefits of EVs. Hearing from EV owners is very helpful.
- Public service announcements about how electric cars & mass transit help environment/climate.
- An electric car museum, and a showcase of the difference in efficiency between a gas, hybrid, and BEV.

#### Mandates

- <u>**Tightening** *restrictions* on gas cars</u> will lead to alternatives like EVs. <u>*Requiring* trucks and buses to switch to</u> <u>Electric drive</u> like CA. <u>State fleet should be *required* to go EV</u>...
- All Oregon government vehicles should be electric.
- Set a date after which no ICE (Internal Combustion Engine) vehicles can be sold in Oregon.
- all destination parking lots over 100 spaces *should have* a charger/ 100 spaces
- <u>A state *limit* on commercial charging rates</u> could help with traveling.
- Add *charging infrastructure requirements* and renewable power generation *requirements* to all building permits.
- <u>Allow the utility</u> (PGE, Pacific Power) to invest in *charging infrastructure* at multi-family housing

#### AND . . . <u>My "Favorite"</u>

#### "Legislators should (be) commuting in non-polluting vehicles and making it known to their constituents."



Massachusetts State House, Representative Joan Meschino (D-Hull) joined her colleagues, Representatives Smitty Pignatelli (D-Lenox), Jonathan Hecht (D-Watertown), Solomon Goldstein-Rose (I-Amherst) and Jack Lewis (D-Framingham), to host an Electric Vehicle Ride and Drive. <u>"Rep Meschino Hosts State House Electric Vehicle Ride and Drive Event," April 10, 2018</u>



#### "I don't think I have anything to say that others haven't already thought of. But, I'll keep thinking."

This question, **intended to elicit a** *rational* **response, actually turned out overall to be an** <u>*emotional*</u> **and** <u>*positive one!* What a great way to end a survey that took you from rational thought to frustration and anger, but finally love, enthusiasm, and fun! In essence they **express LOVE for their EV's, gratitude** for the survey, and the **need to better educate people** as a way of moving forward to promote electric vehicles.</u>

Here's a sampling, **enjoy and be inspired** about what we can all do together to promote not only electric cars, but electric vehicles of all kinds, from school buses to mass transit, from backhoes to 18-wheelers!

Varoom, ROOM! (Oops, I mean . . . quiet, very quiet . . . shhhh)



"EVgo is the largest public DC fast charging network in the nation."

"LOVE" . . .

- EVs are great . . .
- Love em. No more ICE . . .
- Love my Soul (an electric vehicle model) . . .
- Love my (electric) car and I will purchase/lease another.
- I love my electrics and want to get more . . .
- EVs and Solar Power are a match made in heaven!
- It's great their time has come.
- We LOVE our EV! I don't think we could ever go back to an ICE (internal combustion engine car).
- Yes. Go get an EV. Try it, you will be amazed how well it works!
- The most enjoyable and reliable cars to drive that I've had
- Best car I have ever owned or driven in my lifetime.
- Lots of people really like my car!
- I LOVE my electric car.
- I want one!
- Zoom Zoom

#### Education . . .

- Public education!
- Education and promoting EV use needs to be a priority.
- Cities, counties, and electric utilities need to provide more educational material about the advantages of EV ownership through regular mailers and publicly attended events.
- How about producing a mini-documentary that showcases folks who went electric and became enthusiastic promoters? (This is actually in production during the writing of this report!)
- I think TCO, total cost of ownership is important to get across to people, that . . . electric cars are cost comparable with gas cars, even given their higher purchase price.

#### Gratitude . . .

- Thanks for having this survey. It is hard to know who in the State government we can submit suggestions to.
- Thank you for supporting electric vehicles.
- Thanks for all you do for the Planet!
- Keep up the good work! (expressed twice by different people!)

#### Volkswagen makes racing history with record-breaking electric race car (2018)

# *Electric power beats the internal combustion engine fair and square in major motorsport*

*COLORADO SPRINGS, Colo.*— . . . The second-oldest motor race in the United States—only the Indy 500 predates it—is unlike virtually every other professional motorsports event we cover. And this year's edition proved to be novel in its own right. . . .we were on hand to witness French racing driver Romain Dumas and car maker Volkswagen stamp their authority on all 12.4-miles (19.99km) of the course, destroying its existing record and setting the first sub-eight minute time in race history. What makes the feat even more interesting around Ars is that **the car in the record books is all-electric**, marking perhaps the first time in major motorsport that a battery electric vehicle has beaten the internal combustion engine fair and square.



WATCH THE RACE HERE, FROM THE WHEEL AND THE AIR! ON YOUTUBE . . . but, I digress . . . but maybe you should, too!

# Discussion

#### In one word . . . "Charging!"

The results overwhelmingly expressed the need for charging infrastructure! (To not include the exclamation mark here would inaccurately state this need.)

How does this compare, though, can this be validated based on previous research? Yes, it can. In fact, study done in 2015 (which seems ages ago relative to electric vehicles, though still relatively recent as research goes), is appropriately entitled, <u>"Policy measures to promote electric mobility – A global perspective" by Theo Lieven</u>. The abstract notes as follows:

"... The <u>results of surveys conducted in 20 countries in 5 continents</u> showed that the **installation of a charging network on freeways is an absolute necessity**. This was completely independent from the average mileage driven per day. <u>High cash grants were appreciated as attractive</u>; *however, <u>combinations</u> of lower grants with charging facilities <u>resulted in similar preference shares in market simulations for</u> <i>each country*. The results may serve as <u>initial guidance for policymakers</u> and practitioners <u>in improving</u> <u>their incentive programs for electric mobility.</u>"

Here's some addtional detail from the global study as follows:

#### Conclusion, limitations, and further research

The results of this global study are similar for most countries in terms of the segmentation of consumers into three clusters with one cluster comprising those who have an affinity for monetary incentives, another comprising those who appreciate charging infrastructure and particularly charging networks on freeways, and another cluster comprising those whose preferences are evenly distributed over the seven policy measures.... Through this, missing charging facilities and, in particular, a missing charging network on freeways caused the strongest dissatisfaction. Thus, these attributes are must-haves. It can be assumed that for anyone interested in EVs, a respective acquisition is out of question as long as the existence of an adequate charging infrastructure is not guaranteed. In return, drivers are willing to give up some of the cash grants, since high subsidies are attractive but not must-haves. The often granted free use of bus/fast lanes is a feature that drivers may perceive as somewhat attractive; however, no absolute need could be found for it. Therefore, it is obvious that this measure will have to be terminated if the number of EVs increases.... Policymakers may adapt their programs to an optimal mixture of fulfilling necessary conditions and additional attractive incentives, albeit somewhat differently in all countries.

The designation of this study as an instruction for the global planning of EV incentives would be presumptuous. Conditions are different worldwide and the findings of this research can only offer limited guidance for local policymakers and practitioners. However, the fact that many governments are reluctant to invest in the charging infrastructure and instead rely on high cash grants shows that the clarification in this article could be helpful to initiate further local research.

Therefore, <u>this study not only validates</u>, <u>but also relative to our Oregon survey suggests that for Oregon electric vehicle</u> <u>drivers</u>, <u>the same is true for charging infrastructure</u>, and potentially otherwise regarding incentives, and again and again highlighted the overall relative importance, the **high priority of charging** overall, and of **establishing a statewide charging infrastructure network potentially as one of highest priority**. The <u>global study also clearly states that charging</u> <u>infrastructure is not only important but also necessary to effectively promote the purchase and adoption of electric</u> <u>vehicles</u>.



Finally, therefore, given this Oregon-based study along with the global study, all this would seem to provide a strong basis and rationale for developing legislative and policy proposals that would address charging infrastructure needs now and for the future. Given existing electric vehicle ownership as of July 2020, and the continued and sustained relative growth of electric vehicle sales in the state (with the exception of Spring 2020, when the curve surprisingly only flattened out, but EV sales did NOT), it's obvious from the Oregon survey results, that with 30,000-plus electric cars on the road today (July 2020), that the need is now, and with at very least the present sustained sale levels, means the number of electric vehicles will only continue to increase, and the need in the future will be even greater.



To summarize this section of the conclusions, in one word, "investment!" The state needs to invest in electric vehicle charging infrastructure to meet both existing and future needs of it's citizens. And legislation needs to be proposed and passed during the upcoming 2021 Oregon session. Also policy needs to immediately be developed and implemented by state agencies and local governments to achieve, when prioritized, the goals, objectives and potentially the strategies suggested in the citizen input of this survey from Oregon electric vehicle drivers.

The question now becomes, where exactly do we place charging infrastructure? And that begs the question, "How can that be determined rationally and based on existing data?"

It would seem that for a statewide highway network, that obviously along or near the existing highway system in various geographic areas around the state. What geographic areas, and even more specifically what community areas, which cities and towns?

And, how many electric vehicles are in any one area? The rationale being, higher numbers of EV's need more charging infrastructure, this combined with growth in sales to meet future demand. Also how much infrastructure already exists in any one specific area, such that, if there's already some, then maybe it needs to go to another area with none or much less. Lot's of variables for an equation to determine where to place them and how many.

The fact of the matter, however, according to research about academic studies involving these kinds of questions, is that it is a mix of complex variables, and also based on specifics of at least, the countries themselves. In other words, there seems to be no simple answer that would apply across all countries. And something as simple as figuring out, for

example, the ratio of the number of fast-charging stations (DCFC) to the number of 100% battery electric vehicles (BEVs), and further, logically asking, what is the optimal ratio to have, is just too simple a solution given all the complexity. In fact, a study entitled, How much charging infrastructure do electric vehicles need? A review of the evidence and international comparison published in December 2019, obviously asked this very question. Here's the abstract . . .

"Plug-In electric vehicles (PEV) are in an early market phase in almost all markets. Still, the lack of public charging infrastructure is a barrier to PEV adoption. <u>The assessment of future charging infrastructure</u> <u>needs is often based on key figures, mainly the ratio of PEV to public charging points.</u> However, countries <u>differ regarding their framework conditions</u>, e.g. the availability of home charging, and **the question of how much public charging infrastructure is needed cannot be answered equally for all countries**. Yet, studies analyzing the framework conditions for the medium- to long-term demand for charging infrastructure are rare. Here, we review the existing literature and summarize the evidence for the importance of framework conditions on charging infrastructure needs. Furthermore, we illustrate the literature evidence by comparing the framework conditions for charging infrastructure in different countries based on a comprehensive dataset of framework parameters. *We find public charging infrastructure as alternative to home charging is only needed in some densely populated areas*. **However, framework conditions vary largely among countries**. Accordingly, findings from literature for specific countries can only be transferred to other countries to a limited extent."

With this limit in mind, here's a summary relative to the kind of parameters that can help to answer the question of how many chargers are needed, depending on the country.

We summarize our findings . . . in four stylized facts (SF) . . . For each stylized fact, we deduce a parameter set that illustrates important factors for charging infrastructure needs.

- SF1: **The availability of charging infrastructure supports PEV diffusion.** The diffusion of PEV varies between markets, which leads to different charging infrastructure needs for different countries or states now. Public charging infrastructure can increase PEV sales but the effect appears to be minor. The parameter set contains the parameters PEV market shares (registrations and stock), number of PEV registrations per capita, BEV sales share and the vehicle-to-refueling-station index (VRI, see Yeh, 2007), that is the ratio of PEV per charging points. For the VRI, we differentiate by PEV and charger type (slow/AC or fast/DC). In addition, we use the relative parameter charging sites per gasoline station (c.f. Levinson and West, 2018).
- SF2: **Broad availability of home charging infrastructure is sufficient for the early market diffusion of PEV.** We analyze this aspect by comparing the following parameters as an indicator of home charging availability: share of (semi-) detached houses, share of urban population and, if available, the share of home charging (as share of all charging events) of current PEV. In addition, we analyze average annual driving distances to analyze comfortability and suitability of home charging for average daily driving distances.
- SF3: Public slow charging infrastructure is only needed as a substitute for home charging, since charging at points of interest (POI) has a limited effect on the diffusion of PEV. We will discuss this stylized fact by relating parameters for home charging availability to the current status of public charging infrastructure diffusion, since public slow charging infrastructure needs are dependent on the availability of other charging options, mainly home charging (cf. Gnann, 2015; Helmus et al., 2018).
- SF4: DC high power charging (HPC) infrastructure is mainly needed for BEV long-distance trips. As an indicator of the (current) importance of DC fast charging, the parameters DC fast charging coverage (km<sup>2</sup> per site, highway-km per site) and the share of public fast charging are compared. In addition, we explicitly analyze the share of long-distance trips as well as highway network coverage that might indicate charging infrastructure needs for geographical coverage.

If we focus on the last point, and given what some survey respondents provided as just such input, this paper would appear to validate the perceived or actual needs being expressed by some Oregon EV drivers. And therefore, in terms of legislation or policy, would provide both a theoretical/academic research-based and real world Oregon-based rationale to not only to craft such legislation/policy, but also as to why to support it.

#### **Charging in Multi-family Dwellings**

This was another area of input that seemed important to some in the survey, and essentially to provide it in such a setting, either through the availability of regular electrical outlets for level one charging, and for the installation of level two charging infrastructure, both in the immediate future and for the long-term. Various strategies were suggested, and typically involved incentives and requirements for such charging.

Regarding legislation and policy development here's some information from the US Department of Energy's Alternative Fuels Data Center (last updated, August 2015) . . . Click on the title for details.

#### Plug-In Electric Vehicle Deployment Policy Tools: Zoning, Codes, and Parking Ordinances

"State and local governments nationwide are paving the way for plug-in electric vehicles (PEVs) by <u>allowing, incentivizing, and even requiring electric vehicle supply equipment (EVSE) infrastructure in their</u> <u>communities</u>. While there is no "ideal" or one-size-fits-all deployment strategy, <u>zoning</u>, <u>codes</u> (including permitting), and <u>parking ordinances</u> are <u>three particularly powerful tools to encourage PEV and EVSE</u> <u>adoption.</u>

It is important to understand how zoning, codes, and parking ordinances can further the PEV readiness of communities and regions, whether implemented individually or in combination with one another. <u>State</u> and local jurisdictions can then assess their unique objectives and identify the best of these approaches to <u>support PEV industry growth and innovation</u>. Just as important, they can do so while ensuring that no individual, organization, or adjacent industry is overburdened with any requirements that are intended to facilitate the deployment of PEVs and EVSE."

Also, here's some excellent information for legislative and policy development in a document entitled Multi-Unit Dwelling Electric Vehicle Charging and apparently developed in June 2019 by the Center for Sustainable Energy, and prepared as the result of work sponsored by the California Energy Commission. It notes in the beginning . . . It's a great document, both for tenants, but especially apartment managers and owners.

> "This document summarizes <u>common multi-unit dwelling (MUD) EV</u> <u>charging solutions, with a focus on condominiums and apartment buildings</u> <u>where residents and tenants do not have garaged parking attached to their</u> <u>units</u>. The following sections provide information, guidance and resources that can help you get started on installing EV charging at your MUD property, as well as tools to find incentives to help fund projects and identify vendors to design and implement EV charging solutions."

Further, it notes a specific legislative bill and code . . .

In addition to growing tenant demand for access to EV charging, <u>recent policy and code developments</u> <u>encourage increased installation of EV charging at MUDs</u>.

• <u>Senate Bill 880 and Assembly Bill 2565</u> – Together, these bills prevent MUD property owners from unreasonably restricting tenants from installing EV charging at their dedicated parking spaces.

• <u>CALGreen Building Code</u> – Under current CALGreen Building Code (Title 24, Part 11), new multi-family buildings with 17+ units must have electrical service panel capacity and electrical conduit installed to support a 40-amp dedicated branch circuit for 3% of total parking spaces. The 2019 CALGreen code will increase this requirement to 10% of total parking spaces.

#### Incentives

One thing seemed clear through the survey responses, **incentives were also important**. People who used them, liked them, and wanted to <u>make sure they were kept</u>, some suggesting they could also <u>potentially be increased</u>. Tax credits were also mentioned as incentives, too. Another theme that emerged was **the need to make people aware of the incentives**, which obviously requires <u>public outreach and education</u> as two potential strategies.

#### Oregon's incentive program, two things, amounts and current law.

The cash rebate program in Oregon is moderately generous, Europe has had greater monetary incentives, and apparently not as rebates one applies for after buying the car, but literally as a "grant" upfront. A couple of <u>issues with Oregon's</u> <u>incentive programs, is not only the required application process for the low/moderate income rebate program involving a somewhat unwieldy and convoluted income checking process</u> with a contracted outside vendor, but <u>also the relatively</u> <u>long wait time for their processing</u>. If someone, for example, had to wait an entire year for the potential \$5,000 total a person could maximally qualify for, then if they had a car loan, if they had the money upfront, they could have applied it to the car loan's principle, and in the end paid less interest. *The time lag therefore obviously defeats the purpose of the program to some extent*, even if someone were to pay cash for their car, they could have invested their cash rebate for a year's interest or dividends, right?

The current law is a time-bomb ticking in terms of the reason the law was apparently created, passed and signed, to promote electric vehicle sales in the state. However, the entire program is set to expire on January 1<sup>st</sup>, 2024. When Holland immediately stopped their incentive program, electric car sales plummeted! The current law should be amended in two ways. **First, and obviously,** <u>the cash rebate program</u> (unless replaced with a grant program, for example) should, based on lessons learned from Holland, be phased out over time and <u>not abruptly stopped</u>. <u>Second,</u> <u>an evidence-based rationale for choosing when the rebate should begin to be phased out need to be developed rather</u> <u>than just an apparently arbitrary date</u>. For example, let's assume that there was a rationale behind the 2024 date. Well, things around the world have been up-ended because of the virus pandemic, therefore, given everything (we shall see later that although the rate of electric car sales growth decreased, electric cars sales continued during the second quarter of 2020 actually, pardon the expression, flattened the curve) <u>the current law should definitely be amended to</u> <u>be extended</u>. (Car sales numbers were maintained at the most recent and highest level of growth before leveling out, in other words people kept buying more EV's! during the second quarter of 2020!)

> ZERO-EMISSION AND ELECTRIC VEHICLE REBATES (Rebate Program; Provisions Operative January 1, 2018)

SECTION 148. As used in sections 148 to 152 of this 2017 Act:

(1) "Light-duty zero-emission vehicle" means a motor vehicle that:

(a) Has a gross vehicle weight rating of 8,500 pounds or less;

(b) Is capable of attaining a speed of 55 miles per hour or more; and

(c) Is powered:

(A) Primarily by an electric battery and may or may not use a flywheel energy storage device or a capacitor that also stores energy to assist in vehicle operation.

(B) By polymer electrolyte membrane fuel cells or proton exchange membrane fuel cells that use hydrogen fuel and oxygen from the air to produce electricity.

(C) Primarily by a zero-emission energy storage device that provides enough power for the vehicle to travel 75 miles or more using only electricity and may or may not use a backup alternative power unit that does not operate until the energy storage device is fully depleted.
(2) "Motor vehicle" has the meaning given that term in ORS 801.360.

(3) "Person" means a person as defined in ORS 174.100 or a public body as defined in ORS 174.109.

(4) "Plug-in hybrid electric vehicle" means a hybrid electric motor vehicle that:

(a) Has zero evaporative emissions from its fuel system;

(b) Has an onboard electrical energy storage device with useful capacity of 10 or more miles of urban dynamometer driving schedule range, as described by the United States Environmental Protection Agency, on electricity alone;

(c) Is equipped with an onboard charger;

(d) Is rechargeable from an external connection to an off-board electrical source;

(e) Meets the super ultra-low emission vehicle standards for exhaust emissions, as defined by the Environmental Quality Commission by rule;

(f) Has a warranty of at least 15 years and 150,000 miles on emission control components;

#### Promoting Electric Vehicles, Policy Success Measures World-wide

Another recent study (2018), How policy measures succeeded to promote electric mobility – Worldwide review and outlook by Nele Rietmann and Theo Lieven, further validates the value of developing and implementing such policy. Here's what the abstract says . . .

Electric vehicles (EVs) have been increasingly promoted through policy measures by governments across the world. <u>This study investigates the effectiveness of these measures in 20 countries by measuring the influence of monetary incentives, traffic regulations favoring EVs as well as the charging infrastructure on the market share of EVs in these countries. Results from a covariance-based structural equation model show that <u>all policy measures positively influence the percentage of EVs, specifically monetary measures in interaction with the charging infrastructure.</u> Moreover, findings indicate that <u>governmental measures promoting electric mobility reflect consumers' preferences</u> in the respective countries and that countries with a high purchasing power also have a higher EV penetration. An <u>analysis of the ratio between sold battery electric vehicles (BEVs) versus sold plug-in hybrid electric vehicles (PHEVs)</u> further shows that consumers are purchasing more BEVs (vs. PHEVs) over time. A closer examination of Norway, the Netherlands, Germany and Brazil, where EVs have been adopted more or less successfully, further highlights additional factors influencing EV adoption. It also <u>emphasizes the need for collaboration among stakeholders from the public and private sectors in order to promote EVs.</u> Finally, <u>a worldwide outlook predicts a growing acceptance of EVs over time</u>.</u>

What more can be said other than, not only are <u>monetary incentives but also in combination with charging</u> <u>infrastructure</u>, works! Again, not only yet another validation of what survey respondents expressed, but also of the effectiveness of government policy in charging ahead to the future with electric vehicles!

## Conclusion

"A vision without a plan is only a dream"

#### "Citizen" Electric Vehicle Plan for Oregon

There are various existing plans out there to promote electric vehicles in other states, and Oregon has various policies/strategies in place or still need to be developed. However, when one thinks about it, <u>the survey responses could</u> suggest a kind of "Citizen Electric Vehicle Plan for Oregon." Here's how.

<u>The raw data essentially represented something of a brainstorm session when all the responses are added up</u>. (A true brainstorming session is a group process whereby one person's idea may stimulate another, and although this was not the case, indeed, it may in some ways been better since it was individual's not being influenced by what others were sharing. Of course, such influence in a group setting can spark and stimulate other ideas, too, and in this case, it was lacking all the potential a true group brainstorming session can bring.)

**Brainstorming is one of the most important parts of a strategic planning process**, since it sets the tone and foundation for a meeting facilitator to move forward on develop the vision and mission statements, and the primary goals, along with objectives and strategy's to achieve them. The sense is that the ideas expressed, which apparently since the survey was anonymous in nature, people not only **got creative**, **they also were bold** in what they proposed. All the good marks of a great brainstorming session. Therefore, given everything, a further analysis of the responses could also suggest not only goals and objectives, but also strategy's to achieve them. (What will typically happen during a strategic planning brainstorm is that people will in fact blurt out goals, objectives and strategies, and from these, the vision and mission statements will evolve. Sometimes, <u>an unstated goal can be inferred from stated objectives</u>, and likewise for unstated <u>objectives</u>, inferred from stated strategies. And to finalize the plan, they must be organized, and where there are gaps, they need to be filled in through further discussion, or input, for example, from someone knowledgeable about the specific content of what the plan will address, such as an expert or consultant in the field.) So, **combining this report's survey responses** with some creative <u>input and insights</u> based upon my own experience as an EV owner, driver, plus having specialized knowledge through my recently earned Professional Certificate in Electric Cars, therefore somewhat at the level of a novice consultant, what kind of basic strategic plan could we come up with that puts it all together? Read on, and potentially be impressed!

# "Citizen" Electric Vehicle Plan for Oregon

### Vision – "Everyone Drives Electric Vehicles!"

Mission – **"Promoting Electric Vehicles"** statewide through implementing legislation and policy to realize their use and needed charging infrastructure

#### Goal 1. Develop the necessary charging infrastructure for electric vehicles statewide

Objectives

- 1. **Oregon Statewide Highway EV Network** provides needed charging access for all electric vehicles, both fast and level two speeds, with availability for all charging plugs, at reasonable cost, that are reliable, and with ease of payment.
- 2. Charging Infrastructure Accessible 24/7 at home and multifamily dwellings, work and businesses, public agencies and other appropriate locations in communities statewide, such as city streets, parking spaces, and major tourist attractions in local communities statewide.
- 3. **Renewable Emission-Free Energy Resources** are used to charge electric vehicles, especially with solar, wind and hydroelectric power generation.

#### Goal 2. Keep current and provide new incentives for the purchase of electric vehicles

Objectives

- 4. **Existing Cash Rebates** are extended but gradually phased-out on an evidence-based rationale to achieve the optimum balance of maximizing EV market share while minimizing monetary outlay, for both new and used electric vehicles, and for low to moderate income buyers.
- 5. State Tax Credits are developed that can rollover into succeeding tax years as an extra value-added incentive for the purchase or lease of new or used electric vehicles, and for the purchase or use of chargers and the associated costs of installation or use.
- 6. Electric Vehicle Benefits/Rewards are developed, such as ability to use High Occupancy Vehicle (HOV) lanes, free parking while charging in EV dedicated spaces on metered streets or parking garages, providing charging infrastructure at EV dedicated metered parking areas, electric utility cash or billing credit incentives for the purchase, use or installation of EV charging equipment or charging during non-peak hours.

#### Goal 3. Educate the public about electric vehicles and incentives to purchase or lease them

Objectives

- 7. EV Strategic Plan & Marketing Campaign is developed as a formal and collaborative " 'Lectric' Educational Agency Partnership" ("LEAP!") between relevant state agencies to develop the overall goals, objectives, specific strategies with appropriate project management time-lines and staff commitments to create and produce materials and other resources needed for special events, outreach partnerships and to provide technical assistance to others.
- 8. **EV Special Events** are developed by relevant state agencies, such as the Oregon Department of Energy, the Oregon Department of Transportation, the Oregon Tourism Commission to educate and promote EV's.
- 9. **EV Outreach Partnerships** are initiated and cultivated through state agencies reaching out to non-profit groups, relevant or interested businesses, and appropriate government agencies; overall, partners especially addressing air quality, climate change, sustainability, tourism, equity, and renewable energy to develop specific opportunities and resources to educate the public about EV's.
- 10. **EV Technical Assistance** is provided by various state agency staff working as team members of the 'Lectric' Educational A Partnership (LEAP!) from planning to implementation and providing materials and other resources to non-agency groups involved in the EV Outreach Partnership program.

#### In Summary . . . "Charge, Incentivize, Educate!"

# "Oregon's EV Strategy"

Governor Kate Brown's 2017 **Executive Order No. 17-21** describes **Oregon's multi-agency strategy** for reaching 50,000 ZEVs by 2020:

This website is brought to you by State of Oregon agencies focused on supporting electric vehicle adoption and infrastructure in the state. (essentially what would appear to be their "mission statement")

Regulation (the "mandates" referenced earlier)

- DEQ will work with the Environmental Quality Commission to maintain consistency with California's <u>zero emission vehicle regulation</u>. DEQ will participate in federal assessments of vehicle emissions standards and work with the Department of Justice to take appropriate steps to retain California's exemption for vehicle standards that are <u>more protective of air quality</u> under the Clean Air Act Section 209.
- DEQ will implement the Clean Fuels Program to <u>support greater EV adoption in cooperation with</u> the PUC, investor-owned <u>utilities</u>, and consumer-owned utilities. This implementation will include a method to aggregate and <u>monetize all eligible EV credits</u>. (incentives)
- PUC is overseeing <u>transportation electrification requirements</u> in SB 1547, and investor-owned utilities are implementing their transportation electrification plans to <u>encourage greater EV adoption</u>.

Charging Infrastructure (where have I heard that before!)

- DAS and ODOE will <u>develop a plan and estimated budget through 2025 to install EV chargers for</u> <u>agency-owned EVs</u>, **public charging** at state facilities, and **employee charging**. (YES!)
- •
- DEQ, in cooperation with ODOT, and the Oregon Health Authority Public Health Division, will develop a
  plan to leverage up to 15 percent of the Volkswagen Mitigation Fund to <u>develop and maintain EV</u>
  <u>charging stations with a focus on *connecting* rural communities, *low-income* communities, and
  <u>Oregonians living in multi-family homes</u>, while complementing the recently established "Charge
  Ahead" EV Rebate Program. (charging network, equity and access)
  </u>
- •
- PUC will support the implementation of investor owned utilities' SB 1547 transportation electrification plans, especially to <u>encourage programs for *moderate- and low-income* communities</u>.
- •
- DAS will <u>add EV charging to the priority criteria for **parking lot** waitlists, add <u>EV charging capacity for</u> <u>employee and public visitor parking lots</u>, develop contracts for <u>installing charging infrastructure</u>, and <u>incorporate EV charging as a tenant improvement</u> for state-leased buildings.</u>
- •
- ODOT, in cooperation with ODOE, DEQ, PUC, and local governments, will facilitate the deployment
  process of VW's "Electrify America" investments and projects under the current investment period for
  the ZEV Fund of the VW Diesel Settlement. In addition, these agencies will develop proposals for future
  30-month investment periods for the fund.

•

• DCBS-BCD and its advisory board(s) will conduct <u>code amendment</u> of the state building code to require that parking structures for all newly constructed residential and commercial buildings are ready to support the installation of at least a Level 2 charger by October 1, 2022. (charging, yes!)

#### WHAT'S THAT ACRONYM?

- DEQ Department of Environmental Quality
- PUC Public Utilities Commission
- ODOE Oregon Department of Energy
- ODOT Oregon Department of Transportation
- DAS Department of Administrative Services
- DCBS-BCD Building Codes Division

#### **Fleet Conversion**

- DAS, <u>in cooperation with all agencies</u>, will inform and support legislative changes to enable increased charging infrastructure projects and EV purchases within state government.
- DAS will develop a <u>"Low-Emission Vehicle First" policy to encourage state employees to first use</u> <u>electric vehicles or other low-emission vehicles in the state fleet</u>.
- DAS, in cooperation with ODOE, will calculate the long-term return on investment of EVs by taking into account cost-savings from fuel and maintenance. This calculation will <u>inform projected cost and</u> <u>cost recovery for EVs and plans for greater fleet conversion.</u>
- DAS and ODOE will improve the use of the West Coast Electric Fleets initiative for electric vehicle bulk procurement to reduce costs for EV purchases.
- DAS and ODOE <u>will assist</u> Oregon officials, including the Secretary of State, State Treasurer, Attorney General, or the Commissioner of the Bureau of Labor and Industries <u>if they wish to adopt policies and</u> <u>practices to accelerate zero emission vehicle adoption.</u> (technical assistance?)

## Outreach

- ODOE will <u>lead a collaborative effort to develop goals</u>, metrics, and other indicators of progress for <u>Oregon's EV goals</u>, and will develop a website to share information with the public. (plan and educate)
- ODOE will <u>lead a strategic effort to engage consumer and public-owned utilities to enable increased EV</u> <u>adoption and provide technical assistance on strategies</u> to accommodate increased loads on their electric systems.
- PUC will <u>develop strategies to encourage continuous improvement of **outreach and education** plans under the investor owned utilities' SB 1547 <u>transportation electrification plans</u>, especially to encourage <u>programs for moderate- and low-income communities</u>.</u>
- DEQ will <u>develop strategies to help ensure Oregonians are informed about the opportunities to reduce</u> <u>EV purchase and lease costs under the EV Rebate program, in addition to outreach with low-income</u> <u>communities and organizations for the "Charge Ahead" rebate program</u>. (education and outreach)
- ODOE, working with ODOT, PUC, DEQ, and the Department of Education, is directed to <u>develop tools</u> and information to help school districts make decisions about **zero emission bus** options when replacing school buses.
- ODOT, working with ODOE, PUC, and DEQ, is directed to <u>develop tools</u>, <u>information</u>, <u>and best practices</u> <u>to help transit agencies make decisions about zero emission bus technology adoption in transit fleets or</u> <u>districts</u>.

• ODOT, ODOE, DEQ, and the OHA Public Health Division will work with transit agencies and others to assess how ZEV technologies can help to reduce emissions and improve public health in the heavy-duty sector, including through the accelerated transition to zero-emission buses.

#### Incentives

- DEQ will implement the **Oregon Clean Vehicle Rebate** program, which will provide rebates ranging between \$750 and \$2500, to encourage Oregonians to **purchase** *or lease* **new and** *used* **EVs**.
- ODOE will design and establish a "Governor's Award" for <u>automobile dealerships to encourage sales</u> of electric vehicles, such as the highest annual electric vehicle sales and highest percentage per capita of electric vehicle sales in a year. (a survey response was **property tax credits** for dealerships based on electric vehicles sold annually)
- ODOE will design and establish a "Governor's Award" that recognizes <u>businesses and organizations</u> <u>that support EV adoption, such as through installing charging infrastructure and converting fleets to</u> <u>electric vehicles</u>. (survey responses suggested *larger cash rebates* to businesses and government)

## **Private Sector Partnerships**

 Provide a forum where the private sector, tribes, non-governmental organizations, local governments, and other non-state entities can make EV commitments, such as workplace charging or fleet conversion, to accelerate EV adoption in the state.

**FINAL FOOTNOTE** . . . I had not really read in any detail the Oregon EV Strategy until AFTER developing the "Citizen" Electric Vehicle Plan for Oregon based upon the responses and my specialized knowledge of EV policy, therefore . . . *what an incredible match!* 



"Charge Ahead to the Future . . . Take a Test Drive\* and <u>Go Electric</u>!" \*(I dare you!)

# Appendix

# Raw Survey Data Questions & Responses

## "Promoting Electric Cars in Oregon"

# Q1. If you own or lease an electric/hybrid car(s), how many years have you had it? What make(s), model(s) and year(s)? OR . . . If you don't own or lease one, what has prevented you from getting one?

Answered: 73 Skipped: 0 Showing 73 responses

Current Owned chevy volt for five years, now leasing chevy bolt 7/23/2020 4:34 PM Add tags -View respondent's answers Current 2019 Chevy Bolt-owned for 21 months; 2014 Nissan Leaf-owned 4 years; 2013 Nissan Leaf-leased 2013-2016 7/22/2020 9:36 PM Add tags – View respondent's answers Current My household currently owns 2 older ICE vehicles (both paid off). We intend to consolidate to 1 electric vehicle within the next 1-2 years. We currently do not have a garage or carport, and have to utilize street parking, which makes home charging not really an option. 7/20/2020 9:10 AM Add tags -View respondent's answers Current 4 7/19/2020 6:38 PM Add tags – View respondent's answers Current I've owned my 2020 Chevrolet Bolt LT 3 and 1/2 months 7/19/2020 5:30 PM Add tags -View respondent's answers Current Own (2) EVs: 2018 Tesla Model 3 and 2016 Model X 7/19/2020 4:50 PM Add tags -View respondent's answers Current 9 years, BEVs, Nissan, Mercedes @ Tesla 7/19/2020 4:32 PM Add tags – View respondent's answers Current

2016 Kia Soil ev. Owned 2 years 7/18/2020 10:21 PM Add tags -View respondent's answers Current 3 year lease in last month of Fiat 500e 7/18/2020 5:58 PM Add tags -View respondent's answers Current 2019 Chevy Bolt, 11 months 7/18/2020 2:43 PM Add tags -View respondent's answers Current Tesla Model 3 - 10 months 7/17/2020 2:31 PM Add tags -View respondent's answers Current 2011 Think City (1 year), 2015 Ford Focus Electric (1 year) 7/17/2020 8:56 AM Add tags -View respondent's answers Current 3 7/16/2020 10:51 PM Add tags -View respondent's answers Current 14 7/16/2020 9:57 AM Add tags -View respondent's answers Current 2007 ZAP Xebra, 2012 Mitsubishi iMiEV 7/15/2020 9:17 PM Add tags -View respondent's answers Current 4 years Nissan LEAF; 2 years Chevy Bolt 7/15/2020 4:47 PM Add tags -View respondent's answers Current 1.5 years- Bolt EV; 8 years- Prius hybrid prior to Bolt 7/15/2020 8:37 AM Add tags -View respondent's answers Current 2015 Nissan Leaf: owned 16 months (~1 year ) 7/14/2020 10:08 PM Add tags -

View respondent's answers Current 2018 Tesla Model 3 since Feb 2018 7/14/2020 8:27 PM Add tags – View respondent's answers Current Chevy Volt since 2014 7/14/2020 8:12 PM Add tags -View respondent's answers Current We have owned two Priuses: 2006 and 2015 7/14/2020 6:36 PM Add tags -View respondent's answers Current 2 yrs, Tesla Model 3, 2018 7/14/2020 6:30 PM Add tags -View respondent's answers Current 2013 Nissan Leaf, 3 years and 2018 Tesla Model 3, 2 years 7/14/2020 6:03 PM Add tags -View respondent's answers Current Yes I own a Chevy Volt for over 2 years now 7/14/2020 6:00 PM Add tags -View respondent's answers Current I have owned a 2015 Nissan Leaf for a little over one year. 7/14/2020 2:54 PM Add tags – View respondent's answers Current We have owned a 2016 Toyota Avalon Hybrid for 2 years. 7/14/2020 2:05 PM Add tags -View respondent's answers Current Initial cost, range, charging rate 7/14/2020 1:54 PM Add tags -View respondent's answers Current Leaf from 2011 to 2014, Leaf from 2015 to 2019, Tesla Model 3 from 2018 to present 7/14/2020 1:51 PM Add tags -View respondent's answers Current Nissan Leaf 2019. Have had for a year.

7/14/2020 1:45 PM Add tags -View respondent's answers Current yes, 8 years, 2011 Think City, 2015 Chevy Spark EV, 2014 VW eGolf, 2017 Ford C Max Energi, 2018 Ford Focus Electric 7/14/2020 1:44 PM Add tags -View respondent's answers Current 2108 Chrysler Pacific Plug in Hybrid, purchased new in June 2018 7/14/2020 12:36 PM Add tags -View respondent's answers Current 1994 Chevy S10 for 12 years, 2011 Think City for 0.5 years, 2017 Chevy Volt for 4 years 7/14/2020 12:22 PM Add tags -View respondent's answers Current Own 2, first is five years old second is 2 7/14/2020 11:37 AM Add tags -View respondent's answers Current Trying to decide if it would pay, since I am no longer driving much. 7/14/2020 11:07 AM Add tags -View respondent's answers Current Almost 2 years. It is a 2016 BMW i3, very affordable because it was 2 years old when we bought it. 7/14/2020 11:05 AM Add tags -View respondent's answers Current I have three electric cars. A 2011 Nissan leaf with 174,000 miles. A 2018 Tesla model three with 42,000 miles. A 2020 Tesla model Y with 2000 miles on it. 7/14/2020 10:48 AM Add tags -View respondent's answers Current 2011 Leaf, 9 years; 2018 Model 3 Tesla, 2 years 7/14/2020 10:43 AM Add tags -View respondent's answers Current 2 years; 2018 Tesla Model 3 AWD 7/14/2020 10:39 AM Add tags -View respondent's answers Current We've owned 4 Priuses since 2008, presently have a 2015 Prius and a 2018 Tesla 3. 7/14/2020 10:39 AM Add tags -

View respondent's answers Current 2013 Nissan Leaf, had it 7 years 7/14/2020 10:25 AM Add tags – View respondent's answers Current 2018 Tesla Model 3 7/14/2020 10:20 AM Add tags – View respondent's answers Current Chevy Spark EV 4 years 7/14/2020 10:01 AM Add tags -View respondent's answers Current 2013 Leaf (4 years) and 2020 Tesla Model Y (2 weeks) 7/14/2020 9:45 AM Add tags -View respondent's answers Current We own two electric vehicles (our only cars). We have had each one (Tesla X, Kia Soul EV) about two years and hada Model S Tesla for about a year before these. Previously I owned two electric conversions for a total of about 6 years. 7/14/2020 9:37 AM Add tags – View respondent's answers Current 2008 Toyota Prius since 2014 7/14/2020 9:32 AM Add tags -View respondent's answers Current 5 years, 2015 Leaf 7/14/2020 9:26 AM Add tags – View respondent's answers Current I own a 2019 Nissan LEAF 7/14/2020 9:15 AM Add tags -View respondent's answers Current I have a Nissan Leaf since 2013. 7/14/2020 9:02 AM Add tags -View respondent's answers Current My low gas mileage Subaru Impreza is working just fine. 7/14/2020 9:00 AM Add tags -View respondent's answers Current
one and a half years 7/14/2020 9:00 AM Add tags -View respondent's answers Current 2011 Leaf (2011 - 2017); 2015 Leaf (2017 - 2019); 2014 Volt (2018-2019); 2014 Leaf (2017-today); 2018 Model 3 (2018today); 2019 Bolt (2019-today) 7/14/2020 8:58 AM Add tags -View respondent's answers Current 4 years, 2013 NiSSAN IEAF, Miles NEV 5 years 7/14/2020 8:50 AM Add tags -View respondent's answers Current 1 7/14/2020 8:34 AM Add tags – View respondent's answers Current Prius since 2009, Tesla 3 - 2020 7/14/2020 8:34 AM Add tags -View respondent's answers Current July 2017, picked up my 2013 Nissan Leaf SV 7/14/2020 8:12 AM Add tags -View respondent's answers Current Chevy Bolt for 1 year 7/14/2020 8:09 AM Add tags -View respondent's answers Current 4 7/14/2020 8:04 AM Add tags -View respondent's answers Current Tesla Model 3 - 2+ years; Chevy Volts - 5 years 7/14/2020 7:49 AM Add tags -View respondent's answers Current I lease a 2018 Nissan Leaf. I've been leasing it since 12/26/18 7/14/2020 6:50 AM Add tags -View respondent's answers Current 1 year.2019 Chevy Bolt 7/14/2020 5:48 AM

Add tags -View respondent's answers Current Since I got rid of my last car in 1983, I developed the habit of walking and using mass transit. 7/14/2020 12:30 AM Add tags – View respondent's answers Current 2.5 years for this one 7/14/2020 12:01 AM Add tags -View respondent's answers Current 6.5 years, Honda Fit EV/Clarity Electric 7/13/2020 11:41 PM Add tags -View respondent's answers Current Right now, availability is VERY limited. I'd like to buy an EV like the Kia Niro but there are none at the dealer. 7/13/2020 11:21 PM Add tags -View respondent's answers Current 3 years/2016 Nissan Leaf 7/13/2020 11:03 PM Add tags – View respondent's answers Current I am waiting for the right vehicle to come to market. 7/13/2020 10:45 PM Add tags -View respondent's answers Current I have owned and driven an Arcimoto Evergreen FUV since November, 2019. I love it. 7/13/2020 10:40 PM Add tags -View respondent's answers Current BMW i3 for 6 months, Chevy Spark EV for 3 years before that 7/13/2020 10:36 PM Add tags -View respondent's answers Current 2 7/13/2020 10:35 PM Add tags – View respondent's answers Current 1968 vw bug with 9 lead acid batteries, i've had it 3 years 7/13/2020 10:25 PM Add tags -View respondent's answers Current

3 years. Nissan leaf 7/13/2020 10:21 PM Add tags – View respondent's answers Current 8 years, Tesla Model S, 3 Years Tesla Model X 7/13/2020 10:15 PM Add tags – View respondent's answers Current I own a 2019 Chevy Bolt, for one year, formerly had a 2017 Nissan Leaf 7/13/2020 8:26 PM

#### Q2. What Oregon county and city/town do you live in or near?

Answered: 72 Skipped: 1 Showing 72 responses

Current lane county eugene 7/23/2020 4:34 PM Add tags -View respondent's answers Current Lane County-20 miles SW of Eugene 7/22/2020 9:36 PM Add tags -View respondent's answers Current Eugene, Lane County 7/20/2020 9:10 AM Add tags -View respondent's answers Current Multnomah 7/19/2020 6:38 PM Add tags – View respondent's answers Current Washington, North Plains 7/19/2020 5:30 PM Add tags -View respondent's answers Current ASHLAND 7/19/2020 4:50 PM Add tags -View respondent's answers Current Beaverton 7/19/2020 4:32 PM Add tags -View respondent's answers

Current Lane, Eugene 7/18/2020 10:21 PM Add tags -View respondent's answers Current Portland 7/18/2020 5:58 PM Add tags -View respondent's answers Current Lane, Eugene 7/18/2020 2:43 PM Add tags -View respondent's answers Current Eugene 7/17/2020 2:31 PM Add tags -View respondent's answers Current Gresham, OR, Multnomah County. Work in Clackamas County 7/17/2020 8:56 AM Add tags -View respondent's answers Current Washington Beaverton 7/16/2020 10:51 PM Add tags -View respondent's answers Current Lane 7/16/2020 9:57 AM Add tags -View respondent's answers Current Multnomah Portland 7/15/2020 9:17 PM Add tags -View respondent's answers Current Multnomah, Portland 7/15/2020 4:47 PM Add tags -View respondent's answers Current Lane, Eugene 7/15/2020 8:37 AM Add tags -View respondent's answers Current Washington Cty, Cornelius 97113 7/14/2020 10:08 PM

Add tags -View respondent's answers Current Eugene, Oregon 7/14/2020 8:27 PM Add tags – View respondent's answers Current Eugene 7/14/2020 8:12 PM Add tags -View respondent's answers Current Lane County, Eugene 7/14/2020 6:36 PM Add tags -View respondent's answers Current Washington, Hillsboro 7/14/2020 6:30 PM Add tags -View respondent's answers Current Clackamas county near Milwaukie 7/14/2020 6:03 PM Add tags -View respondent's answers Current COTTAGE GROVE 7/14/2020 6:00 PM Add tags -View respondent's answers Current Lane County; in Springfield 7/14/2020 2:54 PM Add tags -View respondent's answers Current We live in Multnomah county in Portland, OR. 7/14/2020 2:05 PM Add tags -View respondent's answers Current Benton corvallis 7/14/2020 1:54 PM Add tags -View respondent's answers Current Newberg, Oregon - Yamhill County 7/14/2020 1:51 PM Add tags -View respondent's answers Current

Lane County, Eugene 7/14/2020 1:45 PM Add tags -View respondent's answers Current Lane, Springfield 7/14/2020 1:44 PM Add tags -View respondent's answers Current Eugene 7/14/2020 12:36 PM Add tags -View respondent's answers Current Philomath 7/14/2020 12:22 PM Add tags -View respondent's answers Current Lane county, Creswell 7/14/2020 11:37 AM Add tags -View respondent's answers Current Eugene 7/14/2020 11:07 AM Add tags -View respondent's answers Current Eugene, in Lane County 7/14/2020 11:05 AM Add tags -View respondent's answers Current Washington county. Tigard. 7/14/2020 10:48 AM Add tags -View respondent's answers Current eugene, Lane County 7/14/2020 10:43 AM Add tags -View respondent's answers Current Washington County, adjacent to Portland 7/14/2020 10:39 AM Add tags -View respondent's answers Current Lane, Eugene 7/14/2020 10:39 AM Add tags -

View respondent's answers Current County of Lane, City of Eugene 7/14/2020 10:25 AM Add tags -View respondent's answers Current Eugene 7/14/2020 10:20 AM Add tags -View respondent's answers Current Lane County, Eugene OR 7/14/2020 10:01 AM Add tags -View respondent's answers Current Lane, Eugene 7/14/2020 9:45 AM Add tags -View respondent's answers Current Jackson Co. - Ashland, OR 7/14/2020 9:37 AM Add tags -View respondent's answers Current Eugene, Lane Co. 7/14/2020 9:32 AM Add tags -View respondent's answers Current Portland 7/14/2020 9:26 AM Add tags – View respondent's answers Current Cottage Grove, Lane Cty 7/14/2020 9:15 AM Add tags -View respondent's answers Current Lane County - Eugene & Marcola. 7/14/2020 9:02 AM Add tags -View respondent's answers Current Eugene 7/14/2020 9:00 AM Add tags -View respondent's answers Current Eugene, Lane County

7/14/2020 9:00 AM Add tags -View respondent's answers Current PORTLAND 7/14/2020 8:58 AM Add tags -View respondent's answers Current Benton, Corvallis 7/14/2020 8:50 AM Add tags -View respondent's answers Current Lane County 7/14/2020 8:34 AM Add tags -View respondent's answers Current Lane Co., Eugene 7/14/2020 8:34 AM Add tags -View respondent's answers Current Springfield 7/14/2020 8:12 AM Add tags -View respondent's answers Current Eugene 7/14/2020 8:04 AM Add tags -View respondent's answers Current Lance County - Marcola 7/14/2020 7:49 AM Add tags -View respondent's answers Current Eugene 7/14/2020 6:50 AM Add tags -View respondent's answers Current Springfield 7/14/2020 5:48 AM Add tags -View respondent's answers Current Portland, Multnomah County 7/14/2020 12:30 AM Add tags -View respondent's answers

Current Benton, Corvallis 7/14/2020 12:01 AM Add tags -View respondent's answers Current Clackamas County, Wilsonville 7/13/2020 11:41 PM Add tags -View respondent's answers Current Eugene 7/13/2020 11:21 PM Add tags -View respondent's answers Current Eugene, Or. 7/13/2020 11:03 PM Add tags -View respondent's answers Current Lane County, Eugene 7/13/2020 10:45 PM Add tags -View respondent's answers Current Eugene, Oregon 7/13/2020 10:40 PM Add tags -View respondent's answers Current Lane, Eugene 7/13/2020 10:36 PM Add tags -View respondent's answers Current Eugene 7/13/2020 10:35 PM Add tags -View respondent's answers Current Eugene 7/13/2020 10:25 PM Add tags -View respondent's answers Current Lane/Springfield 7/13/2020 10:21 PM Add tags -View respondent's answers Current Eugene, Lane County, OR 7/13/2020 10:15 PM

Add tags – View respondent's answers Current Lane County, Eugene 7/13/2020 8:26 PM

Answered: 73 Skipped: 0

## Q3. If you bought or leased an electric/hybrid car, did you take advantage of the existing state cash rebate incentives, the Oregon Clean Vehicle Rebate or the Oregon Charge Ahead Rebate? If so, did you qualify for only one or both?

Showing 73 responses Current both 7/23/2020 4:34 PM Add tags -View respondent's answers Current I qualified for the standard Oregon Clean Vehicle Rebate, but through a financial glitch, didn't qualify for the Charge Ahead Rebate 7/22/2020 9:36 PM Add tags -View respondent's answers Current N/A 7/20/2020 9:10 AM Add tags -View respondent's answers Current Yes 7/19/2020 6:38 PM Add tags -View respondent's answers Current Yes. The Oregon Clean Vehicle Rebate 7/19/2020 5:30 PM Add tags -View respondent's answers Current OR Cash Rebate of \$2,500 on 2018 Tesla Model 3 7/19/2020 4:50 PM Add tags -View respondent's answers Current Yes, only the \$2500 7/19/2020 4:32 PM Add tags -View respondent's answers Current No, did not qualify, used car 7/18/2020 10:21 PM Add tags -View respondent's answers

Current one 7/18/2020 5:58 PM Add tags -View respondent's answers Current The first one. Unaware of the latter one. 7/18/2020 2:43 PM Add tags -View respondent's answers Current Oregon 7/17/2020 2:31 PM Add tags -View respondent's answers Current Got Federal tax deduction and Oregon Charge Ahead is in progress 7/17/2020 8:56 AM Add tags -View respondent's answers Current Bith 7/16/2020 10:51 PM Add tags -View respondent's answers Current **Clean Vehicle Rebate** 7/16/2020 9:57 AM Add tags -View respondent's answers Current 2008 state tax credit 7/15/2020 9:17 PM Add tags -View respondent's answers Current 1 7/15/2020 4:47 PM Add tags -View respondent's answers Current Yes. Both. 7/15/2020 8:37 AM Add tags -View respondent's answers Current OCVRP applied for, still waiting 7/14/2020 10:08 PM Add tags -View respondent's answers Current Yes. Both 7/14/2020 8:27 PM

Add tags -View respondent's answers Current We used the Clean Vehicle Rebate 7/14/2020 8:12 PM Add tags – View respondent's answers Current We got a rebate for the 2006 Prius, but can't remember if it was a State or Federal program. 7/14/2020 6:36 PM Add tags -View respondent's answers Current Yes, Oregon Clean Vehicle Rebate 7/14/2020 6:30 PM Add tags -View respondent's answers Current Only one rebate, the Clean Vehicle Rebate. No rebate for used cars back in 2016. 7/14/2020 6:03 PM Add tags -View respondent's answers Current OR 7/14/2020 6:00 PM Add tags – View respondent's answers Current I did not qualify for either rebate. 7/14/2020 2:54 PM Add tags -View respondent's answers Current I don't believe any rebates or incentives were available on a used car when we bought ours. 7/14/2020 2:05 PM Add tags -View respondent's answers Current Have not bought 7/14/2020 1:54 PM Add tags -View respondent's answers Current When leasing the Leafs, yes. No on the Tesla (applied, but did not receive) 7/14/2020 1:51 PM Add tags -View respondent's answers Current Have applied for Oregon Clean Vehicle, but have not heard from them yet. We did not qualigy for the Oregon charge ahead, 7/14/2020 1:45 PM Add tags -View respondent's answers

Current Yes, Clean Vehicle Rebate 7/14/2020 1:44 PM Add tags -View respondent's answers Current I'm eligible for and still trying to get access to the Oregon Clean Vehicle Rebate. 7/14/2020 12:36 PM Add tags -View respondent's answers Current Only the Volt was purchased new, the others were used and so didn't qualify 7/14/2020 12:22 PM Add tags -View respondent's answers Current Yes 7/14/2020 11:37 AM Add tags – View respondent's answers Current N/A 7/14/2020 11:07 AM Add tags -View respondent's answers Current I think it was the Oregon Clean Vehicle Rebate. 7/14/2020 11:05 AM Add tags -View respondent's answers Current Are use the Oregon clean vehicle rebate. I did not qualify for the charger head rebate. 7/14/2020 10:48 AM Add tags -View respondent's answers Current OR. tax rebate in 2011, and a Clean Vehicle Rebate in 2018, not positive about the names of the rebate 7/14/2020 10:43 AM Add tags -View respondent's answers Current Yes; OCVR only 7/14/2020 10:39 AM Add tags -View respondent's answers Current Oregon Clean Vehicle for our Tesla. 7/14/2020 10:39 AM Add tags -View respondent's answers Current not sure which, but only one 7/14/2020 10:25 AM

Add tags -View respondent's answers Current Not entirely sure. Oregon Clean Vehicle Rebate, I think. 7/14/2020 10:20 AM Add tags – View respondent's answers Current Yes. Only qualified for one. 7/14/2020 10:01 AM Add tags -View respondent's answers Current Haven't checked in on that yet. Tesla says I'm eligible for \$2500, but since the car price was over \$50,000, that says I'm not eligible. So can't answer the question. I should be eligible for a \$500 EWEB rebate for the charger. 7/14/2020 9:45 AM Add tags -View respondent's answers Current The Model S & X each qualified for State & Fed tax credits. The Kia was used and didn't qualify. 7/14/2020 9:37 AM Add tags -View respondent's answers Current No 7/14/2020 9:32 AM Add tags -View respondent's answers Current No, they did not exist when I bought. 7/14/2020 9:26 AM Add tags -View respondent's answers Current I used the OR CleanVehicle Rebate; I didn't qualify for the OR Charge Ahead Rebate 7/14/2020 9:15 AM Add tags – View respondent's answers Current I may have got a state rebate. 7/14/2020 9:02 AM Add tags -View respondent's answers Current Oregon 7/14/2020 9:00 AM Add tags -View respondent's answers Current yes ... qualified for one 7/14/2020 9:00 AM Add tags -View respondent's answers

Qualified for and received the Oregon Clean Vehicle Rebate on the Model 3 and Bolt. I don't qualify for the Charge Ahead Rebate. 7/14/2020 8:58 AM Add tags – View respondent's answers Current No 7/14/2020 8:50 AM Add tags -View respondent's answers Current No 7/14/2020 8:34 AM Add tags -View respondent's answers Current I don't know 7/14/2020 8:34 AM Add tags -View respondent's answers Current Not available at the time 7/14/2020 8:12 AM Add tags -View respondent's answers Current Bought a used Bolt and received the Charge Ahead Rebate for used EV 7/14/2020 8:09 AM Add tags -View respondent's answers Current HI 7/14/2020 8:04 AM Add tags – View respondent's answers Current Yes, the \$2500 one 7/14/2020 7:49 AM Add tags -View respondent's answers Current Oregon Clean Vehicle Rebate is the only one I qualified for. 7/14/2020 6:50 AM Add tags -View respondent's answers Current OR clean Vehicle rebate 7/14/2020 5:48 AM Add tags -View respondent's answers Current N/A

Current

7/14/2020 12:30 AM Add tags -View respondent's answers Current Yes, CVR 7/14/2020 12:01 AM Add tags -View respondent's answers Current CVRP, did not qualify for Charge Ahead 7/13/2020 11:41 PM Add tags -View respondent's answers Current OR 7/13/2020 11:21 PM Add tags -View respondent's answers Current Yes, both 7/13/2020 11:03 PM Add tags -View respondent's answers Current NA 7/13/2020 10:45 PM Add tags -View respondent's answers Current I Qualified for one and sent in the forms but they have not sent me any money yet! 7/13/2020 10:40 PM Add tags -View respondent's answers Current Can't recall for Spark. For BMW, available rebates were included in lease. However, I seem to recall that a number of dealerships I spoke with weren't equipped to take advantage of the Clean Vehicle rebate. 7/13/2020 10:36 PM Add tags -View respondent's answers Current Yes, both 7/13/2020 10:35 PM Add tags -View respondent's answers Current no 7/13/2020 10:25 PM Add tags -View respondent's answers Current No 7/13/2020 10:21 PM Add tags –

View respondent's answers Current No. They did not exist at the time of purchase 7/13/2020 10:15 PM Add tags – View respondent's answers Current Yes, I took advantage of both of them. 7/13/2020 8:26 PM

# Q4. What other incentives could the state add for individuals, businesses, or public entities to promote electric/hybrid use?

Answered: 68 Skipped: 5 Showing 68 responses

Current promote local produced elecity vrs fossel fuels from out of state 7/23/2020 4:34 PM Add tags -View respondent's answers Current The state should have rebates for businesses who buy EVs to add to their fleet. Cities and counties should also receive financial incentives or just funding for purchasing EVs for employee use on the job. Car dealerships should be given tax incentives for increasing their EV sales. 7/22/2020 9:36 PM Add tags -View respondent's answers Current I think there could be better cash-on-the hood incentives and home charging. But mainly I believe the state needs to disincentive fossil-fuel powered vehicles. There should be extra costs if a consumer chooses to continue to contribute to the climate crisis. That could be taxes/fees on the vehicle, gasoline, and emissions testing. I would like to see state-mandated emissions testing, with escalating fees based on the emissions of the vehicle. 7/20/2020 9:10 AM Add tags – View respondent's answers Current Increase rebate amount. Encourage businesses to add quick charging stations around the state. 7/19/2020 6:38 PM Add tags -View respondent's answers Current Clearer rebates on home car chargers. 7/19/2020 5:30 PM Add tags -View respondent's answers Current Free EV DC Fast Charging at ALL Oregon Hwy/Freeway Rest Stops. 7/19/2020 4:50 PM Add tags – View respondent's answers Current Chargers, Solar panels & ESS to go with them.

7/19/2020 4:32 PM Add tags -View respondent's answers Current Used car rebates 7/18/2020 10:21 PM Add tags – View respondent's answers Current a better Electric upgrade at home 7/18/2020 5:58 PM Add tags -View respondent's answers Current More charging stations in towns and along the highways. Some should be fast chargers especially on the highways. 7/18/2020 2:43 PM Add tags -View respondent's answers Current Free charging for a period of time 7/17/2020 2:31 PM Add tags -View respondent's answers Current DO NOT increase the registration fees to an unrealistic amount that is far more than the gas tax would be for a comparable car. I am paying 3 times what I pay for my gas cars and even our SUV does not generate an equivalent gas tax 7/17/2020 8:56 AM Add tags -View respondent's answers Current Incentives for smart charger and cheaper time of use electricity rates 7/16/2020 10:51 PM Add tags -View respondent's answers Current as many as possible! Cheaper registration, low miles insurance 7/15/2020 9:17 PM Add tags -View respondent's answers Current Vehicle registration discount, free parking, rebate/tax credit for electric vehicle supply equipment at residences-multifamily buildings-businesses, electric vehicle supply equipement property tax exemptions 7/15/2020 8:37 AM Add tags -View respondent's answers Current none - instead remove incentives for petroleum. (Eliminate depletion allowance, hasten CAFE standards, military defence of oil production paid with fuel taxes) 7/14/2020 10:08 PM Add tags – View respondent's answers Current Continue some rebates/financial incentives until EVs are even more mainstream

7/14/2020 8:27 PM Add tags -View respondent's answers Current The infrastructure for quick charging needs to be improved. Hotels should get a break for installing some. Every parking lot should have a few, should 7/14/2020 8:12 PM Add tags – View respondent's answers Current At the pump, have a hybrid only pump with reduced state taxes. Also, roll back the higher vehicle registration fees for energy efficient cars. 7/14/2020 6:36 PM Add tags -View respondent's answers Current motivate apartments and condos to add charging stations 7/14/2020 6:30 PM Add tags – View respondent's answers Current Multifamily housing Level 2 chargers for lower income levels would allow 80 mile used EVs to replace old ICE beaters with used clean low cost 80 mile range EVs. 7/14/2020 6:03 PM Add tags -View respondent's answers Current charging equipment 7/14/2020 6:00 PM Add tags -View respondent's answers Current I don't have any other incentives in mind just now. 7/14/2020 2:54 PM Add tags – View respondent's answers Current Limiting or removing a road tax on EVs/hybrids would help. 7/14/2020 2:05 PM Add tags -View respondent's answers Current battery warranty 7/14/2020 1:54 PM Add tags -View respondent's answers Current Fund for or rebates on car charging installation for businesses. 7/14/2020 1:51 PM Add tags -View respondent's answers Current Require city and state agencies to have a percentage of their fleet be electric. Subsidize electric charging stations,

particularly fast charge stations with freeway and highway access. 7/14/2020 1:45 PM Add tags -View respondent's answers Current Credit for EVSE install 7/14/2020 1:44 PM Add tags -View respondent's answers Current incentives for public chargers especially for apartments or housing that doesn't have a garage for charging 7/14/2020 12:36 PM Add tags -View respondent's answers Current incentives for businesses to install DCFC equipment, 24kw CCS would be good 7/14/2020 12:22 PM Add tags -View respondent's answers Current Charging stations at rest stops 7/14/2020 11:37 AM Add tags -View respondent's answers Current Encourage Businesses to help their workers buy one. 7/14/2020 11:07 AM Add tags -View respondent's answers Current Please lower the cost of license plate stickers. While electric vehicle owners do not pay for road costs through gas taxes, they also do not cause as much climate/environmental & public health damage as do fossil-fueled vehicles. 7/14/2020 11:05 AM Add tags -View respondent's answers Current Oregon should assist people without garages or offstreet parking. 7/14/2020 10:48 AM Add tags – View respondent's answers Current they could remove the gas tax penalty 7/14/2020 10:43 AM Add tags -View respondent's answers Current Charging infrastructure tax credits (especially for multi-residence dwellings) 7/14/2020 10:39 AM Add tags -View respondent's answers Current Assistance with installation and cost of home charging. 7/14/2020 10:39 AM

Add tags -View respondent's answers Current not sure 7/14/2020 10:25 AM Add tags – View respondent's answers Current Tax incentives. Charging companies could maintain their chargers. 7/14/2020 10:20 AM Add tags -View respondent's answers Current The state could add an annual tax credit to EV owners. The issue with a tax rebate at the time of purchase, is dealerships tend to mark up the vehicle to try and take the credit for themselves. 7/14/2020 10:01 AM Add tags -View respondent's answers Current A break in higher electric vehicle registration fees for perhaps 2 years. 7/14/2020 9:45 AM Add tags -View respondent's answers Current I believe that State & Federal tax credits are a big incentive for EV purchase. OR needs to reinstate the credit incentive. 7/14/2020 9:37 AM Add tags -View respondent's answers Current Solar Electric for charging EV's 7/14/2020 9:32 AM Add tags -View respondent's answers Current Free charging for the first 6 or 12 months after purchase at specific chargers 7/14/2020 9:15 AM Add tags – View respondent's answers Current Free charging stations, supported charging stations in outlying areas. 7/14/2020 9:02 AM Add tags -View respondent's answers Current More credit on taxes. 7/14/2020 9:00 AM Add tags -View respondent's answers Current more charging stations 7/14/2020 9:00 AM Add tags -View respondent's answers

#### Current

More information on benefits and pricing of used EVs; building code changes to require conduit for future charging stations, and some charging station availability now (multi-cable shared L2 to charge multiple cars overnight? 110V everywhere?) 7/14/2020 8:58 AM Add tags -View respondent's answers Current Incentive for purchasing a used EV 7/14/2020 8:50 AM Add tags -View respondent's answers Current Add incentive for more expensive cars. 7/14/2020 8:34 AM Add tags -View respondent's answers Current I don't know 7/14/2020 8:34 AM Add tags – View respondent's answers Current stage 2 charging at public venues & downtown 7/14/2020 8:12 AM Add tags – View respondent's answers Current Free home charger rebate for personal EVs, Free charging stations at highway rest stops 7/14/2020 8:09 AM Add tags -View respondent's answers Current Electric Infrastructure credit 7/14/2020 7:49 AM Add tags -View respondent's answers Current free charge cards 7/14/2020 6:50 AM Add tags -View respondent's answers Current Consistent EV Charging prices and more DCFC 7/14/2020 5:48 AM Add tags – View respondent's answers Current Generous state tax credits/deductions. 7/14/2020 12:30 AM Add tags -View respondent's answers Current

Public fast charging infrastructure 7/14/2020 12:01 AM Add tags -View respondent's answers Current Subsidized/incentivised workplace charging 7/13/2020 11:41 PM Add tags -View respondent's answers Current EWEB does offer a \$500 rebate on level 2 home chargers, but this is NOT well advertised. 7/13/2020 11:21 PM Add tags -View respondent's answers Current Rebates for low income buyers of used EV's 7/13/2020 11:03 PM Add tags -View respondent's answers Current Cash incentives 7/13/2020 10:45 PM Add tags -View respondent's answers Current More tax deductions, and/or rebates. 7/13/2020 10:40 PM Add tags -View respondent's answers Current Visible free charging in the near term, or perhaps a certain number of free kwh at designated municipal-owned chargers. Utilities should also be approached about incentives, since they will benefit long-term through EV adoption. 7/13/2020 10:36 PM Add tags -View respondent's answers Current More high speed charging 7/13/2020 10:35 PM Add tags – View respondent's answers Current i don't know 7/13/2020 10:25 PM Add tags – View respondent's answers Current Charger installation, free parking, higher speed limit on freeway, 7/13/2020 10:15 PM Add tags -View respondent's answers Current I think there should be incentives to install electric charging infrastruture for all these groups. 7/13/2020 8:26 PM

### Q5. What challenges have you had in purchasing, owning and driving an electric/hybrid vehicle? How do you think these issues could be solved?

Answered: 73 Skipped: 0 Showing 73 responses

Current no challenges love my car and its engineering features 7/23/2020 4:34 PM Add tags -View respondent's answers Current Sales people at dealerships need training in the all of the basics of EV driving and ownership. Most of them know nothing about the electric cars they are selling or even give wrong information, so aren't helping customers interested in EVs. The rebates need to be better publicized at point of sale. Charging infrastructure needs to have state and federal funding, which will be solved when we have a new president who will actually make clean energy infrastructure a priority. 7/22/2020 9:36 PM Add tags -View respondent's answers Current We need to build a garage or carport in order to charge at home. 7/20/2020 9:10 AM Add tags -View respondent's answers Current Finding the right charging station . Charging stations should all take visa without having to join. 7/19/2020 6:38 PM Add tags -View respondent's answers Current It was very hard to get a test drive, because of the small number of Chevy Bolt's in Oregon 7/19/2020 5:30 PM Add tags -View respondent's answers Current High cost of charging when traveling outside Ashland. 7/19/2020 4:50 PM Add tags – View respondent's answers Current A little range issue with first gen, nothing since my Model 3 7/19/2020 4:32 PM Add tags – View respondent's answers Current Limit to town, had close call out of town due to closed charge locations, so more reliable 7/18/2020 10:21 PM Add tags -View respondent's answers Current More charging stations in rural and costal areas 7/18/2020 5:58 PM

Add tags -View respondent's answers Current Choice among makes was limited in Eugene. Continuing financial incentives could help that. More charging stations would also help increase demand and influence supply. 7/18/2020 2:43 PM Add tags -View respondent's answers Current Shortage of charging stations in some places 7/17/2020 2:31 PM Add tags -View respondent's answers Current More charging stations are always good. 7/17/2020 8:56 AM Add tags -View respondent's answers Current None 7/16/2020 10:51 PM Add tags -View respondent's answers Current The sales people are no help with operations of the vehicle once purchased, no surprise. 7/16/2020 9:57 AM Add tags -View respondent's answers Current It's my around town vehicle. Borrowing, trading, renting cars for longer trips. 7/15/2020 9:17 PM Add tags -View respondent's answers Current Sparsity of changing stations 7/15/2020 4:47 PM Add tags -View respondent's answers Current difficulty in finding charging options while travelling, especially on the Oregon coast. We need a statewide fast charge system for all types of vehicles. 7/15/2020 8:37 AM Add tags -View respondent's answers Current Just waiting until used vehicle prices became affordable. I'm not interested in a new car. 7/14/2020 10:08 PM Add tags -View respondent's answers Current None. Occasionally trip charging can be a bit of a challenge (ie, going to Crater Lake) but it's overall very minor. 7/14/2020 8:27 PM Add tags -

View respondent's answers Current Just lack of public charging stations 7/14/2020 8:12 PM Add tags -View respondent's answers Current No challenges. Our experience has been excellent. 7/14/2020 6:36 PM Add tags – View respondent's answers Current ICE vehicles blocking charging stations. It seems police would not bother to write a ticket. 7/14/2020 6:30 PM Add tags -View respondent's answers Current Needed to upgrade electrical service on 50 year old house to allow addition of charger. Tax rebates for installation of EV charger helped! 7/14/2020 6:03 PM Add tags -View respondent's answers Current Charging time 7/14/2020 6:00 PM Add tags -View respondent's answers Current I am concerned about driving outside the 100-mile range because of scarcity/inconvenience of charging stations. 7/14/2020 2:54 PM Add tags -View respondent's answers Current Since our car is a hybrid, not a pure EV, we haven't had any trouble buying, owning or driving our car. When we get an EV or plugin hybrid, help with buying/installing the 220v charger would be appreciated! 7/14/2020 2:05 PM Add tags -View respondent's answers Current Limited local choices 7/14/2020 1:54 PM Add tags -View respondent's answers Current No problems purchasing, owning, or driving. Would like to see more charging infrastructure. Incentives for Apartments to install charging. 7/14/2020 1:51 PM Add tags -View respondent's answers Current Lack of charging stations outside of metropolitan areas. 7/14/2020 1:45 PM Add tags -

View respondent's answers Current Availability of desirable cars, charging infrastructure reliability. Manufacturers need to see a positive effect for building a reasonably priced useful car, and charging infrastructure should be regulated somehow. 7/14/2020 1:44 PM Add tags -View respondent's answers Current Poor dealership information about product and incentives, no access to data about miles driven in gasoline mode vs. electric mode for hybrids 7/14/2020 12:36 PM Add tags -View respondent's answers Current CCS charging infrastructure on secondary roads and locations off major interstate highways is a problem 7/14/2020 12:22 PM Add tags – View respondent's answers Current None 7/14/2020 11:37 AM Add tags -View respondent's answers Current need more plug in stations 7/14/2020 11:07 AM Add tags -View respondent's answers Current Hardly any. Charge/range security could be increased by establishing public charging stations at freeway turn-outs. These could be supplied by nearby wind turbines and/or solar panel banks. 7/14/2020 11:05 AM Add tags -View respondent's answers Current I had no issues purchasing wany of my three electric EV's. The Nissan leaf was a pain to take on long trips because of a lack of Chademo charging 7/14/2020 10:48 AM Add tags -View respondent's answers Current more chargers in parks and back country locations, but we haven't really had issues 7/14/2020 10:43 AM Add tags – View respondent's answers Current Purchasing: vendor pricing and change-pricing-policy volatility... no hope for resolution ;-) Owning/Driving: nothing significant 7/14/2020 10:39 AM Add tags -View respondent's answers Current No challenges.

7/14/2020 10:39 AM Add tags -View respondent's answers Current none 7/14/2020 10:25 AM Add tags -View respondent's answers Current No challenges, except for lack of charger in Burns, Oregon, but Tesla is taking care of that. 7/14/2020 10:20 AM Add tags -View respondent's answers Current My Chevy Spark EV range is too short for longer trips. More CCS/SAE combo stations are being installed. Though the Electrify America stations have very poor reliability. Encrouraging Chargepoint to install more chargepoint chargers would be helpful. It's too bad Electrify America had such a large fund allocated exclusively to it, and it wasn't split with other charging station companies. It seems to me that Electrify America has little to no incentive to produce a high quality product. They are just checking the checkboxes available to them, which often means a frankenstein type solution with low reliability. 7/14/2020 10:01 AM Add tags -View respondent's answers Current Nothing yet. Highest anticipated is learning how to use public charging facilities when on trips. 7/14/2020 9:45 AM Add tags -View respondent's answers Current We have had only minor issues. But I know that for new users, range anxiety is a big issue. A subsidized program making long range EV's, hybrids or even gas powered vehicles available for occasional use by short range EV owners might help people make the change. Once people drive an EV they are usually sold. 7/14/2020 9:37 AM Add tags -View respondent's answers Current Vehicle load capacity. I'm getting a Cyber Truck 7/14/2020 9:32 AM Add tags -View respondent's answers Current Subsidies for chargers in residential buildings. 7/14/2020 9:26 AM Add tags – View respondent's answers Current In late 2019 it was difficult to find a vehicle that qualified for the federal tax rebate. Perhaps the state could encourage dealers to bring more EVs - and wider stock - to Oregon 7/14/2020 9:15 AM Add tags -View respondent's answers Current Range anxiety at times, otherwise few issues.

7/14/2020 9:02 AM Add tags -View respondent's answers Current Not enough working fast chargers for long distance travel. Some chargers do not work. Especially a problem on OR Coast. I think the state should put fast chargers at many rest stops and strategically along major state and federal highways like US 101 and US 20 and 26. 7/14/2020 9:00 AM Add tags -View respondent's answers Current taking longer trips ... more charging stations 7/14/2020 9:00 AM Add tags -View respondent's answers Current No issues since I own a home with a garage; charging station installation was expensive due to wiring from breaker box at other end of home. Require at least one 60A wire in garage in building codes! 7/14/2020 8:58 AM Add tags -View respondent's answers Current with the Nissan, range has been an issue. Chargers not working can be a challenge. At this point most vehicles have enough range not an issue. 7/14/2020 8:50 AM Add tags -View respondent's answers Current None 7/14/2020 8:34 AM Add tags -View respondent's answers Current no challenges... the pandemic has made our travels stop 7/14/2020 8:34 AM Add tags -View respondent's answers Current fear of running out of charge & not being near a charger 7/14/2020 8:12 AM Add tags -View respondent's answers Current Not enough fast charge stations along highway; Too many different styles/vendors of charging stations - needs simplifying! 7/14/2020 8:09 AM Add tags -View respondent's answers Current Our first electric car was a Think! City and although it handled fine and at first performed well it developed several problems with accessories 7/14/2020 8:04 AM Add tags -

View respondent's answers Current In-Shop service is in Portland 7/14/2020 7:49 AM Add tags -View respondent's answers Current More super chargers and chargers that WORK. The public chargers at the Eugene Public Works doesn't work. 7/14/2020 6:50 AM Add tags -View respondent's answers Current Charging infrastructure that either doesn't work, difficult to use, costly. 7/14/2020 5:48 AM Add tags -View respondent's answers Current N/A 7/14/2020 12:30 AM Add tags -View respondent's answers Current I couldn't get the one I wanted here, though I'm reasonably happy with it (2018 Leaf - wanted ProPilot). The real issue is inability to do road trips very well due to battery heating when fast charging 7/14/2020 12:01 AM Add tags – View respondent's answers Current Range, cost. Economies of scale, technology advances and market development will help reduce these barriers 7/13/2020 11:41 PM Add tags -View respondent's answers Current See #1 - hard to find the vehicles I'm interested in. This may be pandemic related, of course. 7/13/2020 11:21 PM Add tags -View respondent's answers Current No spare tire 7/13/2020 11:03 PM Add tags -View respondent's answers Current I am waiting for the right vehicle to come to the market. 7/13/2020 10:45 PM Add tags – View respondent's answers Current More strategically placed easy charging stations. 7/13/2020 10:40 PM Add tags -View respondent's answers Current

Inadequate fast charging options except on I-5 corridor. 7/13/2020 10:36 PM Add tags -View respondent's answers Current Road trips can be a challenge. More highway high speed charging would help a lot, particularly along the coast 7/13/2020 10:35 PM Add tags -View respondent's answers Current i can only drive it about 10 miles on a charge. i could get fancier batteries! 7/13/2020 10:25 PM Add tags -View respondent's answers Current Only range but it has not been a big issue as we use the vehicle locally 7/13/2020 10:21 PM Add tags -View respondent's answers Current Careful planning trips to be sure of charging, more chargers 7/13/2020 10:15 PM Add tags -View respondent's answers Current Really only in driving long distances due to the lack of infrastructure for charging where I have traveled. I think there needs to be charging available at least in major cities and towns around Oregon, perhaps locate them in rest areas, public areas accessible 24/7, and along state highways. 7/13/2020 8:26 PM

### Q6. What are your ideas for legislation that would help promote electric/hybrid cars, their purchase and being able to most effectively use them in Oregon? Please be as specific as possible.

Answered: 69 Skipped: 4 Showing 69 responses

Current promote keeping dollars local not sending money to fossil fuel companies 7/23/2020 4:34 PM Add tags -View respondent's answers Current The two existing rebates for individual Oregonians need to be promoted more widely and renewed until the state of Oregon reaches an 100% EV ownership goal. Tax incentives will help dealerships promote them and feature them on their car lots. We need to get rid of hybrids and not give tax incentives for their purchase. A fully funded state-wide charging infrastructure for passenger vehicles like the West Coast Clean Transit Corridor Initiative for medium-duty and heavy-duty trucks would give people the confidence to drive EVs all over the state. 7/22/2020 9:36 PM Add tags -View respondent's answers Current State mandated annual emissions testing for all vehicles, with fees based on the emissions of the vehicle. 7/20/2020 9:10 AM

Add tags -View respondent's answers Current Raise the gas tax and lower the EV fees. Vote to ban gas car sales by a specified date like some countries have done. 7/19/2020 6:38 PM Add tags -View respondent's answers Current Expand DC Fast Charging in Oregon that would be FREE or cost no more than 10-Cents/KW-Hour. 7/19/2020 4:50 PM Add tags -View respondent's answers Current Tax the living sh|t out of ICE and gas/diesel/NAT gas. People will change when it's required. 7/19/2020 4:32 PM Add tags -View respondent's answers Current Free parking, other perks not available to ICE cars 7/18/2020 10:21 PM Add tags – View respondent's answers Current a good rebate on all cars and Federal money to build charging stations 7/18/2020 5:58 PM Add tags – View respondent's answers Current As above, financial incentives and much better charging infrastructure. 7/18/2020 2:43 PM Add tags -View respondent's answers Current The biggest concerns I hear from potential EV customers are range, battery life and ease of charging. Supporting advancing technologies in those areas may help incentivize those who are hesitant. 7/17/2020 2:31 PM Add tags – View respondent's answers Current Lower the prices, don't penalize folks with astronomical registration fees, add more charging stations so there is no range anxiety no matter where you go. Keep offering rebates and incentives. Offer rebates for solar chargers and in home fast chargers. 7/17/2020 8:56 AM Add tags – View respondent's answers Current Continue and expand rebates 7/16/2020 10:51 PM Add tags -View respondent's answers Current Higher gas taxes; fees that can go to recharging infrastructure; preference for EVs wherever you drive (HOV, parking). 7/16/2020 9:57 AM

Add tags -View respondent's answers Current Rebates for used EVs to expand the market for lower income people. 7/15/2020 9:17 PM Add tags – View respondent's answers Current See 4. and 5. above. Also, keep current rebates and promote EVs via public education. 7/15/2020 8:37 AM Add tags -View respondent's answers Current Tax fairly. OReGo is poorly designed. EV's are hit with high fees while 18-wheelers don't pay for the damage they cause. 7/14/2020 10:08 PM Add tags -View respondent's answers Current A carbon tax on ICE vehicles; require gas stations to add EV charging as well; rebates and/or electricity credit for home charging (Level 2). 7/14/2020 8:27 PM Add tags -View respondent's answers Current There should annual tax rebates for any actions that reduce a carbon footprint. 7/14/2020 8:12 PM Add tags -View respondent's answers Current See above suggestions. 7/14/2020 6:36 PM Add tags -View respondent's answers Current Require apt & condos greater than 20 units to install 1 charger for every 6 units. CCS or NEMA 15-40. 7/14/2020 6:30 PM Add tags -View respondent's answers Current Multi-family housing Level 2 chargers to allow overnight charging at apartments!!! This makes affordable 80 mile range EVs practical, especially for lower income levels!!! 7/14/2020 6:03 PM Add tags -View respondent's answers Current V2G so they can use the battery to save peaks and as emergence power 7/14/2020 6:00 PM Add tags -View respondent's answers Current Make charging stations more numerous and convenient. 7/14/2020 2:54 PM Add tags -

View respondent's answers Current A continuation or increase on the state rebates would help most. 7/14/2020 2:05 PM Add tags -View respondent's answers Current EVs would qualify for incentives and rebates only if they are charged 90% of the time with clean non-nuclear renewable energy. 7/14/2020 1:54 PM Add tags -View respondent's answers Current Promote charging installations at businesses and apartments. 7/14/2020 1:51 PM Add tags -View respondent's answers Current Increase charge station availability, especially quick charge and improve rural access. 7/14/2020 1:45 PM Add tags – View respondent's answers Current Requiring availability of charging spaces in various locations, requiring the acceptance of EVSE installation at rentals 7/14/2020 1:44 PM Add tags – View respondent's answers Current financial incentives for EVs and disincentives for ICE vehicles; communication barriers and identification of other barriers especially to historically disadvantaged communities 7/14/2020 12:36 PM Add tags -View respondent's answers Current reverse the punitive new registration fees 7/14/2020 12:22 PM Add tags – View respondent's answers Current I'm happy 7/14/2020 11:37 AM Add tags -View respondent's answers Current More plug in stations. 7/14/2020 11:07 AM Add tags -View respondent's answers Current Create the Oregon Electric Highway system, supported by public charging stations as described above. Make this a wellconnected statewide system. Support electrifying public transit fleets and intercity electric transit, so that people who cannot afford cars can make needed trips throughout/across the state using non-polluting public transit. 7/14/2020 11:05 AM

70

Add tags -View respondent's answers Current Create incentives and easy access to public charging for people living in apartments and condos. 7/14/2020 10:48 AM Add tags – View respondent's answers Current incentives for builders of apartments, condos, and houses to install ev chargers; utilities could give incentives for homeowners to install chargers; state could subsidize gas stations to put in ev chargers; promote ev charging companies to join consortium to have memberships and payments systems in common. It's irritating to have to have different fobs and cards and memberships for each company. 7/14/2020 10:43 AM Add tags -View respondent's answers Current Incentives for multi-residence dwellings, and city and state charging infrastructure development... ideally, dedicated neighborhood "tree-lawn charging" parking spots, and charging along underserved traffic corridors 7/14/2020 10:39 AM Add tags -View respondent's answers Current Tax rebates and support with charging also do not enact new taxes to replace lost gas taxes. 7/14/2020 10:39 AM Add tags -View respondent's answers Current a simple incentive program, no hoops to jump through 7/14/2020 10:25 AM Add tags -View respondent's answers Current Tax incentives, public awareness campaign about not parking ICE cars in EV charging spots (there's a fine! And subject to towing!), I'm also very confused about the road tax on EV cars. They could make that a lot clearer. 7/14/2020 10:20 AM Add tags -View respondent's answers Current Uptime based incentives for level 3 charging stations, with periodic inspections. A City-wide program to convert every other meter to a level 2 charger. 7/14/2020 10:01 AM Add tags -View respondent's answers Current See #4 above 7/14/2020 9:45 AM Add tags -View respondent's answers Current Increasing the locations and subsidizing of fast chargers coupled with EV education could help people make the change. 7/14/2020 9:37 AM Add tags -View respondent's answers

Current Make information more available, the real facts. 7/14/2020 9:32 AM Add tags -View respondent's answers Current Tax or ban on non-electric vehicles in city centers. 7/14/2020 9:26 AM Add tags -View respondent's answers Current All government agencies over a certain size, including cities and counties, could be required to purchase an EV for every non-EV purchased. 7/14/2020 9:15 AM Add tags -View respondent's answers Current Different registration rates for different classes of vehicles 7/14/2020 9:02 AM Add tags -View respondent's answers Current See rec in #5. 7/14/2020 9:00 AM Add tags – View respondent's answers Current fund more charging stations on highways 7/14/2020 9:00 AM Add tags -View respondent's answers Current Tax fossil fuels to comprehend the externalized healthcare and national security costs; use some of that income for incentives, rest for income-based hardship mitigation of the higher fuel costs; building codes, especially for multi-tenant buildings; 7/14/2020 8:58 AM Add tags – View respondent's answers Current Use EV incentive. 7/14/2020 8:50 AM Add tags -View respondent's answers Current Put price on carbon pollution 7/14/2020 8:34 AM Add tags -View respondent's answers Current rebates? 7/14/2020 8:34 AM Add tags -View respondent's answers
Current Incentives to purchase and advertising the facts of the incentives. Billboards? News articles? Filers in your utility bills? 7/14/2020 8:12 AM Add tags -View respondent's answers Current Require utilities to install public charging stations at a direct correlation to increasing # of EVs on road. More incentives for purchasing used EVs for low income people. 7/14/2020 8:09 AM Add tags -View respondent's answers Current No registration tax on electrics. highway tax could be per mile for all cars. 7/14/2020 8:04 AM Add tags -View respondent's answers Current Access for appartment and rental dwellers 7/14/2020 7:49 AM Add tags -View respondent's answers Current Tax Rebate for buying OR LEASING an electric car 7/14/2020 6:50 AM Add tags -View respondent's answers Current Uniform EV prices. And POSTED! 7/14/2020 5:48 AM Add tags -View respondent's answers Current Legislation phasing out ICE-powered state-owned fleets, favoring BEVs over hybrids. Formulating a denser grid of public charging stations to complement the convenient locations of gas stations. 7/14/2020 12:30 AM Add tags -View respondent's answers Current Continue the West Coast Highway sort of program so there are redundant fast charging stations every 40-50 miles, including major rural highways, not just freeways 7/14/2020 12:01 AM Add tags -View respondent's answers Current Mandatory charging provisions for multifamily housing and workplaces. Building codes requiring provisions for charging in all new development - Single Family, Multifamily & Workplace 7/13/2020 11:41 PM Add tags -View respondent's answers Current Rebates and tax credits need to be better advertised! 7/13/2020 11:21 PM Add tags -

View respondent's answers Current Banks should set up Green Bonds up to \$1000 for people to buy and those funds would help buyers of EV's. As the buyers pay off the loan, the Green Bond purchasers would get reimbursed with a small interest rate. This currently works at the Connecticut Bank for renewable energy project investments such as community solar and wind. 7/13/2020 11:03 PM Add tags -View respondent's answers Current Higher gas taxes/prices would incentive electric vehicles 7/13/2020 10:40 PM Add tags -View respondent's answers Current State should financially partner with private charging companies to quickly implement a statewide fast-charging network for CCS and Chademo. Legislation could also empower and financially equip ODOT or other agency to do educational outreach (likely through partner organizations). 7/13/2020 10:36 PM Add tags -View respondent's answers Current Rebates for adding chargers to homes might work well, new buyers often worry about that. Simple rebates and other financial incentives might be the most effective. 7/13/2020 10:35 PM Add tags -View respondent's answers Current rebates. charging stations. free parking. 7/13/2020 10:25 PM Add tags -View respondent's answers Current outlaw registration of gasmobiles after x date, pay for chargers, publicize rebates and make them bigger 7/13/2020 10:15 PM Add tags -View respondent's answers Current I think education to promote awareness of the incentives, maybe asking banks and credit unions to offer a discount for those getting EV car loans, and maybe more incentives, that is, higher amounts of cash rebates, also not making the rebate process so tedious and long, and again, charging infrastructure. 7/13/2020 8:26 PM Q7. What policies do you think are important to develop to promote,

# purchase and most effectively use electric/hybrid cars?

Answered: 68 Skipped: 5 Showing 68 responses

Current see above 7/23/2020 4:34 PM Add tags – View respondent's answers

## Current

Implement a phase-out of gasoline and diesel engine vehicles. Don't charge more for Oregon state registration of EVs. Give incentives for dealerships to train their salespeople to sell more EVs! Promote legislation to get federal money for the state to create "green jobs" that build an electric highway through the main transportation corridors in the state. 7/22/2020 9:36 PM Add tags -View respondent's answers Current Policies that lower upfront costs and add charging stations in areas around the state. 7/19/2020 6:38 PM Add tags -View respondent's answers Current Make per-mile road taxes sync with gas taxes for roads. Raise both rates rather than treating the electric cars as a way to make up for years of lost road tax revenue 7/19/2020 5:30 PM Add tags – View respondent's answers Current Policies should promote EVs ONLY, not Hybrids. 7/19/2020 4:50 PM Add tags -View respondent's answers Current Tax the living shit out of ICE and carbon-producing emissions engines, wherever they are. Vehicles, generation, back up generators, etc. 7/19/2020 4:32 PM Add tags – View respondent's answers Current Gas tax used as carbon offsets, and diverted to renewables 7/18/2020 10:21 PM Add tags -View respondent's answers Current Tax gasoline cars higher as incentive to buy electric 7/18/2020 5:58 PM Add tags -View respondent's answers Current In addition to number 6 answer, more publicity about rebates and the low cost of owning an EV. Also perhaps a carbon pollution/offset charge on gasoline to show the true cost of ICE vehicles. 7/18/2020 2:43 PM Add tags – View respondent's answers Current Perhaps add EVs to the HOV lanes. The change to EV is a leap for some. Providing a benefit package of free charging, perhaps a year of free registration, and incentives to businesses installing destination charging. is still the best way to go in my opinion. 7/17/2020 2:31 PM Add tags -View respondent's answers Current

See 5 and 6. Gas cars should be charged more since the pollute the environment. 7/17/2020 8:56 AM Add tags – View respondent's answers Current None 7/16/2020 10:51 PM Add tags -View respondent's answers Current Tax incentives, subsidies to low income buyers. 7/16/2020 9:57 AM Add tags -View respondent's answers Current carpool lane advantage, free bridge tolls, get people to understand how fun they are to drive 7/15/2020 9:17 PM Add tags -View respondent's answers Current See 6. above. 7/15/2020 8:37 AM Add tags -View respondent's answers Current The dealer experience sucks. Create am online brand-neutral vehicle marketplace with transparent pricing modeled on the health care marketplace. 7/14/2020 10:08 PM Add tags -View respondent's answers Current Auto manufacturers required to have a percentage of EVs, although the "compliance cars" are less than; dealer perks for selling EVs (monetary incentives?) 7/14/2020 8:27 PM Add tags -View respondent's answers Current nothing additional 7/14/2020 8:12 PM Add tags -View respondent's answers Current For many people it's all about costs, so both rebates and breaks on vehicle registration and gas taxes would go a long way toward changing behavior. Small trucks and SUVs should be considered the same as cars in any policy. Also, I haven't seen much research on whether long haul trucks pay their way in Oregon. 7/14/2020 6:36 PM Add tags -View respondent's answers Current Have a method for users to report chargers that need repair, and have a web site to show brand reliability. Provide some motivation to get them back in service. 7/14/2020 6:30 PM Add tags -

View respondent's answers Current Solving the funding on multi-family Level 2 charger installations. 7/14/2020 6:03 PM Add tags -View respondent's answers Current ? 7/14/2020 6:00 PM Add tags -View respondent's answers Current This is not my area of expertise. 7/14/2020 2:54 PM Add tags -View respondent's answers Current Promoting the advantages electric cars and creating more apartment charging stations would go a long ways! 7/14/2020 2:05 PM Add tags -View respondent's answers Current clean energy, low pollution 7/14/2020 1:54 PM Add tags -View respondent's answers Current sue the federal government to end Oil subsides. Promote charging installations at businesses and apartments. 7/14/2020 1:51 PM Add tags -View respondent's answers Current Free parking any where there's a charge. Public information regarding the economic benefits of electric car ownership. 7/14/2020 1:45 PM Add tags -View respondent's answers Current requirements for placement and availability, cost of use, etc for charging stations 7/14/2020 1:44 PM Add tags -View respondent's answers Current Dealers must be involved and educated better than they are today. 7/14/2020 12:36 PM Add tags -View respondent's answers Current favorable tax incentives for local delivery vehicles to go electric. 7/14/2020 12:22 PM Add tags -View respondent's answers Current More push by dealers

7/14/2020 11:37 AM Add tags -View respondent's answers Current Tax on Manufactures of fuel oil/gas 7/14/2020 11:07 AM Add tags -View respondent's answers Current 1) Oregon Electric Highway System, as described above. 2) Continue to offer tax incentives & rebates for electric vehicle purchase. 3) Offer tax incentives for car manufacturers to locate 100% electric car factories in Oregon, requiring that the plants be powered by at least 80% wind and solar power, with a specific timeline for going 100% wind/solar. 4) Strong support for electrification of all mass transit systems in Oregon, as well as adequate support for making mass transit systems more robust in general. 5) Development of electric inter-city mass transit to coordinate with local systems throughout the state. 7/14/2020 11:05 AM Add tags -View respondent's answers Current Tags gasoline so that it covers the real cost, hundreds of dollars per gallon 7/14/2020 10:48 AM Add tags – View respondent's answers Current same as above 7/14/2020 10:43 AM Add tags -View respondent's answers Current Don't burden electric vehicles with road-use taxes while they are a small fraction of vehicles on the road and the intent is to encourage a transition to EVs 7/14/2020 10:39 AM Add tags -View respondent's answers Current No ideas. 7/14/2020 10:39 AM Add tags -View respondent's answers Current lots of charging stations that will fit all charging ports, and are inexpensive to use. 7/14/2020 10:25 AM Add tags -View respondent's answers Current To me, it's all about ability to charge when not at home. Oregon could expand charging sites of every stripe and promote it as a great place to visit in your EV. 7/14/2020 10:20 AM Add tags -View respondent's answers Current Policies that promote charging availability. Additionally, policies that encourage recycling and upgrading of older electric cars. We are getting to the point where many older Nissan Leafs have a greatly reduced battery capactiy. We could use

an infrastructure boost in the realm of removing and replacing the batteries. Though, I am aware Nissan has a program to do just that... It would be nice if there was something like this for the chevy volt, the chevy spark EV, and all other short range EVs... Perhaps an incentive to upgrade the batteries on older EVs would be nice. 7/14/2020 10:01 AM Add tags -View respondent's answers Current Single passenger HOV lane use if that ever happens in Oregon. 7/14/2020 9:45 AM Add tags – View respondent's answers Current Changing to the use of EV's from gas is critical for climate change. Funding heeds to be a priority. 7/14/2020 9:37 AM Add tags -View respondent's answers Current Charging seems to be a major impediment. Prioritized charging. 7/14/2020 9:32 AM Add tags -View respondent's answers Current Tax emissions. 7/14/2020 9:26 AM Add tags -View respondent's answers Current Five to 10-year regulations for additional road taxes for EVs so that owners aren't blindsided by new costs a few years after purchase. 7/14/2020 9:15 AM Add tags -View respondent's answers Current More charging stations - free for minimal use to get to home charging. 7/14/2020 9:02 AM Add tags -View respondent's answers Current Encouragement of home solar power for recharging. 7/14/2020 9:00 AM Add tags -View respondent's answers Current charging stations 7/14/2020 9:00 AM Add tags – View respondent's answers Current Tax fossil fuels in line with the costs they create; fund charging infrastructure (has to become part of our road infrastructure and be managed by the government); 7/14/2020 8:58 AM Add tags -View respondent's answers

Current Zero emmsion goals. We also would like charging to be done with non coal sources. 7/14/2020 8:50 AM Add tags -View respondent's answers Current Incentives 7/14/2020 8:34 AM Add tags -View respondent's answers Current I don't know 7/14/2020 8:34 AM Add tags – View respondent's answers Current Help get the local utilities ready for more electric requirements. EV busses, trucks and fleets are going to use a lot of electricity. 7/14/2020 8:12 AM Add tags -View respondent's answers Current Apply gas/diesel tax towards clean transportation funds. Incentivize commercial trucking to switch to EV trucks ASAP. 7/14/2020 8:09 AM Add tags -View respondent's answers Current Access to home charging for all. Affordable DC-Fast charging 7/14/2020 7:49 AM Add tags -View respondent's answers Current all public vehicles go electric, school buses too 7/14/2020 6:50 AM Add tags -View respondent's answers Current Give the salesperson \$250 Clean Fuels money for every sale. Then they might treat us like buyers of Suburbans. 7/14/2020 5:48 AM Add tags -View respondent's answers Current Copy cities and countries around the world that have legislated deadlines to replace ICE-powered vehicles in their jurisdictions. 7/14/2020 12:30 AM Add tags – View respondent's answers Current tax credits are nice, but won't be needed for much longer as battery technology improves; it's the infrastructure that's most important 7/14/2020 12:01 AM Add tags -View respondent's answers

Current Rebates and educational outreach raise awareness and adoption 7/13/2020 11:41 PM Add tags -View respondent's answers Current Rebates and tax credits MUST continue, and EV charging, esp. level 3, needs to expand. 7/13/2020 11:21 PM Add tags -View respondent's answers Current Charging station infrastructure needs to be installed ubiquitously throughout the US. This needs to be a code standard for new home and multi unit dwellings. It also needs to be installed in parking garages and on street parking on street light poles. DMV should have an educational section in their manual on the advantages of owning EV's 7/13/2020 11:03 PM Add tags -View respondent's answers Current More solar and wind and tidal sources of electricity 7/13/2020 10:40 PM Add tags -View respondent's answers Current Building codes and incentives to include charging opportunities for people living in apartments, condos, etc. Curbside charging in neighborhoods too - you can't install a charger curbside in Eugene presently, so if you can't park in your driveway or garage you are out of luck.. 7/13/2020 10:36 PM Add tags – View respondent's answers Current I think it will be important to promote the networks of charging stations. I think education is important too. In my experience, a lot of people don't realize how advanced and practical electric cars have become. 7/13/2020 10:35 PM Add tags -View respondent's answers Current cheaper registration & insurance costs 7/13/2020 10:25 PM Add tags – View respondent's answers Current More publicity, larger and publicly noticed rebates, easy permitting for chargers, building code changes to require EV ready parking, rate base infrastructure for investor owned utilities, etc 7/13/2020 10:15 PM Add tags -View respondent's answers Current I think mandating electrical codes for new construction that provide for charging, business, residential and government agencies especially. Perhaps installing charging level two on telephone poles? 7/13/2020 8:26 PM

#### Q8. What input, comments or feedback do you have regarding electric vehicle charging infrastructure? Please be as specific as possible.

Showing 69 responses Current use the electrical outlet in my garage don't travel more than 250 miles 7/23/2020 4:34 PM Add tags -View respondent's answers Current For statewide travel, quick charge/DC fast charge stations need to be as ubiquitous as gas stations are now and part of a 10-year plan to transition from gasoline engine vehicles to all-electric vehicles. The plan for charging infrastructure needs to be implemented at the state level and include the entire state highway system. 7/22/2020 9:36 PM Add tags -View respondent's answers Current Be very strategic about where the infrastructure is built -- spread it out out so all areas of the community have easy access. 7/20/2020 9:10 AM Add tags – View respondent's answers Current It is still difficult to travel because there are so few quick charging stations. We need to have them everywhere like gas stations are now. Maybe we can encourage gas stations to install them so they don't lose business as more people buy EVs. 7/19/2020 6:38 PM Add tags – View respondent's answers Current Promote DC Fast Charging ONLY. Stations should support ALL DC Fast Charging CONNECTION Types. 7/19/2020 4:50 PM Add tags -View respondent's answers Current Make it low power and ubiquitous. 110v, 3A charging EVERYWHERE. 7/19/2020 4:32 PM Add tags -View respondent's answers Current We do 100% home charging, and limit driving to 50 miles round trip. Maybe it is range anxiety, but I don't fully trust the charging infrastructure. 7/18/2020 10:21 PM Add tags – View respondent's answers Current We need more in Rural and Costal areas 7/18/2020 5:58 PM Add tags -View respondent's answers Current Already answered but much more infrastructure everywhere. Also universal charging plugs!!!

Answered: 69 Skipped: 4

7/18/2020 2:43 PM

82

Add tags -View respondent's answers Current The infrastructure is growing, but still includes gaps in service. Also, with some providers charging up to \$.49 per kilowatt, increasing access to low cost charging would be helpful. 7/17/2020 2:31 PM Add tags -View respondent's answers Current We need more fast chargers to make going further distances a reality. If you have to wait several hours to charge your car, you won't use them for anything other than commuters. Long range EVs are very expensive right now. 7/17/2020 8:56 AM Add tags -View respondent's answers Current Make it easier to find when there is no cell coverage 7/16/2020 10:51 PM Add tags -View respondent's answers Current Make it easier for or subsidize renters to acquire a charger or participate in collective ownership. 7/16/2020 9:57 AM Add tags -View respondent's answers Current Most charging happens at home overnight. Longer trips are becoming more practical with 250 mile ranges. 7/15/2020 9:17 PM Add tags -View respondent's answers Current Need more, especially in more remote areas. 7/15/2020 4:47 PM Add tags -View respondent's answers Current MORE CHARGING STATIONS EVERYWHERE! And standardization would be great- having the ability to charge any vehicle at the same charging speed. 7/15/2020 8:37 AM Add tags – View respondent's answers Current I have never charged away from home. Someday I'll try it, but now I'm confused about multiple suppliers with various payment options. 7/14/2020 10:08 PM Add tags -View respondent's answers Current Along heavily-traveled routes (I-5, highways, etc) require public fast chargers (Chademo, Tesla) for travelers so they aren't dependent on Level 2. Within towns and cities, adjacent to event venues or "travel destinations" require Level 2 chargers 7/14/2020 8:27 PM Add tags -View respondent's answers Current

already stated - need more 7/14/2020 8:12 PM Add tags -View respondent's answers Current Some of the public charger brands seem unreliable. It is discouraging to plan a trip and then find they are not working. The Tesla superchargers have less of this issue, but they have some issues too. 7/14/2020 6:30 PM Add tags -View respondent's answers Current With home EV chargers, I don't use convenience public charging infrastructure at all. Why? Because we never run out of charge when running around town but going home in the evening. Enable charging where people sleep!!!! 7/14/2020 6:03 PM Add tags -View respondent's answers Current ? 7/14/2020 6:00 PM Add tags -View respondent's answers Current See above. 7/14/2020 2:54 PM Add tags -View respondent's answers Current There are too many different charging plans and ways to charge for the electricity when charging on the road. 7/14/2020 2:05 PM Add tags -View respondent's answers Current EVs advantage is not much when charged on fossil fuel energy. 7/14/2020 1:54 PM Add tags -View respondent's answers Current Various studies show that adding charging stations to businesses promotes the purchase and use of EVs. 7/14/2020 1:51 PM Add tags -View respondent's answers Current See above 7/14/2020 1:45 PM Add tags -View respondent's answers Current See last question 7/14/2020 1:44 PM Add tags – View respondent's answers Current In Oregon, only Tesla and Chademo are well placed on secondary roads and highways. CCS combo is almost non existent

at the coast and in central oregon. The Webastos need to be updated to dual cable/protocol systems. 7/14/2020 12:22 PM Add tags -View respondent's answers Current Publish maps with info on where charging stations are located. 7/14/2020 11:37 AM Add tags -View respondent's answers Current IF you use major highways, it can be done, but rural areas need more charging infrastructure. 7/14/2020 11:07 AM Add tags -View respondent's answers Current I have described all I can think of for now. Thank you. 7/14/2020 11:05 AM Add tags -View respondent's answers Current Tesla does it right. 7/14/2020 10:48 AM Add tags -View respondent's answers Current common payment system and common access system would be useful 7/14/2020 10:43 AM Add tags -View respondent's answers Current Tax credits for private (individual / business) infrastructure development; State infrastructure development along underserved traffic corridors; City infrastructure development to enable those without access to private "over-night" charging 7/14/2020 10:39 AM Add tags -View respondent's answers Current In the long run all plugins should be standardized and rates regulated. 7/14/2020 10:39 AM Add tags -View respondent's answers Current need more that will fit all 7/14/2020 10:25 AM Add tags -View respondent's answers Current My only real experience is with Tesla, which is superb. I don't like that ICE cars park in EV charging spots. I don't think there are any "superchargers", or quick charging stations for other EVs, are there? To me, it's all about charging availability. 7/14/2020 10:20 AM Add tags -View respondent's answers

Current Electrify America has low reliability. There are not enough CCS/SAE fast chargers around with decent reliability. 7/14/2020 10:01 AM Add tags -View respondent's answers Current Too early for me to tell. I'm a newby on public charging. 7/14/2020 9:45 AM Add tags -View respondent's answers Current See #6 above. 7/14/2020 9:37 AM Add tags – View respondent's answers Current Time of day utility rates. lower cost for night. 7/14/2020 9:32 AM Add tags -View respondent's answers Current Charging infrastructure is lacking in residential buildings. 7/14/2020 9:26 AM Add tags – View respondent's answers Current The multitude of types of chargers, levels, locations, and costs is very confusing for non-EV owners or potential owners (and it's not easy for those of us who understand to explain it!) While an app like PlugShare is useful, I would like to see an Oregon initiative, whether governmental or non-profit - a small team of people - that will evaluate and rate chargers 7/14/2020 9:15 AM Add tags -View respondent's answers Current I like free charging at grocery stores while shopping. 7/14/2020 9:02 AM Add tags -View respondent's answers Current see #5 above 7/14/2020 9:00 AM Add tags -View respondent's answers Current need more free ones like Eugene's overpark 7/14/2020 9:00 AM Add tags – View respondent's answers Current Charging infrastructure has to become part of the existing "transportation infrastructure". Instead of today's government-managed road system, future infrastructure has to be "road system w/ charging". Future "parking" has to mean "parking with enough charging infrastructure". 7/14/2020 8:58 AM Add tags -

View respondent's answers Current Keep the chargers maintained and running. if they are not avaiable ensure noted on Plug Share. Install additional chargers in areas of high use. Keep charging spaces clear of non EV cars i.e. If I can access the charger because of a parked car not using charger not effective. 7/14/2020 8:50 AM Add tags -View respondent's answers Current Build more. 7/14/2020 8:34 AM Add tags – View respondent's answers Current I don't know 7/14/2020 8:34 AM Add tags -View respondent's answers Current All multi family units offering charging opportunities to the renters. Medium to large companies need to offer charging options to employees. Rest stops need to offer quick chargers for highway EV use, including EV long distance truck charging. 7/14/2020 8:12 AM Add tags -View respondent's answers Current Not enough fast chargers along highways. Many EV charging stations are broken with slow repair and lack of telephone assistance. Leaving maintenance up to private industry is not sufficient for a reliable charging network. We should be adopting solar powered charging stations with battery storage ASAP. 7/14/2020 8:09 AM Add tags -View respondent's answers Current all rest stops that have the space should have charging available. 7/14/2020 8:04 AM Add tags -View respondent's answers Current For Non-Teslas there needs to be fast and affordable options widely available. 7/14/2020 7:49 AM Add tags -View respondent's answers Current more super chargers and chargers that work 7/14/2020 6:50 AM Add tags – View respondent's answers Current UNIFORM PRICES.and must post on websites. 7/14/2020 5:48 AM Add tags -View respondent's answers Current

I know of three separate charging locations in my neighborhood, one of which belongs to Elephant's Delicatessen, used exclusively for their car. Assuming drivers can charge their vehicles at home, the emphasis should be on conveniently spaced and located recharging stations for road trips longer than the mileage provided on a single charge. 7/14/2020 12:30 AM Add tags -View respondent's answers Current I think I already did ;-) 7/14/2020 12:01 AM Add tags -View respondent's answers Current The next wave of adoption will need to make home/workplace charging available to those that do not live in single family dwellings with off street parking 7/13/2020 11:41 PM Add tags -View respondent's answers Current There are so many EV charging networks, and they all seem to need special sign-ups. Charging an EV on the road should be like paying for gas at any station with a credit card. 7/13/2020 11:21 PM Add tags -View respondent's answers Current EV charging carriers need to be more inter connected. One card should work for all charging facilities. 7/13/2020 11:03 PM Add tags -View respondent's answers Current I have had no problems getting around Eugene by charging at home; but to go much distance outside of town I would need more easy places to charge it. 7/13/2020 10:40 PM Add tags -View respondent's answers Current See above. Fast charging is inadquate away from major cities on I-5, except Tesla. 7/13/2020 10:36 PM Add tags -View respondent's answers Current In most places the charging infastructure is very good. It can be nerve wracking, however, to head out somewhere with limited options, not knowing for sure if the charger will be working and available. 7/13/2020 10:35 PM Add tags – View respondent's answers Current can't think of any, other than chargers should be everywhere! 7/13/2020 10:25 PM Add tags -View respondent's answers Current We need to continue adding charging stations 7/13/2020 10:21 PM

Add tags – View respondent's answers Current Not enough now, need faster DCFCs, and many more of them, at least 8 in any location where one exists or should exist, outlaw demand charges from utilities for EV charging, etc 7/13/2020 10:15 PM Add tags – View respondent's answers Current Well, as I've said, it's a challenge for long distance trips, so increasing it is important to use them and get people to buy them, too. I like the incentive by EWEB of \$500 to install level two charger at home. Why not get EWEB to do that for businesses, too! 7/13/2020 8:26 PM

# Q9. Please share any other information or ideas you have regarding future legislation to promote electric vehicles in Oregon.

Answered: 58 Skipped: 15

Showing 58 responses Current see above 7/23/2020 4:34 PM Add tags -View respondent's answers Current I'd like to see better marketing of the benefits of EVs. Hearing from EV owners is very helpful. 7/20/2020 9:10 AM Add tags -View respondent's answers Current Tightening restrictions on gas cars will lead to alternatives like EVs. Requiring trucks and buses to switch to Electric drive like CA. State fleet should be required to go EV. Raise the gas tax to reflect the true cost of pollution. 7/19/2020 6:38 PM Add tags -View respondent's answers Current All Oregon government vehicles should be electric. 7/19/2020 4:50 PM Add tags -View respondent's answers Current MOR EVs 7/19/2020 4:32 PM Add tags -View respondent's answers Current Incentives for electric, disincentives for gas, but how do this in a politically acceptable way? 7/18/2020 10:21 PM Add tags -View respondent's answers Current More federal legislation to promote electric cars

7/18/2020 5:58 PM Add tags -View respondent's answers Current Seta date after which no ICE vehicles can be sold in Oregon. 7/18/2020 2:43 PM Add tags -View respondent's answers Current Information decimination might be helpful for those concerned about battery waste. Making sure everyone understands the benefits of decreasing our dependency on fossil fuels. Offering awards to auto dealers working to support new EV owners in some way. Maybe 60 day cash back guarantees? Cultural and attitudinal changes take time and incentives. People need to believe they are moving to a better arrangement. This move needs to include a combination of economic and ease of use advantages in addition to environmental concerns. 7/17/2020 2:31 PM Add tags -View respondent's answers Current None 7/16/2020 10:51 PM Add tags -View respondent's answers Current Hurry up and pass something! There's a climate emergency. Transportation accounts for a lot of carbon pollution! Thank you. 7/16/2020 9:57 AM Add tags -View respondent's answers Current couple with solar on house roof 7/15/2020 9:17 PM Add tags -View respondent's answers Current Perhaps there could be disincentives to buying, owing and operating a non-electric vehicle. 7/15/2020 8:37 AM Add tags -View respondent's answers Current Support education. Few high schools have automotive programs, and fewer still teach EVs. 7/14/2020 10:08 PM Add tags -View respondent's answers Current Incentivize companies who choose to put in charging stations 7/14/2020 8:27 PM Add tags -View respondent's answers Current none 7/14/2020 8:12 PM Add tags -View respondent's answers

## Current

Several dealerships are discouraging electric vehicle sales. Is there a way to show on a web site which dealers are successful in selling electric vehicles? Form some peer pressure to be rated high in the public view. 7/14/2020 6:30 PM Add tags -View respondent's answers Current Allow the utility (PGE, Pacific Power) to invest in charging infrastructure at multi-family housing. They make money selling the power, but there are all kinds of regulations that get in the way of this kind of investment by the utilities. But we would all benefit from the cleaner air if they could do this. The apartment owners have no incentive to pay for charging infrastructure at their facilities, the power companies do have an incentive to sell more power especially overnight off peak! More power sales from the same capital investment means cheaper power for everyone. 7/14/2020 6:03 PM Add tags -View respondent's answers Current ? 7/14/2020 6:00 PM Add tags -View respondent's answers Current Legislators should commuting in non-polluting vehicles and making it known to their constituents. 7/14/2020 2:54 PM Add tags -View respondent's answers Current A state limit on commercial charging rates could help with traveling. 7/14/2020 2:05 PM Add tags -View respondent's answers Current Couple with fleets of self-driving cars and trucks. 7/14/2020 1:54 PM Add tags -View respondent's answers Current Add charging infrastructure requirements and renewable power generation requirements to all building permits. 7/14/2020 1:51 PM Add tags -View respondent's answers Current See above 7/14/2020 1:45 PM Add tags – View respondent's answers Current Weight mile taxes instead of registration fees 7/14/2020 12:22 PM Add tags -View respondent's answers Current None 7/14/2020 11:37 AM

Add tags -View respondent's answers Current Carbon tax on those who are ruining our world. 7/14/2020 11:07 AM Add tags – View respondent's answers Current Public service announcements about how electric cars & mass transit help environment/climate. 7/14/2020 11:05 AM Add tags -View respondent's answers Current Support charging stations. 7/14/2020 10:48 AM Add tags -View respondent's answers Current raise the gas tax as a carbon tax to promote evs 7/14/2020 10:43 AM Add tags -View respondent's answers Current Encouraging "intermediate DC chargers" (20-24KW) at businesses and shopping areas where people typically spend an hour or more could go a long way to enabling EVs for those without access to private "over-night" charging 7/14/2020 10:39 AM Add tags -View respondent's answers Current None. 7/14/2020 10:39 AM Add tags -View respondent's answers Current All auto licenses/registration should be based on miles driven 7/14/2020 10:25 AM Add tags – View respondent's answers Current I agree there needs to be a "road tax", as we pay no gasoline taxes, but it could be less confusing. We bought our Tesla when we did because of the tax incentives, both state and federal. They're key, I think. 7/14/2020 10:20 AM Add tags -View respondent's answers Current An electric car museum, and a showcase of the difference in efficiency between a gas, hybrid, and BEV. 7/14/2020 10:01 AM Add tags -View respondent's answers Current I am fresh out of ideas at this point. 7/14/2020 9:45 AM Add tags -

View respondent's answers Current See #7 7/14/2020 9:37 AM Add tags – View respondent's answers Current Seek out funds for advertising. Stimulate the will of the people. 7/14/2020 9:32 AM Add tags -View respondent's answers Current The continuation of state rebates is a must, and larger rebates for businesses and government agencies is important since those entities have the funds to buy multiple EVs. 7/14/2020 9:15 AM Add tags -View respondent's answers Current Publicize the minimal maintenance required. 7/14/2020 9:02 AM Add tags -View respondent's answers Current higher rebates to help with cost 7/14/2020 9:00 AM Add tags -View respondent's answers Current N/A 7/14/2020 8:58 AM Add tags -View respondent's answers Current Do it. 7/14/2020 8:34 AM Add tags -View respondent's answers Current I don't know 7/14/2020 8:34 AM Add tags -View respondent's answers Current Multi family complexes need incentives to retro fit their parking areas to accommodate EV charging stations for the renters. 7/14/2020 8:12 AM Add tags -View respondent's answers Current Off-grid solar charging stations exist already. Where is Oregon in leading by example on a combined solar/storage/EV future? 7/14/2020 8:09 AM Add tags -

View respondent's answers Current all destination parking lots over 100 spaces should have a charger/ 100 spaces 7/14/2020 8:04 AM Add tags -View respondent's answers Current See #7 7/14/2020 7:49 AM Add tags -View respondent's answers Current asking that a certain percentage of cars sold be electric, increasing the tax incentives and have them for each year you lease own the car 7/14/2020 6:50 AM Add tags -View respondent's answers Current Web sites that allow you to reserve a charger. Like the ability to reserve a Car2Go. 7/14/2020 5:48 AM Add tags – View respondent's answers Current ODOT funding for charging station road signage. Web site and apps for locating charging stations and trip planning. 7/14/2020 12:30 AM Add tags – View respondent's answers Current Increase rebates for non-luxury EVs (decrease for higher \$\$ vehicles) to make them more affordable for middle income households. Buyers of \$50K+ EVs are more likely to purchase them irregardless of rebates. Making a mid-priced EV equal or less than the cost of an ICE will greatly accelerate adoption. 7/13/2020 11:41 PM Add tags -View respondent's answers Current Fuel surcharges should be enacted to the price of gas and diesel for EV charging infrastructure installation. Also, airline tickets should have a tax per ticket for the same purpose and for EV education. Auto Dealerships should have property tax Incentives for numbers of EV autos sold in a year. 7/13/2020 11:03 PM Add tags -View respondent's answers Current Keep electricity cheap while petroleum fuel prices rise. 7/13/2020 10:40 PM Add tags -View respondent's answers Current I think most people don't realize how cost effective and practical electric cars have become in the last few years. I'd like to see those aspects promoted. 7/13/2020 10:35 PM Add tags -View respondent's answers Current

none 7/13/2020 10:25 PM Add tags – View respondent's answers Current Get legislative butts in seats 7/13/2020 10:15 PM Add tags -View respondent's answers Current Infrastructure is important, really important. I think people who charge with solar panels, they should get an extra special incentive perhaps, so we can charge them with renewable resources. Also legislation for V2G kind of technology, so that electric car owners could become part of the grid solution, too. 7/13/2020 8:26 PM Q10. Is there anything else you want to share with us about electric/hybrid vehicles? Answered: 60 Skipped: 13 Showing 60 responses Current I will never go back to gas cars= my Bolt is quiet, efficient, and has great performance 7/23/2020 4:34 PM Add tags -View respondent's answers Current Let's get rid of the hybrid idea and push for the charging infrastructure needed so no one will think they have to settle for a hybrid vehicle. 7/22/2020 9:36 PM Add tags -View respondent's answers Current EVs are great. We need to promote the improvement in cost, range, charging speed, and charging availability. People still think that EVs are like the first Leaf. 7/19/2020 6:38 PM Add tags -View respondent's answers Current I usually charge my car at home. 7/19/2020 5:30 PM Add tags -View respondent's answers Current Oregon should have a common Building Code that requires new construction to provide main electrical panel capacity and conduit to EV charging location. 7/19/2020 4:50 PM Add tags -View respondent's answers Current Love em. No more ICE, no more hydrocarbon based fuels. We've got to reverse course. 7/19/2020 4:32 PM Add tags -View respondent's answers

Current Love my Soul, just wonder about battery life, so a swap option would be great. 7/18/2020 10:21 PM Add tags -View respondent's answers Current Love my car and I will purchase/lease another. 7/18/2020 5:58 PM Add tags -View respondent's answers Current Also, charging stations placed in state parks and campgrounds. 7/18/2020 2:43 PM Add tags -View respondent's answers Current I don't think i have anything to say that others haven't already thought of. But, I'll keep thinking. 7/17/2020 2:31 PM Add tags – View respondent's answers Current I love my electrics and want to get more once the infrastructure is more conducive to going farther faster! 7/17/2020 8:56 AM Add tags -View respondent's answers Current They are better than gasoline vehicles 7/16/2020 10:51 PM Add tags -View respondent's answers Current See above. 7/16/2020 9:57 AM Add tags -View respondent's answers Current EVs and Solar Power are a match made in heaven! 7/15/2020 9:17 PM Add tags – View respondent's answers Current It's great their time has come. Don't be still hanging on to your gas car when the last fuel stations close. 7/14/2020 10:08 PM Add tags -View respondent's answers Current We LOVE our EV! I don't think we could ever go back to an ICE. 7/14/2020 8:27 PM Add tags -View respondent's answers Current no 7/14/2020 8:12 PM

Add tags -View respondent's answers Current Thanks for having this survey. It is hard to know who in the State government we can submit suggestions to. 7/14/2020 6:30 PM Add tags – View respondent's answers Current Yes. Go get an EV. Try it, you will be amazed how well it works! 7/14/2020 6:03 PM Add tags -View respondent's answers Current ? 7/14/2020 6:00 PM Add tags -View respondent's answers Current Not at this time. 7/14/2020 2:54 PM Add tags -View respondent's answers Current The more that are sold, the more people will see the advantages. 7/14/2020 2:05 PM Add tags – View respondent's answers Current Couldn't afford one 3 years ago, and I only by vehicles every every 25 years on average. I would need an unusually good offer for me to buy an EV now. . 7/14/2020 1:54 PM Add tags -View respondent's answers Current Have the state divest in Oil and Oil financing institutions. 7/14/2020 1:51 PM Add tags -View respondent's answers Current Public education! 7/14/2020 1:45 PM Add tags -View respondent's answers Current The most enjoyable and reliable cars to drive that I've had 7/14/2020 1:44 PM Add tags -View respondent's answers Current none 7/14/2020 12:22 PM Add tags -View respondent's answers

Current No 7/14/2020 11:37 AM Add tags -View respondent's answers Current I want one! 7/14/2020 11:07 AM Add tags -View respondent's answers Current Best car I have ever owned or driven in my lifetime. 7/14/2020 11:05 AM Add tags -View respondent's answers Current Get rid of stinky gas burning cars and trucks. 7/14/2020 10:48 AM Add tags – View respondent's answers Current we love our evs, and would never go back to gas cars 7/14/2020 10:43 AM Add tags -View respondent's answers Current "Tesla-style plug-and-go" charging should be broadly implemented... i.e. no monthly membership fees, no need to enter payment information on a per use basis (car connection authentication), payment per KW/Hr delivered, and clear charging rates (with some state enforced bound on the maximum) 7/14/2020 10:39 AM Add tags -View respondent's answers Current Tesla 3 is the best vehicle we have ever owned. 7/14/2020 10:39 AM Add tags – View respondent's answers Current clean and quiet to operate. 7/14/2020 10:25 AM Add tags -View respondent's answers Current Love the Tesla. Wish everyone had one. 7/14/2020 10:20 AM Add tags – View respondent's answers Current I believe they are the transportation of the future, in one form or another. In many cases, they are not polution free when the juice comes from coal/gas generation, but even that's cleaner than burning dead dinasaurs in an ICE. Fuel cells? We'll see where that goes. 7/14/2020 9:45 AM Add tags -

View respondent's answers Current Education and promoting EV use needs to be a priority. 7/14/2020 9:37 AM Add tags -View respondent's answers Current Thanks for all you do for the Planet! 7/14/2020 9:32 AM Add tags – View respondent's answers Current Thank you for supporting electirc vehicles. 7/14/2020 9:26 AM Add tags -View respondent's answers Current How about producing a mini-documentary that showcases folks who went electric and became enthusiastic promoters? 7/14/2020 9:15 AM Add tags -View respondent's answers Current No. 7/14/2020 9:02 AM Add tags -View respondent's answers Current no ... other than I think they are great 7/14/2020 9:00 AM Add tags -View respondent's answers Current We need to move faster. OEVA is ready to help where we can. 7/14/2020 8:58 AM Add tags – View respondent's answers Current sorry, I wasn't more help 7/14/2020 8:34 AM Add tags -View respondent's answers Current Converting light poles in downtown areas to offer stage 2 charging options for visitors. Most light poles have over capacity since they now use LED lights and were built for much higher watt bulbs, this cuts down the price of installing a charger. 7/14/2020 8:12 AM Add tags -View respondent's answers Current State does not have enough trained employees to develop these policies themselves? 7/14/2020 8:09 AM Add tags -View respondent's answers

Current they can be powered by the sun and that should be emphasized 7/14/2020 8:04 AM Add tags -View respondent's answers Current Zoom Zoom 7/14/2020 7:49 AM Add tags -View respondent's answers Current I LOVE my electric car. It is so quiet and clean. I don't plan on returning to the gas car. 7/14/2020 6:50 AM Add tags – View respondent's answers Current Driving one is what hooked me.!!! I'd love to see EVs in rental car fleets. I've got hooked on a number of cars from rentals. 7/14/2020 5:48 AM Add tags -View respondent's answers Current Drivers don't seem to have the urgency to stop burning fossil fuels. Vehicle manufacturers still emphasize ICE-powered vehicles in ad campaigns and in showrooms. Commercial behavior needs to be changed through new legislation. Teslas and Waymos are my favorite vehicles. 7/14/2020 12:30 AM Add tags -View respondent's answers Current I'm a believer in EV's. I've owned a hybrid vehicle for 8 years and really want to move up to an EV or at least a PHEV. 7/13/2020 11:21 PM Add tags -View respondent's answers Current Cities, counties, and electric utilities need to provide more educational material about the advantages of EV ownership through regular mailers and publicly attended events. 7/13/2020 11:03 PM Add tags -View respondent's answers Current They need to be plentiful, cheaper, quiet, and efficient. 7/13/2020 10:40 PM Add tags -View respondent's answers Current Keep up the good work! 7/13/2020 10:35 PM Add tags -View respondent's answers Current lots of people really like my car! 7/13/2020 10:25 PM Add tags -

View respondent's answers Current Keep up the good work 7/13/2020 10:21 PM Add tags – View respondent's answers Current Make hybrids available for rebates only if they have at least 50 miles of E range. 7/13/2020 10:15 PM Add tags – View respondent's answers Current I think TCO, total cost of ownership is important to get across to people, that in the long term electric cars are cost comparable with gas cars, even given their higher purchase price. 7/13/2020 8:26 PM