

Literature Review of U.S. Consumer Acceptance of New Personally Owned Light Duty Plug-in Electric Vehicles

Response to Peer Review

Literature Review of U.S. Consumer Acceptance of New Personally Owned Light Duty Plug-in Electric Vehicles

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Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

and

Energy Technologies Area
Lawrence Berkeley National Laboratory

NOTICE

This technical report does not necessarily represent final EPA decisions or positions. It is intended to present technical analysis of issues using data that are currently available. The purpose in the release of such reports is to facilitate the exchange of technical information and to inform the public of technical developments.

1. INTRODUCTION

1.1 Description of Report

In collaboration with Lawrence Berkeley National Laboratory, the Environmental Protection Agency drafted the report “Literature Review of U.S. Consumer Acceptance of New Personally Owned Light Duty Plug-in Electric Vehicles” (aka, the Draft Literature Review Report). The primary objective of the Draft Literature Review Report was to provide a current and comprehensive summary of the scientific literature regarding consumer acceptance of light duty (LD) plug-in electric vehicles (PEVs) among private U.S. consumers. The scope of the report included retrospective, prospective, empirical, and theoretical studies. Scope was also limited to recent (i.e., primarily 2016 and later), peer-reviewed studies with relevance to the purchase decisions of private U.S. light duty vehicle (LDV) consumers. The draft report described how PEV acceptance is defined, elicited, observed, and/or measured; the multifaceted nature and current state of PEV acceptance in the United States among private LDV consumers; and the attributes of individuals, vehicles, and the systems (i.e., physical, social, and economic) that enable and stand in the way of PEV acceptance. Another important objective of the report was to develop an organizing framework that supports actionable insights for a general audience.

In short, the Draft Literature Review Report summarized the current scientific literature regarding 1) the state of consumer acceptance of LD PEVs, 2) how consumers become aware of PEVs and progress to PEV adoption, and 3) the obstacles and enablers that hinder and facilitate LD PEV acceptance. The peer review was intended to evaluate how accurately and completely the draft literature review represents the current scientific literature regarding LD PEV acceptance, as well as assess the framework used to organize and interpret the literature. Peer reviewers’ comments were thoroughly reviewed by the co-authors of the Draft Literature Review and incorporated into the final report. The final “Literature Review of U.S. Consumer Acceptance of New Personally Owned Light Duty Plug-in Electric Vehicles” (aka, the Final Literature Review Report) is available in EPA’s Science Inventory as Publication Number EPA-420-R-23-900.

1.2 Description of Peer Review Process

EPA’s peer review guidelines specify that all influential scientific and technical work products shall undergo independent peer review per specific agency protocols. To assure the use of the highest quality science in its predictive assessments, under contract with the EPA, ICF conducted an independent peer review of the Draft Literature Review Report in accordance with provisions of EPA’s Science and Technology Policy Council Peer Review Handbook, 4th Ed., which can be found at <https://www.epa.gov/osa/peer-review-handbook-4th-edition-2015>.

ICF identified three independent subject matter experts, facilitated each expert’s review and comments on the Draft Literature Review Report, and prepared the report “Literature Review of U.S. Consumer Acceptance of New Personally Owned Light Duty Plug-in Electric Vehicles: Peer Review Report” (aka, the Peer Review Report). The Peer Review Report contains significantly more detail regarding the peer review process, ICF’s role, verbatim peer reviewer comments, and summaries. The Peer Review Report is Publication Number EPA-420-R-23-003 in the EPA’s Science Inventory.

1.3 Peer Reviewers

Three exceptionally well qualified peer reviewers agreed to review and provide comments on the Draft Literature Review Report. The peer reviewers, in alphabetical order, were as follows:

Sanya Carley
Indiana University
107 South Indiana Ave
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Michael Maness
University of South Florida
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Gil Tal
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Reviewers' curricula vitae and completed conflict of interest forms are included in the Peer Review Report prepared by ICF and available as Publication Number EPA-420-R-22-022 in the EPA's Science Inventory.

1.4 Charge Questions and Peer Reviewer Comments

Four charge questions defined the scope of the peer review. Reviewers responded to the charge questions as well as overall and section specific comments. The charge questions were as follows:

1. Does the report provide a current, comprehensive, clear, and accurate summary of the scientific literature regarding consumer acceptance of LD PEVs among private consumers of LD vehicles?
2. Does the report miss any relevant literature?
3. Is the organizing framework appropriate to satisfy the following objectives according to the current scientific literature?
 - Capture the range of LD PEV acceptance issues among LD vehicle consumers.
 - Identify what motivates LD PEV acceptance among prospective LD consumers and what stands in their way.
4. Does the synthesis contained in the report provide reasonable, defensible conclusions that accurately reflect the body of scientific literature regarding consumer acceptance of LD PEVs among private consumers of LD vehicles?

Reviewers' verbatim response to charge questions, overall comments, and section specific comments are documented in the Peer Review Report prepared by ICF which is available as Publication Number

EPA-420-R-23-003 in the EPA’s Science Inventory. Verbatim comments also appear below in Co-Authors’ Response to Peer Review

2. CO-AUTHORS’ RESPONSE TO PEER REVIEWERS’ COMMENTS

In the following three tables, the co-authors of the draft “Literature Review of U.S. Consumer Acceptance of New Personally Owned Light Duty Plug-in Electric Vehicles” (aka, Draft Literature Review Report) respond individually to all of the comments provided by each of the reviewers. The co-authors also clearly indicate changes made to the Draft Literature Review Report in response to each peer reviewer comment. The co-authors also indicate where those changes were made. See Sections 2.1 (Tables 1 – 4), 2.2 (Table 5 – 7), and 2.3 (Tables 8 – 9) for co-authors’ responses to charge questions, overall comments, and section-specific comments, respectively.

In every instance, the co-authors found the reviewers comments to be valuable, leading to revisions that improved the quality of the Final Literature Review Report. Even when the comment did not lead to revisions, the reviewers’ comments clarified for the co-authors how readers are likely to interpret and utilize the Final Literature Review Report. Thus, the coauthors are sincerely grateful for all the reviewers’ thoughtful comments, excellent questions, expert insights, and impressive attention to detail.

2.1 Co-Authors' Response to Reviewers' Comments by Charge Question

Table 1. Charge question #1: Does the report provide a current, comprehensive, clear, and accurate summary of the scientific literature regarding `consumer acceptance of LD PEVs among private consumers of LD vehicles?

Reviewer	Reviewer Comment	Response	Addressed in:
Dr. Carley	I think that the report does an excellent job of providing a comprehensive and complete picture of the literature. I have a few minor suggestions for other studies that the authors could fold into the analysis in my section specific comments below, though the authors may deem some of them unnecessary or too tangential to their focus, which is fine.	We reviewed the additional section-specific citations suggested by Dr. Carley and incorporated those we deemed useful and appropriate in the revised report.	Several sections
Dr. Tal	The return of the electric cars in the last decade, shifting from “experimental vehicles” used by very few to a product used by millions, created new interest among the scientific community. Many scientific studies and almost as many reviews have been published in the last decade, but this one is the most comprehensive and the most up-to-date work that can be used by researchers and policymakers. The most important challenge that the authors have tackled successfully is keeping it relevant and condensing the messages in a coherent way. The motivation behind the report, though not stated, is not only to describe the current market of PEVs and how they are being used, but to understand the circumstances (i.e. causality mechanisms) that created this market and what can be expected in the future given different scenarios or policies.	The motivation to "understand the circumstances ... that created this market" is out of scope. It was not our intention to explain why a PEV market has emerged. Second, the motivation to "understand ... what can be expected in the future given different scenarios or policies" is also out of scope. Our scope did not include projection-type models nor did we evaluate or craft scenarios or assess specific policies. Our intention was to focus on what constitutes PEV acceptance, namely how it is defined, elicited, observed, and/or measured; the multifaceted nature and current state of PEV acceptance in the United States among new personally owned LDV consumers; and the attributes of individuals, vehicles, and the systems (i.e., physical, social, and economic) that enable and stand in the way of PEV acceptance. In the introduction of this report, we have expanded the description of the report's scope to address the ambiguity suggested by Dr. Tal's comments.	1.1
Dr. Maness	Yes. It touches on most of the relevant areas of research.	We thank Dr. Maness for assessing the comprehensiveness of the report.	N/A

Table 2. Charge question #2: Does the report miss any relevant literature?

Reviewer	Reviewer Comment	Response	Addressed in:
Dr. Carley	I do wonder whether the adherence to 2016 studies or later might lead the authors to overlook any important or foundational analyses? I don't have any specific studies in mind here though, I just wanted to flag this in the event that there are any foundational pieces that were published before 2016 that could help advance the narrative? I will also note that there are two specific scholars (among many) who I consider to be leaders on EV scholarship and who are pushing the field in important ways: Alan Jenn and John Axsen. I see several of their studies referenced in the piece and, although I have no specific additional studies of theirs in mind, the authors may want to review both of their work one more time to ensure that they captured anything new or cutting edge that they have published recently. One example is this recent piece by Jenn: https://itspubs.ucdavis.edu/publication_detail.php?id=3089.	To focus on the current state of research, we prioritized research published in 2016 and later. We believe that seminal works published before 2016 underpin many of the studies that we have included and need not be reviewed and cited in this report. When papers published before 2016 appear to be the clearest or only discussion of a particular topic, we reviewed and included those studies.	N/A
Dr. Tal	A short but important topic is missing from this review, most likely because of the small numbers of studies that focus on it. The adoption of new vehicles for the first time only covers a smaller share of the behavioral change that needs to happen on the way to clean electric transportation. Most Americans may purchase their first electric car as a used car while other households will purchase their second or third PEV and will own a fleet of two or three PEVs. In some cases, EV owners may go back to driving ICEV (Internal Combustion Engine Vehicles). I believe it will be important to review the total numbers of new versus used car sales in the US. It is important to review the limited literature on the topic, including fleet turnover models that are not directly exploring behavior.	We agree with Dr. Tal that used PEV purchase, PEV repurchase, and PEV retention are important topics. As noted by Dr. Tal, the used PEV market is small and nascent, as are these fields of study. As a result, we chose to focus only on new PEVs. We have similarly chosen to exclude other ancillary topics related to PEV acceptance, which we enumerate in the introduction (Section 1.1).	1.1
Dr. Maness	Yes. There are some review papers that are not mentioned that would help in summarizing the attributes consumers consider. There was some missing work on incentives and their effectiveness.	Dr. Maness suggested additional citations in his section-specific comments. We reviewed his suggestions and added those deemed appropriate. Regarding incentives, the original draft addressed incentives in sections 4.3 and 4.4, including a number of citations. In response to Dr. Maness's suggestions, we now include several.	Multiple sections

Table 3. Charge question #3: Is the organizing framework appropriate to satisfy the following objectives according to the current scientific literature?:

- Capture the range of LD PEV acceptance issues among LD vehicle consumers.
- Identify what motivates LD PEV acceptance among prospective LD consumers and what stands in their way.

Reviewer	Reviewer Comment	Response	Addressed in:
Dr. Carley	I really like the 4-A framework and think that it is highly effective for this piece and will hopefully be helpful for future scholarship as well!	We thank Dr. Carley for her assessment of the framework and similarly hope that it will inform future scholarship.	N/A
Dr. Tal	The review is based on a four steps model, suggested as the “stages of consumer acceptance”, which helps categorize the reviewed papers into one of the four stage categories. The first stage is awareness: the knowledge of PEV existence, availability, and technical characteristics. The second stage is access: the PEVs actual availability, including the ability to fulfill driving needs and charging availability. The third stage is approval: the willingness to include a PEV in the consumer’s next vehicle choice set, and Finally, the last stage is adoption: the revealed behavior, in this case, limited to first-time purchase or lease of a PEV. This model is very useful, and I believe it can be used even more in the Synthesis part of the report. The suggested framework is based on the decision process of an individual or a household buying or leasing their first PEV but does not directly address the impact of environmental factors, including social effects. This framework also does not directly address the question of causality but the follow-up questions in the report call for causality investigation: ●What is the current state of LD PEV acceptance in the United States among personal-use consumers at each stage of acceptance? ●How does a U.S. consumer, community, or the nation, move through the stages of PEV acceptance? ●What enables their progression at each stage of acceptance? ●What stands in their way at each stage of acceptance?	We are glad that Dr. Tal found the 4-A framework useful. We appreciate his suggestion to include supplemental information on the methodologies of the cited studies. While a large undertaking, we agree that this adds utility to the report. In line with his suggestion, we now include an appendix table that notes the analytical methods, scope, sample size, and type of findings reported for the majority of our cited articles and reports. We do not include foundational methods papers, websites, news articles, or other sources where the format of the information is not suited to the table's fields. Regarding the issues of correlation versus causality, we have revisited the language we use in discussing studies and use phrasing like "associated with" or "correlated with" in cases where causality is less conclusively proven. Furthermore, we note that a primary goal of this report was the elucidation of the 4-A framework itself. We hope that others will continue to populate this framework with up-to-date research and currently out-of-scope topics. Finally, and as technical clarification only, we do not use the 4-A framework to "categorize reviewed papers". We use the framework to categorize findings from reviewed papers, as some studies speak to more than one stage of acceptance.	Multiple sections; Appendix A

Table 3 continued on next page...

Continuation of Table 3. Charge Question #3:

Reviewer	Reviewer Comment	Response	Addressed in:
Dr. Tal	(continued) I believe that it will be important to acknowledge the type of modeling of the reviewed literature related to causality. Many of the reviewed studies are only presenting descriptive statistics of the explored topic while other studies have used cross-sectional designs to establish a statistical association between awareness, access, approval, and adoption (usually controlling for socio-demographic characteristics or using those as explanatory variables). The Cross-sectional designs do not establish whether the cause precedes the effect, for example, does public charging infrastructure cause a market growth? Is it the number of new EVs that trigger charging installation? Or is there a third instigation, such as local policy, that generates both charging infrastructure and EV market growth? By falling short on the criteria of time-order and non-spuriousness, most studies leave open the possibility of false causality or one that stems from self-selection. Causality in social research that is focused on adoption of new technologies can be explored in many ways and it may be useful to add some discussion on the topic where applicable. I suggest exploring the following methods (Including but not limited to): direct questioning, instrumental variables models, statistical control by including knowledge attitudes etc., propensity score, sample selection models, longitudinal designs, and structural equations models. This type of analysis will be very important for studies that look at the impact of any factor directly on adoption such as the impact of vehicle sales, awareness, access, and charging infrastructure.	(see above)	(see above)

Table 3 continued on next page...

Continuation of Table 3. Charge Question #3:

Reviewer	Reviewer Comment	Response	Addressed in:
Dr. Maness	Yes. The framework is easy to understand and simplified. I think there needs to be a little more differentiation between adoption and approval.	We agree with Dr. Maness that there can be overlap between stages of the 4-A framework. The 4-A framework is a stylized, linear representation of a process that is in fact nonlinear and multidimensional. As a result, differentiation between stages can be difficult or subjective in some cases. Nevertheless, we discretize and linearize the stages to simplify complexity primarily to meet the needs of policy makers. Those needs often include structures and content that are parsimonious, informative, actionable, and measurable. Regarding adoption and approval specifically, the definitions are delineated by the clearly observable actions associated with adoption (e.g., purchase, new vehicle registration). Enablers and obstacles are less clear, as noted by the reviewer. In the report, we recognize enablers and obstacles as relevant to approval or adoption based on the dependent variable in the studies reviewed.	N/A

Table 4. Charge question #4: Does the synthesis contained in the report provide reasonable, defensible conclusions that accurately reflect the body of scientific literature regarding consumer acceptance of LD PEVs among private consumers of LD vehicles?

Reviewer	Reviewer Comment	Response	Addressed in:
Dr. Carley	I think that the synthesis is effective and does a nice job of summarizing the literature. I offer a few additional suggestions in my notes below of other topics that the authors may consider weaving into the analysis as well, such as a discussion of what is missing from the literature but important to know.	We have reviewed the additional section-specific citations that were suggested by Dr. Carley and incorporated those we deemed useful and appropriate into the report.	Multiple sections
Dr. Tal	Another methodological concern is the quality and the relevancy of the data used for each study. This report is based on mostly papers published after 2016 which, based on academic timelines, uses data collected between 2010-2019 and reflect the knowledge awareness and revealed behavior of this time frame. The rapid change in PEV technology and, in some cases, the market growth makes it very difficult to study the topic. In many cases, researchers are drawing conclusions about the future of PEVs in a manner analogous to studying current smartphones based on a survey of the first iPhone. In both the case of the iPhone and electric vehicles in early stages, both the technology and type of people who buy the technology is very different from the next generation of buyers. I believe that it will be very useful to add a review table of the type of data collected (stated preference, revealed behavior, new car buyers only, all population etc.), the time the data was collected, and the sample frame. I think it will be critically important for studies who used revealed behavior. When applicable, it may be useful to distinguish between studies who focus on current behavior and studies that are trying to use forecasting methods or to look at changes over time. I think that the authors should not be shy of hinting on the relevancy of different papers for future forecasting and policy.	Within the report, we intentionally limited the presentation of data specific information, such as reference time periods, regions, and populations, to maintain fluidity and readability of the text. However, we agree with Dr. Tal regarding the importance of this information. Thus, we now include an appendix table that notes the analytical methods, scope, sample size, and type of findings reported for the majority of our cited articles and reports. We do not include foundational methods papers, websites, news articles, or other sources where the format of the information is not suited to the table's fields.	Appendix A
Dr. Maness	Yes, mostly. Some paragraphs and conclusions made sound somewhat anecdotal – which while I believe they are accurate, additional citations would strengthen the perception of accuracy. I have not noted every instance (but I identify a few in the comments, e.g. p.21).	In accordance with Dr. Maness's comment, we added citations where suggested and elsewhere to "strengthen the perception of accuracy."	Multiple sections

2.2 Co-Author's Response to Reviewers' Overall Comments

Table 5. Overall Comments from Dr. Carley

Reviewer Comment	Response
The authors recognize that EV sales/acceptance vary by geography and socioeconomic group, but might it be worth diving into the disparities covered to date in the literature? While the authors discuss how several studies have found EV consumers to be higher income and/or more educated, there is no discussion of what we have learned from studies that evaluate the distribution of government EV subsidies. See, e.g., Borenstein, S. and L. W. Davis (2016). "The distributional effects of U. S. clean energy tax credits." <i>Tax Policy and the Economy</i> 30: 191–234. This may be outside of the scope of the study, since it is focused on tax incentives rather than consumer preferences and adoption, but I think that it is at least relevant and revealing. I really appreciate how well the report is organized. And I love Figure 10. It's such a nice way to summarize everything into a single figure. Fleet drivers are also a form of "test drivers" and there are many, many fleet drivers out there. I think that the piece does a nice job of highlighting that it is not just the actual benefits and barriers to acceptance that matter, but it is also the perceptions of these benefits and barriers, and that perceptions often may not match reality (as an aside, I have work with coauthors that we haven't published that shows that, over time, perceptions and reality have started to converge, but that misperceptions still persist; it's possible that others have found similarly, though I am aware of no specific study). This point is made in several sub-sections, but I wonder if it could be pulled out as a major theme that is prevalent across the full 4-A framework? Do the authors want to discuss what's understudied in the literature? What is the literature not addressing? Possibilities: -Local level dynamics? What happens on the ground to make EVs a priority in local communities? How to make sure that dealerships have options, fleets are converted, EV programs are available for underserved populations, etc.? -How policies fail to encourage EV purchases: there are no teeth on ZEV policies. How to make them effective? (Note that in our earlier work, we find that early EV sales do not align with ZEV policies (Clark-Sutton, K., Siddiki, S., Carley, S., Wanner, C., Rupp, J., Graham, J.D. 2016. Plug-in electric vehicle readiness: Rating cities in the United States. <i>The Electricity Journal</i> 29(1): 30-40) and that EV and GHG policies are highly misaligned (Carley, S., Ziogiannis, N., Duncan, D., Siddiki, S., Graham, J. D. 2019. Overcoming the shortcomings of U.S. plug-in electric vehicle policies. <i>Renewable and Sustainable Energy Reviews</i> 113: 1-10)). -How to extend access to EVs and charging station for underserved populations? -How supply constraints affect consumer acceptance? If the authors want to discuss the changing EV policy landscape, they could use the NC Clean Energy Technology Center's quarterly reports, such as the most recent one.	We appreciate Dr. Carley's detailed suggestions regarding the nuances of consumer acceptance of PEVs and related topics. While we agree that these topics are important and interesting, they are out of scope for this project for several carefully considered reasons. Most importantly, we need to manage the scope of this work. In addition, some topics are substantial in importance, content, or complexity that is more than sufficient to justify reports of their own. For example, topics related to disparities, distribution of subsidies, and underserved populations touch on issues of equity, which given the scientific literature on this topic and its importance, is deserving of more complete and nuanced treatment than could be achieved in this literature review. Similarly, we acknowledge that the literature on the design and effectiveness of policy interventions is rich. We nevertheless chose to curtail the presentation of this literature since a comparative analysis of policy and policy design warrants an in-depth and technical assessment of policy attributes not indicated in our stated objectives. This choice perhaps has the added benefit of a more expansive and perhaps more balanced presentation of acceptance enablers than drilling down into policy particulars would allow. Likewise, we acknowledge the importance of local level actions and dynamics as well as local level heterogeneity, but we do not delve into local level topics to manage the scale of the report. In the report, we do note the considerable efforts of other researchers in capturing local level considerations and refer readers to those studies and reviews. Lastly, for some topics, the literature was nascent, emerging, or relatively light. Current issues, such as supply constraints, used PEV markets, and PEV repurchase, are currently being analyzed by many researchers. In several years' time, the findings from these studies may be appropriate to consider in the context of the 4-A framework. Other issues of interest, as noted by Dr. Carley, were absent or arguably received insufficient treatment in the literature. Because our intent was to comprehensively present current findings of the scientific literature regarding U.S. consumer acceptance of new light duty plug-in electric vehicles and to do so in a cohesive and ingestible manner, we leave it to our readers and other researchers to identify gaps in the literature.

Table 6. Overall Comments from Dr. Tal

Reviewer Comment	Response
I believe that the report is very good in its current stage, but if the authors would like to address some of my comments, it may be best to add subsections to some of the existing structure in the synthesizing part instead of rewriting the report. The current structure is very clear and useful and very difficult to rearrange. Adding sub sections and appendix tables on causality data sources and other sources will help the reader gauge the quality and relevancy of the different studies.	We appreciate Dr. Tal's comments on our work and suggestions for additions. We agree that restructuring the report is unnecessary. We do, however, add subsection headings, rephrase to distinguish associations and correlations from causality, and add an appendix documenting data, methodologies, and other information to assist readers in gauging the quality and relevance of each study.

Table 7. Overall Comments from Dr. Maness

Reviewer Comment	Response
The chapter breakdown makes sense and is generally helpful. I thought there needs to be more organization in Chapter 2 (see specific comments) and that some sections of Chapters 3-6 could have subsections for readers to find their relevant areas / get a quick summarized understanding. Generally the enablers/obstacles to adoption are described as being the same between all stages, but I think this misses the point of having distinct acceptance aspects. The sections delve more into this with specificity (so the sections themselves are actually distinctively different). But upon initial reading, they end up sounding very similar when you read the first paragraph or two. The method of exploring the literature could use some additional explanation. It is good that the thoroughness of the literature search is explicitly mentioned, but perhaps the base papers that were used to start the discussion could be mentioned and the search terms used.	Dr. Maness provided detailed comments throughout the draft, which we addressed through the addition of subsection headers, rewording and reorganizing text, clarifying stages of acceptance, and further differentiating stage-specific enablers and obstacles of acceptance. In addition, we have provided more detail for our search and selection approach to identifying literature to review. This includes a search terms used to collect our original database of potential literature.

2.3 Co-Author's Response to Reviewers' Section Specific Comments

Table 8. Reviewer Comments by Report Section: Dr. Carley

Review Comments from Dr. Carley		
Section	Reviewer Comment	Response
1.1	The Alliance for Automotive Innovation keeps an ongoing web dashboard on EV sales. You may consider updating your numbers through 2021 with these data? https://www.autosinnovate.org/initiatives/energy-and-environment/electric-driveand https://www.autosinnovate.org/resources/electric-vehicle-sales-dashboard . If you also want international data, you could use this: Bloomberg New Energy Finance, "Global Electric Vehicle Outlook: Executive Summary" (2021), https://about.bnef.com/electric-vehicle-outlook/ .	In accordance with Dr. Carley's suggestion, we added actual annual 2021 PEV sales statistics and actual PEVs sales statistics for 2022 through May 2022 (i.e. most recent data available via the Alliance for Automotive Innovation Electric Vehicle Sales Dashboard on the access date of September 29, 2022).
1.2	This comment may be an annoying technicality, so feel free to ignore it. HOV lane access can actually be monetized. I believe that one study found that in CA, the premium on the secondary market for hybrids with HOV lane access was about \$5,000. Pretty impressive! Other possible non-financial benefits/barriers may include appreciation of the acceleration, pride in being an early technology pioneer, and disapproval of the look and other vehicle attributes associated with the EV.	We differentiate between financial and non-financial interventions (i.e. actions taken by non-consumers to motivate consumers) versus monetizable and non-monetizable interventions. While HOV access can be monetized as Dr. Carley correctly points out, it is not clearly a financial incentive like a tax credit or rebate is, for example, which we characterize as financial. We also differentiate between interventions and the types of benefits cited by Dr. Carley that derive from vehicle attributes (e.g., acceleration) or consumer characteristics (e.g., tech-forward) and attitudes (e.g., pride).
1.3	I really like your 4-A framework! Well done.1.3, page 5, under "Adoption": some studies argue that test driving an EV leads one from approval to adoption. Might it be worth featuring this topic, even briefly, in this section (although I do see mention of it at the end of section 1.4)?	To capture this insight, we added text to Section 1.3 in the description of adoption.
1.4	You may consider spiffing up Figure 2?	We have revised Figure 2 to demonstrate more clearly the centrality of consumers, the diversity of consumers, the myriad choices among vehicles, and the primary systems (i.e., markets, governments, physical infrastructure, and social networks) that all together create consumers' decision contexts.

Continuation of Table 8. Reviewer Comments by Report Section: Dr. Carley

Section	Reviewer Comment	Response
1.4	The main finding is as follows: “In other words, we found no evidence in the reviewed literature to suggest anything innate to consumers or inherent to PEVs that obstructs acceptance.” Based on my own understanding of the literature, I agree with the authors that evidence is limited but I think that using “no” before evidence might be a bit strong. I can think of two counter examples: first, people are limited by their own understanding of EVs (e.g., how far they drive on a single charge); second, there is some evidence that people face cognitive barriers to assessing the value of an EV relative to an ICE (see, e.g., a study on how providing monthly cost of ownership figures could lead to different rates of approval for EVs: https://www.sciencedirect.com/science/article/pii/S0965856414002912).	We intended to convey that there is no evidence of anything that is irremediable or immutable within consumers that would prohibit acceptance. The phrase "innate to" appears to be insufficient. Thus, we have changed it to "immutable within" and added the modifier "irremediably" to "obstructs."
1.1	Sorry if I missed this: do you want to acknowledge that this study focuses primarily on the U.S.? If the intent is not to focus on the U.S., on the other hand, then do you want to pull in more data and examples from other countries (e.g., what does the early adopter look like in the U.S. vs. China?)?	To address this and other comments related to the scope of this review, we have expanded the introduction to include more explicit statement of what is included and excluded from this review as well as our rationale for these choices. Throughout, we have repeated language related to the scope of the review to aid our readers. Regarding this particular question, we have almost exclusively included only studies of U.S. consumers. We highlight this focus in the report title.
2.1	Part of awareness is awareness not just of an EV itself but also of its attributes, costs, and features, right? Someone could know a decent amount about an EV but still have misunderstandings about its costs or GHG savings, as just two examples.	Dr. Carley's comment is correct. The report makes clear that awareness is not binary, and therefore, allows for the complexity exemplified by Dr. Carley's example.
2.5	On the topic of economic aspects: note that this depends on what price they must pay for the car, which is influenced by location, dealership, loan/cash payment, a government incentives. Here you can note also that not everyone can take advantage of those government incentives when they, for example, do not pay significant taxes.	Section 2 is intended to define consumers, decision process, and decision contexts as well as introduce key topics. We delve more deeply into topics such as vehicle price, location, dealerships, loans versus cash, and government incentives in Sections 3, 4, 5, and 6. Regarding access to federal tax credits, we note this obstacle in section 4.4.
2.5	On the topic of safety: note that some perceive the battery to be a fire hazard? Although it is not clear to me whether these attributes, as discussed in the text, are intended to be actual attributes or perceptions of them?	We address the role of consumer perceptions in Sections 2.3 and 2.5. We added text to emphasize this point in Section 2.5. Regarding safety, consumers value safety, and their perceptions of safety greatly influence purchase decisions. Regarding battery fires, this topic appears in the popular news, but we did not review any studies that specifically examined the perception of PEVs or PEV batteries as fire hazards.

Continuation of Table 8. Reviewer Comments by Report Section: Dr. Carley

Section	Reviewer Comment	Response
2.6.1	See Dumortier, J., Siddiki, S., Carley, S., Cisney, J., Krause, R., Lane, B., Rupp, J., Graham, J. 2015. Effects of providing total cost of ownership information on consumers' intent to purchase a hybrid or plug-in electric vehicle. Transportation Research Part A: Policy and Practice 72: 71-86. This study finds that the manner in which total cost of ownership is presented to a potential car buyer has big implications for their interest in an EV.	We added the citation suggested by Dr. Carley to our review in Section 2.6.1.
2.6.1	Add ability to pay in cash vs. having to take on a loan? Add ability to recover expenses through a tax credit?	Section 2 is intended to define consumers, decision process, and decision contexts as well as introduce key topics. We do include "a consumer's personal wealth and income, and availability and access to credit", which encompasses Dr. Carley's points. We also added the phrase "ability to recover expenses through a tax credit" to section 2.6.1. These topics in more in Section 4 in our detailed discussion of access and affordability.
2.6.1	Might you want to note that not every consumer is able to install a charger at their residence? If they rent, for example, or own a unit in a multi-family dwelling, they may not be able to install chargers.	We added a phrase in Section 2.6.1 that addresses Dr. Carley's question and example. We also discuss this topic more in Sections 4.4 and 5.3.
2.6.3	See Zambrano-Gutierrez, J., Nicholson-Crotty, S., Carley, S., Siddiki, S. 2018. The Role of Public Policy in Technology Diffusion: The case of Plug-in Electric Vehicles. Environmental Science & Technology 52(19): 10914-10922, which finds that support for charging infrastructure is an important mediating variable for tax incentive effectiveness.	We added Zambrano-Gutierrez et al (2018) to this review and provided this example in Section 2.6.3.
4.2; 6.2	Again, I encourage you to update your sales figures with Alliance for Automotive Innovation Dashboard data (https://www.autosinnovate.org/resources/electric-vehicle-sales-dashboard).	We added sales statistics from the Alliance for Automotive Innovation Electric Vehicle Sales Dashboard to this review.
4.2.2	I wonder if there is value in visually comparing charging stations (as is presented in Figure 4) alongside of EVs sold?	We agree that the ability to easily compare figures showing BEVs density, density of public charging stations, and number of PEV and EVSE incentives is useful. Thus, we have modified our figures so that all three figures appear together under Section 2.6 where we discuss how consumers interact with systems.

Continuation of Table 8. Reviewer Comments by Report Section: Dr. Carley

Section	Section	Section
4.3	On the cost of batteries: Do you want to note that battery availability is a challenge as well, and specifically the rare earth minerals that are needed for battery production? Another set of challenges here are the size and compatibility of batteries: the batteries are often so large that they take up valuable cargo space; and the batteries are rarely (never?) compatible across manufacturers, which has implications for cost, charging infrastructure, battery swapping business models, and recyclability/reuse.	We added a footnote that addresses the issues that Dr. Carley raises.
4.3	Note that the infrastructure bill devotes a fraction of all charging infrastructure support to underserved neighborhoods?	We made this addition to the text.
6.3	Paragraph that starts with “Jia and Chen...”: you could end this paragraph by saying “and greater effectiveness of tax incentives” (citing Zambrano-Gutierrez, J., Nicholson-Crotty, S., Carley, S., Siddiki, S. 2018. The Role of Public Policy in Technology Diffusion: The case of Plug-in Electric Vehicles. Environmental Science & Technology 52(19): 10914-10922).	We made this addition to the text.
7	You note that there is reason for optimism. But optimism about what? I also wonder whether it is better to emotionally remain neutral about the fate of EVs?	In accordance with Dr. Carley's advice, we have rephrased this passage.
7	I find the following passage confusing: “However, current PEV adopters are currently concentrated in locations with pro-PEV policies and higher numbers of charging stations. Indeed, PEV acceptance –awareness, access, and approval as well as adoption –is higher in favorable locations and among individuals with favorable characteristics. Note that we use the word “favorable” to describe locations where PEV adoption, charging infrastructure, and pro-PEV policies co-occur. We also use the word “favorable” to describe the demographic and psychographic characteristics often associated with current PEV adopters, keeping in mind that many PEV adopters do not possess these favorable characteristics and thus favorable characteristics clearly are not necessary for PEV adoption.”	We have cut parts of this passage and rephrased for clarity.
7.1	On the topic of exposure: Here again I think that you could add awareness through a company’s fleet?	We made this addition to the text.
7.4	First full paragraph: Isn’t access to charging station incentives another adoption enabler?	We have retained the original text and believe that the phrase "incentives (e.g., subsidies, rebates, and tax credits)" is inclusive of the charging station incentives mentioned by Dr. Carley.
7	Change TOC to TCO (total cost of ownership)?	We have corrected this abbreviation in Figure 10. We sincerely appreciate this attention to detail.

Table 9. Reviewer Comments by Report Section: Dr. Maness

Review Comments from Dr. Maness		
Section	Reviewer Comment	Response
General	Would be useful if sections 4.1, 5.1, and 6.1 listed the metrics similarly to section 3.1 The Adoption chapter has some aspects that seem better suited for access or approval and vice-versa. A framework suggest adoption is that ending process where you have finally fully deliberated and actually took the plunge. Some of the aspect mentioned help consumer get on the diving board rather than jump off it. I have listed specific comments in the attached word document. Unless mentioned explicitly, all comments are assumed to be able to be improved with the tools available to EPA (mostly time to write/edit, access to journals).	As suggested by Dr. Maness, we now present the metrics in 4.1, 5.1, and 6.1 as lists.
1.2	I could not see the full text for "Systems/Context" in the image.	We have revised the image, re-sized the text, and made this a static image.
1.5	Statement seems somewhat circular	We have revised this section for clarity.
2	I found the sections of this part to bounce around much. I think a summary/outline paragraph to seeks explain why each section is here/the flow of the sections would be helpful	We have included additional introductory text to frame the following subsections.
2.1	"One such depiction is the five-step consumer purchase process": This is an existing process? Needs a citation... I know at least the 11th edition of "Consumer Behavior: Building Marketing Strategy" includes this concept... I do not know if a newer edition does.	We have added two citations to seminal work in this area: Darley, W. K., Blankson, C., & Luethge, D. J. (2010). Toward an Integrated Framework for Online Consumer Behavior and Decision Making Process: A Review. Psychology & Marketing, 27(2), 94-116. Engel, J. F., Kollat, D. T., & Blackwell, R. D. (1968). Consumer Behavior. New York: Holt, Rinehart, and Winston.
2.1	"Even if consumers are aware of PEVs, there is evidence that households seeking to replace a vehicle are less likely to be willing to consider PEVs (i.e., less likely to approve of PEVs) than those looking to purchase an additional vehicle (e.g., Higgins, Mohamed, and Ferguson 2017).": The hybrid household / two-car household hypothesis?	We have added the suggested citations.
2.1	"Common criteria considered under alternative evaluation include several relating to PEV access, including: vehicle and model availability at nearby dealerships (access in terms of geography); vehicle attribute availability (access to utility); purchase price, financing options, and financial incentives (access in terms of affordability); and availability of public charging and/or potential for home charging (access to infrastructure).": Think this would be nice in a list form	Following Dr. Maness' suggestion, these criteria types are now presented as a list.
2.1	"[...] but is happening more via other means)": Can be more specific, or Is this covered later?	We discuss online sales more in later sections, but we have also added a footnote here about online sales.

Continuation of Table 9. Reviewer Comments by Report Section: Dr. Maness

Section	Reviewer Comment	Response
2.2.1	This section does not really seem focused on its title. Most attention is towards limitations by body type/size.	We believe this section logically defines the compensatory and noncompensatory vehicle criteria. We offer body style as a particularly relevant example of noncompensatory criteria for PEVs. In response to Dr. Maness' comment, we condense our body style example somewhat and add additional examples of compensatory and non-compensatory criteria.
2.3	I would generally say the sociodemographics are proxies for other characteristics (most latent) and constraints. I may suggest stating that there are general characteristics of consumers and households to make PEV usage easier/harder. Because of the ease of observations, sociodemographics are used, but they can be fluid/dynamic... a common policy goal is to make sociodemographics as irrelevant as possible.	We agree with Dr. Maness' comments. While we chose not to address these comments in the report, we believe his comments merit a thoughtful response. First, we believe that the opening paragraphs of Section 2.3 make sufficiently clear distinctions between observable and unobservable characteristics with socio-demographics and latent characteristics serving as examples. Second, we have taken into consideration the fluidity of consumer characteristics and the ways in which consumer characteristics make PEV acceptance more or less likely throughout our review. Finally, we appreciate Dr. Maness description of policy objectives. However, characterizing policy objectives is out of the scope of this review. Rather, as stated in Section 1.4 "we seek to understand how a broad range of actors and factors facilitate PEV acceptance, and how to overcome potential obstacles."
2.3.1	Sentence, "Specifically, buyers of high-end BEVs (represented by the Tesla Model S) differed significantly from buyers of low-end BEVs (represented by the Nissan Leaf) in terms of gender, income, education, and age (Hardman and Tal 2016)." When I first read the statement, it sounded like an endorsement of these two vehicle models... Consider starting the statement with the paper authors or "a study found..." and I think you mean Hardman et al. 2016. There is no 2016 article from these authors in the reference list. Hardman and Tal 2021 does not mention a Nissan Leaf.	We have rephrased this sentence for clarity and switched to the (correct) Hardman et al. 2016 citation.

Continuation of Table 9. Reviewer Comments by Report Section: Dr. Maness

Section	Reviewer Comment	Response
2.5	“Here we describe some of the key attributes relevant to vehicle purchase decisions and the vehicle features and metrics that relate to them.” Consider these two review article on attributes: • Liao F, Molin E, van Wee B. Consumer preferences for electric vehicles: a literature review. Transport Reviews. 2017 May 4;37(3):252-75. • Coffman M, Bernstein P, Wee S. Electric vehicles revisited: a review of factors that affect adoption. Transport Reviews. 2017 Jan 2;37(1):79-93.	We have added the suggested references in a footnote.
2.5	“[...] engine and related vehicle systems”: Suggest to add electric motors here since it is the PEV's tractive effort source.	We now use the term "electric motor" in this sentence.
2.6.2	Possible additional source: Adepetu A, Keshav S, Arya V. An agent-based electric vehicle ecosystem model: San Francisco case study. Transport Policy. 2016 Feb 1;46:109-22.	We have added the suggested reference.
2.6.3	Paragraph 1, Acronym, “EVSE”: First mention of this acronym -- please define	We spelled out Electric Vehicle Service Equipment and added the acronym parenthetically.
2.6.3	Paragraph 2, Word, “number”: Quantity? Supply?	We removed the word "number" from this sentence, as it no longer fit.
2.6.3	Paragraph 4: Think this needs some source material.	We have added citations to this section.
2.6.4	Paragraph 1, Word, “acceptance”: Incentivization form?	Keeping in mind that "acceptance" has been defined and therefore has specific meaning in this report, we mean the sentence exactly as stated.
3.3	“Another study focused on PEV adoption in California showed that one additional BEV or PHEV within a one-mile radius of a Census block group would increase BEV sales by 0.2 percent in the block group (Chakraborty, Buch, and Tal 2021), reinforcing the finding that exposure is linked to PEV awareness and subsequent stages of acceptance.”: I cannot find this in this source. Neither the policy brief nor the associated report mentions this finding. Additionally, it is generally difficult to disentangle self-selection and correlated environmental factors from social influence.	We have corrected this citation to Chakraborty et al. 2022.
4.2	This section would serve well with subheadings for infrastructure, vehicle availability, and affordability.	We now include these subheadings within section 4.2.
4.2	We deleted this paragraph.	We deleted this paragraph.
4.4	“A long waiting period between ordering and receiving a new PEV for recent models is another factor that makes PEVs less appealing to some consumers, especially if the need to acquire a new vehicle is urgent (Matthews et al. 2017b).” You may also consider this an obstacle to adoption (a person could approve of EVs but their decision timeframe for a particular purchase is reduced because their actual next purchase was unplanned (e.g. incapacitated vehicle)).	We have revised this paragraph to better align with Dr. Maness' point.

Continuation of Table 9. Reviewer Comments by Report Section: Dr. Maness

Section	Reviewer Comment	Response
5.3	“Thus, the enablers of awareness and access previously discussed also enable approval. These enablers include exposure, advertising, education, affordability, incentives, charging infrastructure, and PEV availability.”: Does this not work against the separation into 4 distinct stages. Seems that the enabling of approval is just the previous stages (increased awareness and better access), not the enablers of those stages. The division of the section seems to suggest that the enablers are: competitive advantage, acceptable access, and normalization.	As stated in Section 1.3, the 4-A framework is a "stylized representation" of a process, consisting of 4 stages that is not a "strictly ordered continuum." We also stated that "the components are not mutually exclusive." In Section 5.3, we intend to convey that awareness and access directly enable adoption. We also intend to convey that the enablers of awareness and access indirectly enable approval. Lastly, we intend to convey that the enablers of awareness and access can also directly enable approval. We've rephrased this section to bring more clarity based on Dr. Maness' comment. We also would like to acknowledge that the categories of enablers suggested by Dr. Maness - competitive advantage, acceptable access, and normalization - nicely articulate elements of the second dimension of our framework - consumers, vehicles, and systems - illustrated in Figure 2 and discussed in Section 2. "Competitive advantage" speaks to the alignment between consumer criteria and vehicle attributes (Section 2.2). "Acceptable access" speaks to the role of physical, government, and market systems that make PEV adoption easier or harder (Sections 2.6.1, 2.6.3, and 2.6.4). "Normalization" speaks to the social systems in which consumers form perceptions (Section 2.6.2).
5.3	This seems like competitive advantage.	In accordance with Dr. Maness' suggestion, we added subheadings to Section 5.3. We call the first subsection "Alignment between Attributes and Criteria," rather than "Competitive Advantage," which we believe better represents the content.
5.3	This seems like acceptable access	Following Dr. Maness' suggestion, we have created a subsection called "Acceptable Access."
5.3	“[...] pro-PEV policies is associated with higher levels of PEV approval”: May want to consider these sources on the effectiveness of incentives: Jenn A, Springel K, Gopal AR. Effectiveness of electric vehicle incentives in the United States. Energy policy. 2018 Aug 1;119:349-56. Wang N, Tang L, Pan H. A global comparison and assessment of incentive policy on electric vehicle promotion. Sustainable Cities and Society. 2019 Jan 1;44:597-603.	We have added the suggested reference.

Continuation of Table 9. Reviewer Comments by Report Section: Dr. Maness

Section	Reviewer Comment	Response
5.3	“Free and low-cost charging also contribute to the intent to adopt as well as on sales (Maness and Lin 2019). The presence of discounted, free, and/or designated PEV parking spaces has also been found to increase the intent to adopt a PEV, as do non-financial interventions, such as HOV lane access.” May consider this Scandanavian study that examines both parking and charging discounting in a SP setting: Langbroek JH, Franklin JP, Susilo YO. The effect of policy incentives on electric vehicle adoption. Energy Policy. 2016 Jul 1;94:94-103.	We have added this reference with a note that it is in the context of Scandanavia.
5.3	This seems like (social) normalization	Following Dr. Maness' suggestion, we have created a subsection here called "Normalization of PEVs."
5.4	“Whether and why the benefits of home charging outweigh concerns about reliability and safety differ from one consumer to the next, which could make a messaging campaign, for example, effective for one group and counterproductive for another. Regarding uncertainty, some PEV attributes, such as range, charging practices, maintenance, and operating costs, are unfamiliar to prospective adopters by virtue of the dominance, maturity, and inertia of ICEV markets and fueling infrastructure, but ultimately knowable in the short term. Other uncertainties, such as battery life and infrastructure availability, are unknown in the short term and may remain so for some time. Uncertainties, especially those related to range, infrastructure availability, and unfamiliar practices (e.g., charging rather than fueling) precipitate anxiety.”: Citations would be helpful here. Risk aversion?	We have added several citations regarding consumer behavior to this section.
6.1	Word, “percentages”: Rates?	We added "rates" to this paragraph, along with an example of a rate that measures adoption.
6.3	“[...] and thus, enablers at every stage of the 4-A framework can directly or indirectly enable adoption.”: See my similar statement before. I think the list that follows is more specific that once it is in my consideration set, what steps can be taken to move towards adoptions, what can make this easier or harder.	For increased clarity, we modified our text. In addition, note that as stated in Section 1.3, the 4-A framework is a "stylized representation" of a process, that is not a "strictly ordered continuum" with components that "are not mutually exclusive."
6.3	A previous section talks about the complexity of tax rebates. It seems like a complex tax rebate or like the time between incentive receipt and purchase are things that may inhibit adoption. Those complexities probably have less effect on someone thinking an EV is worthy of considering (you would need to really dig into the policy to understand this which is closer to the decision stage and less at gaining awareness/knowing that incentives are possible).	We have added text to highlight the potential effect of incentive design on adoption outcomes.

Continuation of Table 9. Reviewer Comments by Report Section: Dr. Maness

Section	Reviewer Comment	Response
6.3	“The process of obtaining rebates and tax credits can be confusing for consumers, and not all consumers are aware that such incentives are available to assist with the expense of PEV purchases. An additional consideration is that PEV buyers so far have tended to be those with high incomes, so rebates and incentives may accrue to consumers already likely to purchase PEVs without an intervention. Some studies suggest that caps on vehicle price and/or on buyer income can increase the likelihood that the recipient of a purchase incentive would not have purchased a PEV otherwise, improving the equity of PEV incentives (Linn 2022).”: These seem more like Obstacles.	We agree with Dr. Maness. As previously written, we appear to be describing obstacles. Our intended message was that incentives enable adoption, but the context, design, and implementation of incentives may diminish the policy's full potential due to, for example, awareness, confusion and timing. For clarity in this section, we eliminated text regarding "confusion" and "awareness" among consumers. We speak to this in Sections 3 and 4 instead. We moved the remainder of this text to a footnote as it speaks more to distributional outcomes than to adoption enablers.
6.3	I am not sure I see what here changes from approval to adoption. What about HOV lanes makes someone more likely to adopt after they've added an EV to their consideration set? It seems like an incentive that confers competitive advantage, which was a theme in approval.	We agree that access to HOV lanes likely increases the likelihood that a PEV enters into an individual's consideration set, and therefore indirectly influences adoption through approval as Dr. Maness points out. However, in some studies that include HOV lane access, the outcome measured (i.e., the dependent variable) is an adoption metric (e.g., sales). Since our review is written to reflect the literature as well as interpret it, we include HOV lane access in our discussion of adoption enablers as well. We have added a footnote where we lay out our rational for discussing the topic here.
6.3	“Expanding charging networks and increase charging accessibility through interventions, such as increasing the number of public chargers, providing free or low cost public charging, and subsidizing the installation of at-home chargers, are associated with higher adoption rates (e.g., Zou, Khaloeei, and Mackenzie 2020).”:May want to consider this source that shows that increased fast charging was associated with longer daily/weekly driving distances: Neaimeh M, Salisbury SD, Hill GA, Blythe PT, Scoffield DR, Francfort JE. Analysing the usage and evidencing the importance of fast chargers for the adoption of battery electric vehicles. Energy Policy. 2017 Sep 1;108:474-86.	We added the suggested citation to this paragraph.

Continuation of Table 9. Reviewer Comments by Report Section: Dr. Maness

Section	Section	Section
6.4	I think this makes more sense in the previous section. Along with the test drive mention. If you visit a dealership, it can often mean you are considering adopting.	Dealerships have opportunities to enable PEV acceptance throughout the vehicle purchase process. Indeed, they may be especially well suited to facilitate the shift from approval to adoption since many consumers interact with dealers at the actual time and location of purchase. Thus, we agree with Dr. Maness that a discussion of dealerships should appear among enablers in Section 6.3. In addition, studies show that PEV acceptance has not consistently been supported at dealerships. Therefore, it is necessary to include dealership practices among possible obstacles and cite those studies in Section 6.4. To that end, several revisions were made to Section 6.3 and 6.4 to incorporate these ideas.
7	Word, “compromise”: Comprise.	We have corrected this typographical error.
7.3	“Although, monetary and nonmonetary metrics and measures of approval vary widely, altogether the literature suggests that more than half of consumers believe PEVs are as good as ICEVs.”: This does not follow from the prior discussion that about half of Americans are aware of PEVs (Awareness Synthesis). How could they all then believe PEVs are at least as good? (I understand these are from varying studies, but from the framework, it just does not seem logical).	In the Awareness Synthesis, we state "The percent of U.S. vehicle consumers who are aware of PEVs ranges from roughly the mid-teens to the low eighties," with the higher percentages associated with more generalized forms of awareness (e.g., understands PEV powered by electric motor/batteries, PEVs have higher fuel economy than otherwise similar ICEVs). This 80% broadly aware of PEVs leaves plenty of room for "more than half" approving of PEVs (e.g., PEVs "as good as ICEVs"). In addition, this statement derives from Singer (2017) which we cited in Section 5.2. We add this citation to Section 7. While we chose to make no further revisions, we fully appreciate Dr. Maness' critique, which highlights the challenge of synthesizing many studies with many different study populations and many different metrics.
7	Image has presentation mode artifacts.	We sincerely appreciate this attention to detail.
General	The method of exploring the literature could use some additional explanation. It is good that the thoroughness of the literature search is explicitly mentioned, but perhaps the base papers that were used to start the discussion could be mentioned and the search terms used.	We have expanded the description of our search method.