

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

Peer Review

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

Peer Review

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

Prepared for EPA by
ICF International
EPA Contract 68HER21D0016
Task Order 68HERC22F0112

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.

Table of Contents

I.	Introduction.....	1
II.	Peer Review Process.....	2
	Selecting Reviewers.....	2
	Administering the Review and Receiving Comments.....	3
	Difficulties Encountered.....	4
III.	Responses to Charge Questions.....	4
	Comment Overview and Summary.....	4
	Comments by Reviewer	7
	Comments by Dr. Sanya Carley	7
	Comments by Dr. Gil Tal.....	12
	Comments by Dr. Michael Maness.....	15
	Appendix A: Peer Reviews Curriculum Vitae (CV).....	21
	Appendix B: Conflict of Interest (COI) Forms	60
	Appendix C: Notes from peer-review meetings with EPA, ICF, and the contracted peer reviewers.....	64
	Appendix D: Peer Reviewer Selection Memo.....	71

I. Introduction

The U.S. Environmental Protection Agency (EPA) sets emission standards for new light-duty vehicles, which are expected to result in increased numbers of plug-in electric vehicles (PEVs) in the U.S. Light Duty (LD) fleet. EPA has been conducting a review of the scientific literature to develop a current and comprehensive understanding of U.S. consumer acceptance of new, personally-owned LD PEVs. This understanding will enhance EPA's ability to examine the economic and environmental effects of new light duty standards.

The draft EPA report "Literature Review of U.S. Consumer Acceptance of New Personally Owned Light-Duty Plug-In Electric" (referred to as the Report) summarizes the current scientific literature regarding 1) the state of consumer acceptance of new, personally owned LD PEVs, 2) how consumers become aware of PEVs and progress to PEV adoption, and 3) the obstacles and enablers that hinder and facilitate new, personally owned LD PEV acceptance. This peer review will evaluate how accurately and completely the draft literature review represents the current scientific literature regarding new, personally owned LD PEV acceptance.

EPA's guidelines specify that all highly significant scientific and technical work products shall undergo independent peer review according to specific agency protocols. This process is designed to ensure the use of the highest quality science in its predictive assessments and to assure stakeholders that each analysis/study has been conducted in a rigorous, appropriate, and defensible way. Therefore, EPA submitted the Report for external peer review to assess whether the framework applied, content provided, and conclusions drawn reasonably reflect the current state of scientific literature regarding consumer acceptance of light duty (LD) plug-in electric vehicles (PEVs) among private consumers (i.e., buyers and lessees) of LD vehicles. ICF facilitated this peer review process.

The peer review was conducted from January to July 2022 in accordance with the current version of EPA's *Peer Review Handbook*.¹ At the conclusion of the review process, ICF collected all unedited peer reviewers' comments and provided them to EPA. This technical report contains a summary of the reviewers' comments to EPA's charge questions, along with the unedited answers presented by each peer reviewer. Supporting documentation collected from the reviewers, including their curriculum vitae (CV) and conflict of interest (COI) statements, is also provided.

The following materials are included in this technical report:

1. Description of the Peer Review Process (Section II)
2. Reviewer Responses to Charge Questions (Section III)
3. Reviewer Supporting Documentation ([Appendix A](#) and [Appendix B](#))

¹ U.S. Environmental Protection Agency, Peer Review Handbook, 4th Edition, October 2015. Prepared for the U.S. EPA by Members of the Peer Review Advisory Group, for EPA's Science Policy Council, EPA/100/B-15/001. Available at <http://www.epa.gov/osa/peer-review-handbook-4th-edition-2015-0>, including OMB's Information Quality Bulletin for Peer Review (Handbook, Appendix B) provisions for the conduct of peer reviews across federal agencies.

4. Notes from peer-review meetings with EPA, ICF, and the contracted peer reviewers ([Appendix C](#))
5. Peer Reviewer Selection Memo ([Appendix D](#))

II. Peer Review Process

ICF conducted the peer review in three stages. First, ICF identified a qualified set of reviewers; second, ICF contracted with the selected peer reviewers and conducted the review; then, ICF collected reviewers' feedback on the Report. Finally, ICF documented the peer review process, as well as the comments and feedback from the peer reviewers in this technical report for submission to EPA. Ultimately, EPA will convey results of the peer review process to the authors of the Report, who will respond to the comments received. The following sections provide detail on these steps.

Selecting Reviewers

ICF first identified a pool of independent subject matter experts from which to select three qualified candidates to form a review panel. Qualifications included two technical considerations. ICF first assessed the experts' availability to perform the peer review within the timeline agreed upon with the EPA Contracting Officer Representatives (COR). After that, ICF reviewed academic publications and other relevant work to select peer reviewers that represented the best qualified candidates to cover the three focus fields of this analysis:

1. Consumer preference of alternative fuel technologies
2. Behavioral and preference modeling
3. Conducting surveys to assess consumer acceptance of advanced technologies

ICF presented the six candidates based on a combination of individuals originally suggested by EPA and identified through ICF's research. EPA identified their ideal combination of peer reviewers. Through an initial contact with the selected peer reviewers, ICF assessed each potential reviewer's ability to perform the work during the period of performance and to identify any association they have with the work that would preclude them from being objective. ICF contacted and communicated with all candidates by e-mail.

Through outreach, ICF provided initial information on the relevant report, including the length of the material and the expected time commitment. ICF asked the potential reviewers to assess their availability for this study and for their hourly rate. ICF also collected a curriculum vitae for each peer reviewer that expressed availability and interest in participating.

Upon completion of the initial contact, the top three peer reviewers selected for this project agreed to participate in this peer review process. Their resumes were collected and shared with U.S. EPA TO COR. Upon approval from U.S. EPA TO COR via email, ICF initiated the subcontracting process with the selected peer reviewers. Below is the final list of the peer reviewers that served on this peer review panel

1. Sanya Carley
Indiana University
107 South Indiana Ave
Bloomington, IN 47405:
520-621-0117
scarley@indiana.edu
2. Gil Tal
University of California, Davis
1 Shields Ave
Davis, CA 9561
530-754-9230
gtal@ucdavis.edu
3. Michael Maness
University of South Florida
4202 East Fowler Ave
Tampa, FL 33620
813-974-6144
manessm@usf.edu

ICF anticipated that this selected group of reviewers would provide extensive and complementary expertise to conduct the peer review. ICF provided an overview of the final list of reviewers in the February 25, 2022, Peer Review Selection Memo to EPA².

Administering the Review and Receiving Comments

ICF composed and delivered a charge letter to the three selected along with the literature review Report, and a conflict of interest (COI) form for peer reviewers to fill out and return to ICF along with their comments. The charge letter included EPA's charge questions to the reviewers, instructions on how to complete the review, and a timeline of when comments were due to ICF. ICF sent these materials to each individual reviewer on May 24, 2022.

ICF then arranged and hosted a teleconference on June 6, 2022, with the selected peer reviewers and EPA. The goal of the meeting was to introduce the peer reviewers to the EPA staff and address early questions or concerns. The meeting included an overview of the review process, background information on the Report, and a discussion on technical and practical aspects. ICF's notes from this meeting are included as Appendix C.

ICF requested that the peer reviewers provide responses to the charge questions and complete COI form within two weeks, however Dr. Michael Maness and Dr. Gil Tal requested an extension of the deadline by one and two days, respectively. All peer reviewer comments and completed COI forms were received by June 28, 2022. ICF compiled all unedited peer review comments, charge letter

² Peer Review Selection Memo for Task Order 68HERC22F0112: Peer Review of "Literature Review of U.S. Consumer Acceptance of Light Duty Plug-in Electric", to Elizabeth Miller, US EPA OTAQ, from: Sam Pournazeri, ICF.

information, and attachments into a peer review final report. ICF organized all comments into tables so that the individual comments could be easily grouped and compared for review purposes. ICF prepared and submitted a Peer Review Summary Memo that assembled the unedited reviewer comments for EPA review and delivered the draft report to EPA on July 7, 2022.

Difficulties Encountered

The teleconference was rescheduled twice due to EPA's internal review process, leading to a slight delay.

III. Responses to Charge Questions

Section O presents an overview of the peer reviewers' comments received on the four charge questions. This overview is followed by the direct, unedited peer reviewer responses to each of the charge questions. The unedited responses by reviewer appear in a table format. In those tables, the left column lists the EPA's charge question, and the right column provides the reviewer's comments.

Comment Overview and Summary

The following section summarizes the peer reviewers' comments to the charge questions. The questions have been abbreviated for easier presentation. These summaries do not rewrite the responses or supersede the unedited comments provided by peer reviewers.

All three reviewers provided additional comments beyond those requested by the four prescribed charge questions. Those are not summarized here but are presented in their entirety in Section 2. In addition, Dr. Maness and Dr. Carley provided extensive comments by section of the report. Dr. Maness provided direct edits to the Report draft document, which was shared with EPA; those comments are included in the Additional Comments by Specific Report Chapter section of the table.

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?

The reviewers agreed that the report provides a current, comprehensive, clear, and accurate summary of the scientific literature available. In fact, Dr. Tal called it the "the most comprehensive and most up-to date work that can be used by researchers and policy makers."

Both Dr. Carley and Dr. Maness noted that the report touches on most of the relevant areas of research. Dr. Carley noted that she had a few minor suggestions of other studies the authors could fold into the analysis of the report. Dr. Tal appreciated that the report successfully tackles the question while keeping it relevant and condensing the messages in a coherent way. He explained that the report goes above and beyond the initial motivation of this report providing readers an understanding of the circumstances that created this market and what can be expected in the future.

Question 2: Does the Report miss any relevant literature?

All three reviewers provided suggestions regarding missing literature from the report. Dr. Maness and

Dr. Tal both highlighted subjects where the Report could significantly benefit by looking into some additional studies. Dr. Tal suggested the report should review the total number of new versus used car sales, including fleet turnover models that are not directly exploring behavior. He acknowledged there is limited literature on this topic, however it is worthwhile to include the literature available. Dr. Maness commented that the report is missing some review papers that would help summarize the attributes consumers consider in selecting vehicles. He noted there is missing work on incentives and their effectiveness.

Dr. Carley raised concern about potential missing foundational studies due to the adherence to 2016 studies or later in the report. She added she does not have any specific studies in mind. Additionally, Dr. Carley suggested the authors review the work of Alan Jen and John Axsen to ensure that the report captures new or cutting-edge studies from those scholars.

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 vehicles' consumers**
- **Identify what motivates LD PEV acceptance among prospective LD consumers and what stands in their way**

The reviewers provided different responses to this charge question. All reviewers appreciated the 4-A framework presented in the report. Dr. Carley noted the framework is highly effective and will hopefully be helpful for future research. Dr. Maness expressed that there need to be more differentiation between adoption and approval. Dr. Tal provided an extensive response to this charge question. First, he acknowledged that the framework helps categorize the reviewed papers into one of the four stage categories. He also noted while the framework is based on the decision process of an individual or a household buying or leasing their first PEV, it does not directly address the impact of environmental factors, including social effects. He also commented the framework does not directly address the question of causality but the follow-up questions in the report call for causality investigation (for more details, see Dr. Tal's bulleted list of sample questions on this charge question). He suggested acknowledging the type of modeling the reviewed literature used related to causality. He explained that many of the studies reviewed in the report are solely presenting descriptive statistics while other studies have used cross-sectional designs. He raised concern with cross-sectional designs as they do not establish whether the cause precedes the effects. He provided examples that validate his concern and cautions the result of false causality or one that stems from self-selection.

Finally, Dr. Tal suggested adding discussion on causality in social research through the following methods: direct questioning, variables models, statistical control by including knowledge attitudes etc., propensity score, sample selection models, longitudinal designs, and structural equations models. He noted this type of analysis will be important for studies that analyze the impact different factors on PEV adoption.

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?

Each of the peer reviewers expressed different views and suggestions regarding the synthesis. Dr. Carley had no objections and felt that synthesis is effective and summarizes the literature well. She did note that she offered a few additional topic suggestions in the “additional overall comments” section of her review that the authors may consider incorporating into the analysis. Dr. Maness mostly agreed that the synthesis contained in the report provides reasonable, defensible conclusions that accurately reflect the scientific literature in the report. He commented that some paragraphs and conclusions sound somewhat anecdotal. He believes the conclusions are accurate but suggested adding citations to strengthen the perception of accuracy. He noted a few instances on page 21 in his “comments by specific report chapter” section of his review. Though, there are others he did not record. Finally, Dr. Tal expressed concern regarding the quality and the relevancy of the data used for each study. He noted the report cites papers published after 2016 which means the data was collected between 2010–2019 and reflect the knowledge and behavior of this time frame. He explains the data is outdated due to the rapid development of PEV technology. He emphasized that the technology and type of people who buy the technology in its early states are different from the next generation of buyers. He acknowledged the market growth makes it very difficult to study this topic. To address this concern, he encourages the authors to add a review table of the type of data collection, including the time the data was collected. He added it may be useful to distinguish between studies who focus on current behavior and studies that are trying to use forecasting methods or changes over time. Lastly, he suggested the authors to hint on the relevancy of different papers for future casting and policy.

Comments by Reviewer

Comments by Dr. Sanya Carley

CHARGE QUESTION	COMMENTS
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?	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.
Does the report miss any relevant literature?	<p>See my comment above.</p> <p>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.</p> <p>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.</p>
<p>Is the organizing framework appropriate to satisfy the following objectives according to the current scientific literature?</p> <ul style="list-style-type: none">○ 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.	<p>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!</p>

CHARGE QUESTION	COMMENTS
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?	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.
ADDITIONAL OVERALL COMMENTS PROVIDED (NOT CHARGE QUESTION-SPECIFIC):	
<p>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.</p> <p>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.</p> <p>Fleet drivers are also a form of "test drivers" and there are many, many fleet drivers out there.</p> <p>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?</p> <p>Do the authors want to discuss what's understudied in the literature? What is the literature not addressing? Possibilities:</p> <ul style="list-style-type: none"> -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., Zirotiannis, 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)). 	

ADDITIONAL OVERALL COMMENTS PROVIDED (NOT CHARGE QUESTION-SPECIFIC):

-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:

https://nccleantech.ncsu.edu/wp-content/uploads/2022/05/Q1-22_EV_execsummary_Final_3.pdf?utm_source=iContact&utm_medium=email&utm_campaign=nc-clean-energy-technology-center-newsletter&utm_content=NCCETC+May+2022+Newsletter.

ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:

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-drive> and <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/>.

1.2, top of page 5: 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.

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)?

1.4 You may consider spiffing up Figure 2?

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>).

Section 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

ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:

data and examples from other countries (e.g., what does the early adopter look like in the U.S. vs. China?)?

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.

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.

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?

2.6.1 and footnote 20: 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.

2.6.1 on the factors that influence purchase decisions: Add ability to pay in cash vs. having to take on a loan? Add ability to recover expenses through a tax credit?

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.

2.6.3 bottom of page 20 and top of 21: 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.

4.2 (and 6.2 and Figure 9) 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>).

Figure 4: I wonder if there is value in visually comparing charging stations (as is presented in Figure 4) alongside of EVs sold?

4.3, page 33, 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.

4.3, last paragraph: Note that the infrastructure bill devotes a fraction of all charging infrastructure support to underserved neighborhoods?

ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:

6.3, page 46, 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).

Bottom of page 49: 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?

Bottom of page 49 and top of page 50: 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.”

7.1, page 51, on the topic of exposure: Here again I think that you could add awareness through a company’s fleet?

7.4, page 56, first full paragraph: Isn’t access to charging station incentives another adoption enabler?

Figure 10: change TOC to TCO (total cost of ownership)?

Comments by Dr. Gil Tal

CHARGE QUESTION	COMMENTS
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?	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.
Does the report miss any relevant literature?	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.
Is the organizing framework appropriate to satisfy the following objectives according to the current scientific literature? <ul style="list-style-type: none"> ○ 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. 	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

CHARGE QUESTION	COMMENTS
	<p>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.</p> <p>This framework also does not directly address the question of causality but the follow-up questions in the report call for causality investigation:</p> <ul style="list-style-type: none"> ○ 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? <p>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.</p> <p>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.</p> <p>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.</p>

CHARGE QUESTION	COMMENTS
<p>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?</p>	<p>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.</p>
ADDITIONAL OVERALL COMMENTS PROVIDED (NOT CHARGE QUESTION–SPECIFIC):	
<p>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.</p>	
ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:	
N/A	

Comments by Dr. Michael Maness

CHARGE QUESTION	COMMENTS
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?	Yes. It touches on most of the relevant areas of research.
Does the report miss any relevant literature?	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.
Is the organizing framework appropriate to satisfy the following objectives according to the current scientific literature? <ul style="list-style-type: none"> ○ 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. 	Yes. The framework is easy to understand and simplified. I think there needs to be a little more differentiation between adoption and approval.
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?	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).
ADDITIONAL OVERALL COMMENTS PROVIDED (NOT CHARGE QUESTION-SPECIFIC):	
<p>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.</p> <p>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</p>	

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.

ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:

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).

For the remainder of this section, ICF added Michael's comments from" Literature Review of U.S. Consumer Acceptance of Light Duty Plug-in Electric" draft.

Section 1.2, Figure 2: I could not see the full text for "Systems/Context" in the image.

Section 1.5, last bullet: Statement seems somewhat circular

Section 2: I found the sections of this part to bounce around much. I think a summary/outline paragraph to explain why each section is here/the flow of the sections would be helpful

Section 2.1, Paragraph 1, Sentence, "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.

Section 2.1, Paragraph 2, Sentence, "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?

Kurani KS, Turrentine T, Sperling D. Testing electric vehicle demand in 'hybrid households' using a reflexive survey. Transportation Research Part D: Transport and Environment. 1996 Dec 1;1(2):131-50.

Karlsson S. What are the value and implications of two-car households for the electric car?. Transportation Research Part C: Emerging Technologies. 2017 Aug 1;81:1-7.

Section 2.1, Paragraph 4, Sentence, "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

ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:

Section 2.1, Paragraph 4, Sentence, "[...] but is happening more via other means)": "Can be more specific, or is this covered later?"

Section 2.2.1: This section does not really seem focused on its title. Most attention is towards limitations by body type/size.

Section 2.3: I would generally say the sociodemographic 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, sociodemographic are used, but they can be fluid/dynamic... a common policy goal is to make sociodemographic as irrelevant as possible.

Section 2.3.1, Paragraph 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.

Section 2.5, Paragraph 3, Sentence, "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.

Section 2.5, Paragraph 3, Sentence, "[...] engine and related vehicle systems": Suggest to add electric motors here since it is the PEV's tractive effort source.

Section 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.

Section 2.6.3, Paragraph 1, Acronym, "EVSE": First mention of this acronym -- please define

Section 2.6.3, Paragraph 2, Word, "number": Quantity? Supply?

Section 2.6.3 Paragraph 4: Think this needs some source material.

Section 2.6.4, Paragraph 1, Word, "acceptance": Incentivization form?

Section 3.3, Paragraph 3, Sentence, "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.

ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:

Section 4.2: This section would serve well with subheadings for infrastructure, vehicle availability, and affordability.

Section 4.2, Paragraph 7: This is repeated from a few paragraphs before.

Section 4.4, Paragraph 2, Sentence, “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)).

Section 5.3, Paragraph 1, Sentence, “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.

Section 5.2, Paragraphs 4&5: This seems like competitive advantage.’

Section 5.2, Paragraphs 5&6: This seems like acceptable access

Section 5.3, Paragraph 7, Sentence, “[...] 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.

Section 5.3, Paragraph 7, Sentences, “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 Scandinavian 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.

Section 5.3, Paragraph 8: This seems like (social) normalization

Section 5.4, Paragraph 2, Sentences, “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

ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:

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?

Section 6.1, Paragraph 1, Word, “percentages”: Rates?

Section 6.3, Paragraph 1, Sentence, “[...] 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.

Section 6.3, Paragraph 2: 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).

Section 6.3, Paragraph 2, Sentences, “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.

Section 6.3, Paragraph 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.

Section 6.3, Paragraph 4, Sentence, “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, Khloei, 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.

Section 6.4, Paragraph 2: 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.

Section 7, Paragraph 2, Word, “compromise”: Comprise.

Section 7.3, Paragraph 2, Sentence, “Although, monetary and nonmonetary metrics and measures of approval vary widely, altogether the literature suggests that more than half of consumers

ADDITIONAL COMMENTS BY SPECIFIC REPORT CHAPTER:

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).

Figure 10: Image has presentation mode artifacts.

Appendix A: Peer Reviews Curriculum Vitae (CV)

Paul O'Neill School of Public and Environmental Affairs
 Indiana University, Room A319, 1315 East Tenth Street, Bloomington, IN 47405
 (812) 856-0920; scarley@indiana.edu

PROFESSIONAL APPOINTMENTS

O'Neill Professor, Paul O'Neill School of Public and Environmental Affairs, Indiana University	2021 - 2023
Professor, Paul O'Neill School of Public and Environmental Affairs, Indiana University	2019 - present
Director, Master of Public Affairs Programs, Paul O'Neill School, Indiana University	2019 - present
Chair, Policy Analysis and Public Finance, Paul O'Neill School, Indiana University	2016 - 2019
Associate Professor, Paul O'Neill School, Indiana University	2014 - 2019
Assistant Professor, Paul O'Neill School, Indiana University	2010 - 2014

PROFESSIONAL AFFILIATIONS

GT Scholar	2019 - 2021
Affiliated Faculty Member, Ostrom Workshop	2011 - present
Research Fellow, Center for Organization Research and Design	2016 - present
Research Member, The Richard G. Lugar Center for Renewable Energy	2013 - present
Member, Scholars Strategy Network	2017 - present

EDUCATION

University of North Carolina at Chapel Hill. Ph.D. Public Policy, 2010.
 Dissertation Committee: Richard Andrews (Chair), Richard Newell, Tim Johnson, Gary Henry, Doug Crawford-Brown.
 University of Wisconsin-Madison. M.S. Urban and Reg. Planning; Certificate Energy Analysis and Policy, 2006.
 Swarthmore College. B.A. Economics; B.A. Sustainable Development, 2003.

AREAS OF RESEARCH

Energy Policy, Energy Equity and Justice, Electricity Markets, Transportation Industry, Energy-based Economic Development, Policy Instruments, Electric Vehicles, Distributed Generation, Brewing Industry

CONSULTING AND PREVIOUS WORK EXPERIENCE

Consultant, Institute for International Business, Indiana University, Bloomington, IN, 2013.
 Consultant, Environmental Protection Agency, Conflict Prevention and Resolution Center, Washington D.C., 2010.
 Consultant, Research Triangle Institute International, Center for Technology Applications, Research Triangle Park, NC, 2009-2010; 2017.
 Consultant, ARCEconomics, SC., 2007-2010.
 Consultant, The Nicholas Institute for Environmental Policy Solutions, Durham, NC, 2008
 Graduate Fellow, Center for Sustainable Energy, Environment, and Economic Development, Chapel Hill, NC, 2006-2010
 Energy Program Specialist, Wisconsin Public Utility Institute, Madison, WI, 2005-2006.
 Independent Contractor, World Bank Group, Development Economic Research of the Public Sector, Washington D.C., 2003-2006.

HONORS AND AWARDS

David N. Kershaw Award, Association of Public Policy Analysis and Management, 2021.
O'Neill Professorship, Paul H. O'Neill School of Public and Environmental Affairs, Indiana University, 2021-2023.
World Citizen Prize in Environmental Management, Association of Public Policy Analysis and Management, 2020.
40 Under 40 Award Recipient, Midwest Energy News, 2019.
Campus Catalyst Excellence in Teaching Award, Indiana University Office of Sustainability, 2017.
George I. Treyz Award for Excellence in Economic Analysis, Best Paper Award, Regional Economic Modeling, Inc. 2017.
Most Personable Faculty Award, Student Choice Award, School of Public and Environmental Affairs, Indiana University. 2016.
Best Paper Award for Research in Comparative Policy Analysis, honored by the Association of Public Policy Analysis and Management and the International Comparative Policy Analysis Forum. 2014.
Outstanding Junior Faculty Award, Office of the Vice Provost for Faculty and Academic Affairs and the Office of the Vice Provost for Research, Indiana University-Bloomington. \$14,500 research grant. 2013.
IU Trustees Teaching Award, Indiana University-Bloomington. 2012.
Spot Award, Research Triangle Institute International, RTP, NC. 2009.
Progress Energy Fellow, University of North Carolina at Chapel Hill. 2006-2010.
Future Faculty Fellowship, University of North Carolina at Chapel Hill. 2008.
American Planning Association Best Student Presentation Winner, Upper Midwest American Planning Association Conference. 2005.
Morris Udall Scholar, 2002.

BOOKS

Carley, S., Lawrence, S. 2014. *Energy-based Economic Development: How clean energy can drive development and stimulate economic growth*. Springer: New York.
- Reviewed in: *Journal of Policy Analysis and Management*; *Economic Development Quarterly*.

PEER- OR EDITOR-REVIEWED PUBLICATIONS

* Denotes student co-author at time of writing

Sovacool, B.K., Newell, P., Carley, S., Fanzo, J. Inequality, technological innovation and sustainable behavior in our low-carbon future. Accepted at *Nature Human Behavior*.

Baker, S.H., Carley, S., Konisky, D.M. 2021. Energy insecurity and the urgent need for utility disconnection protections. *Energy Policy*.

Bazilian, M.D., Carley, S., Konisky, D., Zerriffi, H., Pai, S., Handler, B. 2021. Expanding the scope of just transitions: Towards localized solutions and community-level dynamics. *Energy Research & Social Science* 80.

Konisky, D.M., Carley, S. 2021. What we can learn from the Green New Deal about the importance of equity in national climate policy. *Journal of Policy Analysis and Management* 40(3): 966-1002.

Yozwiak, M.*, Abell, H.*, Carley, S. 2021. Energy policy reversal during the Trump administration: Examination of its legacy and implications for federalism. *Publius: The Journal of Federalism* 51(3), 429-458.

- Graff, M.*, Carley, S., Memmott, T.*, Konisky, D.M. 2021. Which households are energy insecure? An empirical analysis of race, housing conditions, and energy burdens in the United States. *Energy Research & Social Science* 79.
- Konisky, D.M., Ziropiannis, N., Carley, S. 2021. Building resilience to the energy transition in Indiana. *Book chapter accepted for publication*.
- Memmott, T.*, Carley, S., Konisky, D. 2021. Who participates in energy activism? Profiling political engagement in the United States. *Energy Research & Social Science* 77.
- Graff, M.*, Konisky, D.M., Carley, S., Memmott, T.* 2021. Climate change and energy insecurity: A growing need for policy intervention. *Environmental Justice*.
- Carley, S., Engle, C.*, Konisky, D.M. 2021. An analysis of energy justice programs across the United States. *Energy Policy* 152.
- Memmott, T.*, Carley, S., Graff, M.*, Konisky, D.M. 2021. Socioeconomic disparities in energy insecurity among low-income households before and during the COVID-19 pandemic. *Nature Energy* 6: 186-193.
- Flaherty, M.*, Carley, S., Konisky, D.M. 2020. Electric utility disconnection policy and vulnerable populations. *The Electricity Journal* 33.
- Carley, S., Konisky, D. 2020. The justice and equity implications for the clean energy transition. *Nature Energy* 5.
- Beppler, R.*, Matisoff, D., Chan, G., Carley, S. 2020. A review of barriers in implementing dynamic electricity pricing to achieve cost-causality. *Environmental Research Letters* 15.
- Graff, M.*, Carley, S. 2020. COVID-19 Assistance Needs to Target Energy Insecurity. *Nature Energy* 5.
- Carley, S. 2022. Energy Policy. Forthcoming in *Environmental Policy*, 11th Edition, Eds. M. E. Kraft, N. J. Vig, B. G. Rabe.
- Carley, S., Konisky, K., Atiq, Z.*, Land, N.* 2020. Energy infrastructure, NIMBYism, and public opinion: A systematic literature review of three decades of empirical survey literature. *Environmental Research Letters* 15.
- Wendling, Z.*, Warren, D.*, Rubin, B., Carley, S., Richards, K. 2020. An Energy-Economy Econometric Model for Conducting State-Level Energy Policy Analysis. *Economic Development Quarterly*.
- Konisky, D., Ansolabehere, S., Carley, S. 2020. Examining the role of NIMBYism in public acceptance of energy infrastructure. *Public Opinion Quarterly*.
- Bergquist, P.*, Ansolabehere, S., Carley, S., Konisky, D. 2020. Backyard voices: How sense of place shapes views of large-scale energy transmission infrastructure. *Energy Research & Social Science* 63.
- Carley, S., Graff, M.* 2020. A Just U.S. Energy Transition. In *Handbook of U.S. Environmental Policy*, Eds. D. Konisky. Edward Elgar Publishing.
- Carley, S., Konisky, D. 2019. What the “Green New Deal” Means for Business: Protecting At-Risk Communities Can Be Part of a Strong Environmental Strategy. *Harvard Business Review*.

- Carley, S., Zirogiannis, N., Duncan, D., Siddiki, S., Graham, J. D. 2019. Overcoming the shortcomings of U.S. plug-in electric vehicle policies. *Renewable and Sustainable Energy Reviews* 113: 1-10.
- Carley, S., Ansolabehere, S., Konisky, D. 2019. Are all electrons the same? Evaluating support for local transmission lines through a survey experiment. *PLoS ONE*.
- Carley, S., Zirogiannis, N., Duncan, D., Siddiki, S., Graham, J. D. 2019. An analysis of the macroeconomic effects of 2017-2025 federal fuel economy and greenhouse gas emissions standards. *Journal of Policy Analysis and Management* 38(3): 732-763.
- Winner of the George I. Trez Award for Excellence in Economic Analysis, Best Paper Award, honored by Regional Economic Modeling, Inc.
- Carley, S., Nicholson-Crotty, S., Siddiki, S. 2019. Evolution of plug-in electric vehicle demand: Assessing consumer perceptions and intent to purchase over time. *Transportation Research Part D: Transport and Environment* 70: 94-111.
- Baldwin, E., Carley, S., Nicholson-Crotty, S. 2019. Why do countries emulate each others' policies? A global study of renewable energy policy diffusion. *World Development* 120: 29-45.
- Graff, M.*, Carley, S., Pirog, M. 2019. A review of the environmental policy literature from 2014-2017 with a closer look at the energy justice field. *Policy Studies Journal* 47(S1): S17-S44.
- Zirogiannis, N., Duncan, D., Carley, S., Siddiki, S., Graham, J. D. 2019. The effect of CAFE standards on vehicle sales projections: A total cost of ownership approach. *Transport Policy* 75: 70-87.
- Jenn, A., Hardman, S., Carley, S., Zirogiannis, N., Duncan, D., Graham, J. D. 2019. Cost implications for automakers' compliance with emission standards from Zero Emissions Vehicle mandate. *Environmental Science & Technology* 53(2): 564-574.
- Duncan, D., Ku, A.*, Julian, A.*, Carley, S., Siddiki, S., Zirogiannis, N., Graham, J.D. 2019. Most Consumers Don't Buy Hybrids: Is Rational Choice a Sufficient Explanation? *Journal of Benefit-Cost Analysis* 10(1): 1-38.
- Carley, S., Yahng, L. 2018. Willingness-to-pay for sustainable beer. *PLoS ONE*.
- 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.
- Carley, S., Nicholson-Crotty, S. 2018. Moving Beyond Theories of Neighborly Emulation: Energy Policy Information Channels are Plentiful among American States. *Energy Research and Social Science* 46: 245-251.
- Carley, S., Davies, L., Spence, D., Zirogiannis, N. 2018. Empirical evaluation of the stringency and design of renewable portfolio standards. *Nature Energy* 3: 754-763.
- Carley, S., Evans, T. P., Graff, M.*, Konisky, D. M. 2018. A framework for evaluating geographic disparities in energy transition vulnerability. *Nature Energy* 3: 621-627.
- Zirogiannis, N., Carley, S., Duncan, D., Siddiki, S., Graham, J. D. 2018. Fuel Economy Standards and the US Economy. *Insight into Manufacturing Policy* 2, 1-5.

- Graff, M.*, Carley, S., Konisky, D. 2018. Stakeholder perceptions of the United States energy transition: Local-level dynamics and community responses to national politics and policy. *Energy Research & Social Science* 43: 144-157.
- Carley, S., Evans, T. P., Konisky, D. M. 2018. Adaptation, culture, and the energy transition in American coal country. *Energy Research & Social Science* 37: 133-139.
- Lane, B., Carley, S., Siddiki, S., Dumortier, J., Clark-Sutton, K.*, Graham, J. D. 2018. All electric vehicles are not the same: Predictors of preference for a plug-in hybrid versus a battery-electric vehicle. *Transportation Research Part D: Transport and Environment* 65, 1-13.
- Siddiki, S., Carley, S., Ziropiannis, N., Duncan, D., Graham, J. 2018. Does dynamic federalism yield compatible policies? A study of federal and state vehicle standards. *Policy Design and Practice* 1(3): 215-232.
- Nicholson-Crotty, S., Carley, S. 2018. Information exchange and policy adoption decisions in the context of U.S. state energy policy. *State Politics and Policy Quarterly* 18(2): 122-147.
- Carley, S., Baldwin, E.*, MacLean, L. M., Brass, J. N. 2017. Global Expansion of Renewable Energy Generation: An Analysis of Policy Instruments. *Environmental and Resource Economics* 68(2): 397-440.
- Winner of the 2014 Best Paper Award for Research in Comparative Policy Analysis, honored by the Association of Public Policy Analysis and Management and the International Comparative Policy Analysis Forum.
- Carley, S., Nicholson-Crotty, S., Miller, C.* 2017. Adoption, Reinvention, and Amendment of Renewable Portfolio Standards in the American States. *Journal of Public Policy* 37(4): 1-28.
- Baldwin, E.*, Carley, S., Brass, J. N., MacLean, L. M. 2017. Global renewable energy policy: A comparative analysis of countries by economic development status. *Journal of Comparative Policy Analysis* 19(3): 277-298.
- Davies, L. L., Carley, S. 2017. Emerging shadows in national solar policy? Nevada's Net Metering Transition in Context. *The Electricity Journal*.
- Krause, R., Lane, B., Carley, S., Sperl J.*, Graham, J. 2016. Assessing the Demand for Electric Vehicles under Future Cost and Technological Scenarios. *International Journal of Sustainable Transportation* 10(8): 742-751.
- 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. *The Electricity Journal* 29(1): 30-40.
- Carley, S. 2016. Energy programs of the American Recovery and Reinvestment Act of 2009. *Review of Policy Research* 33(2): 201-223.
- Carley, S. 2016. The American Recovery and Reinvestment Act of 2009: What have we learned? *Review of Policy Research* 33(2): 119-123.
- Ziropiannis, N., Alcorn, J.*, Rupp, J., Carley, S., Graham, J. 2016. State regulation of unconventional gas development in the U.S.: An empirical evaluation. *Energy Research and Social Science* 11:142-154.
- Nicholson-Crotty, S., Carley, S. 2016. Effectiveness, Implementation Capacity, and Policy Diffusion: Or, "Can We Make that Work for Us?" *State Politics and Policy Quarterly* 16(1), 78-97.

- Paydar, N.*, Schenk, O., Alcorn, J.*, Bowers, A., Carley, S., Rupp, J., Graham, J.D. 2015. The Effect of Community Reinvestment Funds on Local Acceptance of Unconventional Gas Development. *Economics of Energy & Environmental Policy* 15(1): 1-26.
- Esposito, D.*, Rupp, J., Carley, S. 2015. Interaction of risks associated with natural gas and renewable based electricity. *The Electricity Journal* 28(8): 69-84.
- Siddiki, S., Dumortier, J., Curley, C., Carley, S., Krause, R. 2015. Regulating for Innovation and Technology Adoption: The Case of Plug-In Vehicles. *Review of Policy Research* 32(6): 649-674.
- Warren, D.*, Wendling, Z.*, Bower-Bir, J.*, Fields, H.*, Richards, K., Carley, S., Rubin, B. 2015. Estimating State and Sub-State Economic Effects of a Carbon Dioxide Tax Policy: An Application of a New Multi-Region Energy-Economy Econometric Model. *Regional Science, Policy and Practice* 7(3): 119-139.
- MacLean, L., Brass, J., Carley, S., El-Arini, A.*, Breen, S.* 2015. Democracy and the distribution of NGOs promoting renewable energy in Africa. *Journal of Development Studies* 51(6): 725-742.
- 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.
- Carley, S., Nicholson-Crotty, S., Fisher, E.* 2015. Capacity, Guidance, and the Implementation of the American Recovery and Reinvestment Act. *Public Administration Review* 75(1): 113-125.
- Graham, J. D., Cisney, J.*, Carley, S., Rupp, J. 2014. No time for pessimism about electric cars. *Issues in Science & Technology*.
- Carley, S., Hyman, M.* 2014. The American Recovery and Reinvestment Act: Lessons from Energy Program Implementation Efforts. *State and Local Government Review* 46(2): 140-147.
- Republished in a January 2021 virtual issue on "Cutbacks and Economic Recovery: Lessons for State and Local Governments."
- Baldwin, E.*, Brass, J., Carley, S., MacLean, L. 2014. Issues of scale in distributed generation electrification for rural development. *WIREs: Energy and Environment*.
- Warren, D.*, Carley, S., Krause, R., Rupp, J., Graham, J. 2014. Predictors of attitudes toward carbon capture and storage using data on world views and CCS-specific attitudes. *Science and Public Policy*.
- Krause, R., Carley, S., Warren, D.*, Rupp, J., Graham, J. 2014. Not Under My Backyard: Geographic proximity and public acceptance of CCS facilities. *Risk Analysis* 34(3): 529-540.
- Wendling, Z. A.*, Attari, S. Z., Carley, S., Krause, R. M., Warren, D.*, Rupp, J., Graham, J. D. 2013. On the importance of strengthening moderate beliefs in climate science to foster support for immediate action. *Sustainability* 5(12): 5153-5170.
- Krause, R., Carley, S., Lane, B., Graham, J. 2013. Perception and Reality: Public Knowledge of Plug-in Electric Vehicles. *Energy Policy* 63: 443-440.
- Lane, B., Messer, N.*, Hartman, D.*, Carley, S., Krause, R., Graham, J. 2013. Government promotion of the electric car: Risk management or industrial policy? *European Journal of Risk Regulation* 2: 227-245.

- Carley, S., Krause, R., Lane, B., Graham, J. 2013. Intent to purchase a plug-in electric vehicle: A survey of early impressions in large US cities. *Transportation Research Part D: Transport and Environment* 18: 39-45.
- Brass, J., Carley, S., MacLean, L., Baldwin, E.* 2012. Power for development: An analysis of on-the-ground experiences of distributed generation in the developing world. *Annual Review of Environment and Resources* 37: 107-136.
- Carley, S., Browne, T.* 2012. Innovative US Energy Policy: A review of states' policy experiences. *WIREs: Energy and Environment* 00: 1-19.
- Carley, S., Miller, C.* 2012. Regulatory stringency and policy adoption: Reassessment of renewable portfolio standards. *Policy Studies Journal* 40(4): 730-756.
- Carley, S., Krause, R., Warren, D.*, Rupp, J., Graham, J. 2012. Early public impressions of terrestrial CCS in a coal-intensive state. *Environmental Science & Technology* 46: 7086-7093.
- Gaul, C.*, Carley, S. 2012. Solar set asides and renewable energy certificates: Early lessons from North Carolina's experience with its Renewable Portfolio Standard. *Energy Policy* 48: 460-469.
- Carley, S., Andrews, R. L. 2012. Creating a sustainable U.S. electricity sector: The question of scale. *Policy Sciences* 45(2): 97-121.
- Carley, S. 2012. Energy demand-side management: New perspectives for a new era. *Journal of Policy Analysis and Management* 31(1): 6-32.
- Carley, S., Brown, A., Lawrence, S. 2012. Economic development and energy: From fad to a sustainable discipline? *Economic Development Quarterly* 26(2): 111-123.
- Carley, S. 2012. National clean energy standards: Experience from the states. *Review of Policy Research* 29(2): 301-307. Originally printed in *SPEA Insights*, July 2011.
- Carley, S. 2011. Decarbonization of the U.S. electricity sector: Are state energy policy portfolios the solution? *Energy Economics* 33(5): 1004-1023.
- Carley, S. 2011. Normative dimensions of sustainable energy policy. *Ethics, Policy & Environment* 14(2): 211-229.
- Carley, S. 2011. The era of state energy policy innovation: A review of policy instruments. *Review of Policy Research* 28(3): 265-294.
- Carley, S., Lawrence, S., Brown, A., Nourafshan, A.*, Benami, E.* 2011. Energy-Based Economic Development. *Renewable and Sustainable Energy Reviews* 15(1): 282-295.
- Carley, S. 2010. Historical analysis of U.S. electricity markets: Reassessing carbon lock-in. *Energy Policy* 39(2): 720-732.
- Carley, S. 2009. Distributed generation: An empirical analysis of primary motivators. *Energy Policy* 37(5): 1648-1659.
- Carley, S. 2009. State renewable energy electricity policies: An empirical evaluation of effectiveness. *Energy Policy* 37(8): 3071-3081.

LAW JOURNAL PUBLICATIONS

Carley, S., Messer, N.* Graham, J. 2012. Innovation in the Auto Industry: The Role of the U.S. Environmental Protection Agency. *Duke Environmental Law and Policy Forum* 21: 367-399.

Carleyolsen, S. 2006. Tangled in the Wires: An Assessment of the Existing U.S. Renewable Energy Legal Framework. *Natural Resources Journal* 46 (3): 759-792.

BOOK REVIEWS

Carley, S., Graff, M.* 2018. Review of “Climate and Clean Energy Policy: State Institutions and Economic Implications.” *American Review of Public Administration* 48(5).

PEER-REVIEWED POLICY AND BUSINESS REPORTS

Carley, S., Duncan, D., Graham, J. D., Siddiki, S., Ziogiannis, N. 2017. “A Macroeconomic Study of Federal and State Auto Regulations with Recommendations for Analysts, Regulators, and Legislators.”

Carley, S., Davies, L. 2016. “Nevada’s Net Energy Metering Experience: The Making of a Policy Eclipse?” Brookings Institution Report.

Carley, S., Duncan, D., Esposito, D.*, Graham, J. D., Siddiki, S., Ziogiannis, N., 2016. “Rethinking Auto Fuel Economy: Technical and Policy Suggestions for the 2016-17 Midterm Reviews.”

Carley, S., Jasinowski, J., Glassley, G.*, Strahan, P.*, Attari, S., Shackelford, S. October 2014. “Success Paths to Sustainable Manufacturing.”

School of Public and Environmental Affairs, 2011. “Plug-in Electric Vehicles: A Practical Plan for Progress.” The report of an expert panel [Contributing author].

POLICY REPORTS AND WHITE PAPERS

Foster, D., et al. 2021. Case Study: The Industrial Heartland and the Motor Vehicles Transition. Roosevelt Project Report.

Carley, S. 2021. Transforming America’s energy infrastructure: Lessons from the American Recovery and Reinvestment Act of 2009. Niskanen Center Report.

Raimi, D., Barone, A., Carley, S., Foster, D., Grubert, E., Haggerty, J., Higdon, J., Kearney, M., Konisky, D., Michael, J., Michaud, G., Nabahe, S., Peluso, N., Robertson, M., Reames, T. April 2021. Policy Options to Enable an Equitable Energy Transition. Resources for the Future Report 21-09.

Guevara, T., Slaper, T., Carley, S., Kinghorn, M., Klacik, D., Palmer, J., Martyn, K., Mohrman, M.*, Williamson, C.* 2020. “Economic, Fiscal, and Social Impacts of the Transition of Electricity Generation Resources in Indiana.”

Carley, S., Graff, M.*, Konisky, D., Memmott, T. 2020. “Survey of Household Energy Insecurity in Time of COVID.”

Carley, S., Graff, M.*, Konisky, D., Memmott, T. 2020. “Survey of Household Energy Insecurity in Time of COVID: Preliminary Results of Wave-2, and Wave-1 and Wave-2 Combined.”

Carley, S., Engle, C.*, Konisky, D., Sullivan, S. 2019. "State and Local Energy Justice Programs," *Renewable Energy Policy Initiative*. <http://closup.umich.edu/files/REPI-Carley%20etal.pdf>

Indiana University Public Policy Institute, February 2012. "An environmentally sound energy policy: One key to Indiana's economic future." Policy brief prepared for Indiana policymakers by the Indiana Policy Choices Energy and Environment Commission [Commission member and contributing author].

Carley, S., Hyman, M.* The "Grand Experiment:" An early review of energy-related American Recovery and Reinvestment Act Efforts. *PERI Working Paper Series Report 338*.

Carley, S., Desai, S., Bazilian, M., Kammen, D. 2012. Energy-based economic development: Prioritizing opportunities for developing countries. *FEEM Working Paper 25.2012*.

Baldwin, L.*, Carley, S., Gardner, W.*, June 2011. "Demand-side Management and Energy Efficiency in Indiana: A Comparison of Policy Instruments." Policy brief prepared for the Indiana Utility Regulatory Commission.

The Nicholas Institute, 2009. "An Evaluation of Utah's Greenhouse Gas Reduction Options." Technical policy report prepared for the state of Utah. [Contributing researcher].

Carleyolsen, S., Voss, S., 2006. "Recommendations for the Governor's Taskforce on a Wisconsin Bioindustry Strategy." White Paper prepared for the Wisconsin's Bioindustry Consortium Taskforce.

Carleyolsen, S., Rude, J., Jenkins, A., 2006. "IGCC: A Cost-Benefit Analysis." White Paper prepared for the Wisconsin Public Service Commission and the Wisconsin IGCC Governor's Taskforce.

Carleyolsen, S., Meyer, T., Scott, I., Rude, J., 2005. "Estimating Economic Value of Jefferson County Parks, Trails, and Open Space." White Paper given to the Jefferson County Board of Supervisors. Jefferson County, WI.

MEDIA PUBLICATIONS

Carley, S., Konisky, D.M. 2021. Texas, COVID and a crisis of energy insecurity, *The Hill*. February 27, 2021.

Carley, S., Konisky, D.M. 2020. Op-ed: State utility shutoffs signal pandemic misery. New research shines a painful light. *IndyStar*. December 22, 2020.

Carley, S. May 2019. Conducting Research More Efficiently. Blog post, Association of Public Policy Analysis and Management. Available here: <http://www.appam.org/techniques-for-conducting-research-more-efficiently/?CategoryId=4>.

Carley, S. August 2018. A Birthday Celebration for RPS Policies. Blog post, Behavioural and Social Sciences. Available here: <https://socialsciences.nature.com/channels/1745-behind-the-paper/posts/38242-happy-birthday-rps>

Carley, S. October 2017. Op-Ed: Mandates help motorists, economy in the long run. Printed in McClatchy papers.

Carley, S., Konisky, D. March 2017. Op-Ed: Changes to Indiana's Solar Policy Misguided. *The Herald-Times* (as well as numerous other outlets).

Jasinowski, J., Carley, S. 2014. Op-Ed: Sustainable Manufacturing Makes Cents. *Manufacturing Leadership Journal*.

Carley, S., Hyman, M.* January 12, 2012. Op-Ed: “Green energy’ is the best route to profitable public investment.” Printed in McClatchy papers, including the Miami Herald, Kansas City Star, and the Sacramento Bee (Also printed in 37 other U.S. news outlets).

OTHER PUBLICATIONS

Carley, S., Konisky, D.M. 2021. Will NIMBYs sink new energy projects? The evidence says no – if developers listen to local concerns. *The Conversation*. August 11, 2021.

Carley, S., Konisky, D.M. 2020. Energy is a basic need, and many Americans are struggling to afford it in the COVID-19 recession. *The Conversation*. July 30, 2020.

Carley, S., Engle, C., Konisky, D. Sullivan, S. 2019. Supporting frontline and vulnerable communities in a Green New Deal. *Public Administration Review Bully Pulpit Symposium*.

Carley, S. January 2017. How states are grappling with solar panels, net energy metering, and the evolving electric utility industry. Scholars Strategy Network Brief.

Carley, 2014. Response to Pollin, R. 2014. A Clean Energy Program for the United States. *Boston Review*. July/August Issue.

Carley, S. 2012. Electric vehicles: Public acceptance, infrastructure and policy. *USAEED Dialogue* 20(3).

Graham, J., Carley, S., Messer, N.*, Hartman, D.* February, 2011. Plug-in Electric Vehicles: A Practical Plan for Progress. *SPEA Insights*.

Carley, S. May, 2011. National clean energy standards: Experience from the states. *SPEA Insights*.

SELECTED WORKS IN PROGRESS

Ross, J., Carley, S., Deslatte, A. Efficient Siting of Nuisance Facilities Under Regulatory and Fiscal Decentralization: Empirical Evidence from the Effect of Political Borders on Wind Farms Location. Revise and resubmit at *Publius: The Journal of Federalism*.

Helmke-Long, L.*, Carley, S., Konisky, D. Responsiveness of municipal governments to vulnerable populations during the U.S. energy transition. *Manuscript under review*.

Ravikumar, A.P., et al. Enabling an equitable energy transition through inclusive research. *Manuscript under review*.

Meckling, J., Aldy, J.E., Carley, S., Esty, D.C., Kotchen, M.J., Raymond, P.A., Tonkonogy, B., Harper, C., Sawyer, G., Sweatman, J. Climate change policy needs to get public investment right—here’s how. *Manuscript under review*.

Memmott, T., Carley, S., Graff, M., Konisky, D.M. The effects of utility disconnection moratoria during the COVID-19 pandemic. *Manuscript under review*.

Carley, S., Graff, M., Konisky, D., Memmott, T. Household coping strategies from energy insecurity. *Working paper*.

Ehrmschwender, D.*, Siddiki, S., Carley, S., Nicholson-Crotty, S. Socio-technical transition in American cities: A study of transportation electrification. *Working paper*.

Raimi, D., Barone, A., Carley, S., Foster, D., Grubert, E., Haggerty, J., Higdon, J., Kearney, M., Konisky, D., Michael, J., Michaud, G., Nabahe, S., Peluso, N., Robertson, M., Reames, T. Real-world policies for an equitable energy transition. *Working paper*.

Yozwiak, M., Carley, S., Konisky, D.M. The role of equity in early stage energy technology innovation: The case of electric vehicles. *Working paper*.

GRANTS

“Access to Solar Energy and Energy Insecurity.” Co-PI with David Konisky. *Solicited proposal in progress*. Lawrence Berkeley National Laboratory and Justine40 Academic Partnerships. \$200,000, 2021-2023.

“Utility Disconnection and Energy Insecurity in the U.S.” Co-PI with David Konisky. JPB Foundation. \$400,000, 2021-2023.

“Utility Disconnection Dashboard” Co-PI with David Konisky. IU Faculty Assistance in Data Science, \$2,000, 2021.

“Midwest Automotive Industry Transition to Electrification” Co-PI with David Konisky and Jennifer Silva. The Roosevelt Project: Industrial Heartland Case Study. \$67,000. 2020-2021.

“Midwest Automotive Industry Transition to Electrification” Co-PI with David Konisky and Jennifer Silva. Richard G. Lugar Center for Renewable Energy. \$5,000. 2021.

“The effects of COVID-19 on household energy insecurity” Co-PI with David Konisky. National Science Foundation. \$191,690. 2020-2021.

“The effects of COVID-19 on household energy insecurity” Co-PI with David Konisky. Alfred P. Sloan Foundation. \$44,648. 2020-2021.

“The effects of COVID-19 on household energy insecurity” Co-PI with David Konisky. Indiana University Office of Vice President of Research. \$20,000. 2020.

“Economic, fiscal, and social impacts of the transition of electricity generation resources in Indiana” Indiana Utility Regulatory Commission. \$62,000. 2019-2020.

“Understanding energy insecurity among Indiana Households” Co-PI with David Konisky. Environmental Resilience Institute, Indiana University. \$116,542. 2020-2022.

“USAEE Proposal for Ph.D. Day” PI. Alfred P. Sloan Foundation. \$10,000. 2018.

“Toward the Diffusion of Sustainable Technologies: The Case of Electric Vehicles” Co-PI with Sean Nicholson-Crotty and Saba Siddiki. National Science Foundation. \$184,996. 2016-2018.

“The Siting of Energy Infrastructure: Public Perceptions and Public Finance Impacts” Co-PI with David Konisky and Steven Ansolabehere. Alfred P. Sloan Foundation. \$259,900. 2016-2018.

“The U.S. Energy and Climate Transition: Aggregated Impacts of Policy on Vulnerable Populations” PI with Co-PIs Tom Evans and David Konisky. Indiana University Collaborative Research Grant. Office of the Vice Provost of Research, Indiana University. \$63,437. 2016-2017.

“Consumer Willingness to Pay for Sustainability: The Case of the Brewing Industry” PI. Office of the Vice Provost of Research Award for Research Methods and Collaboration, Indiana University. \$4,942. 2016.

“Study of the macro-economic impact of the light-duty vehicle corporate average fuel economy, greenhouse gas and zero-emission vehicle standards: Phases II and III” Co-PI with John Graham, Denvil Duncan, Saba Siddiki, and Nikos Ziogiannis. Alliance for Automobile Manufacturers. \$590,000. 2016-2017.

“Study of the macro-economic impact of the light-duty vehicle corporate average fuel economy, greenhouse gas and zero-emission vehicle standards: Phase I” Co-PI with John Graham, Denvil Duncan, and Saba Siddiki. Alliance for Automobile Manufacturers. \$202,723. 2015-2016.

“Informing Energy Policy Choices in Indiana using an Econometric and Technology Model.” PI with Barry Rubin. Faculty Research Support Program, Indiana University. \$72,341. 2012-2013.

“Power for Development: Sustaining Small-Scale Electricity Implementation in Africa.” PI with Jennifer Brass and Lauren MacLean. Faculty Research Support Program, Indiana University. \$74,484. 2012-2013.

“Exploratory Study of Risks, Benefits, and Costs of DEF and Alternatives.” PI with John Graham. Navistar. \$89,509. 2011-2012.

“NGO Involvement in Sustainable Energy Programs for International Development.” PI with Jennifer N. Brass. Mitsui Environment Fund, Mitsui & Co., Ltd. \$59,706. 2011-2012.

“Collaborative Provision of Low-Carbon Distributed Energy in Developing Countries.” PI with Jennifer N. Brass. Sustainability Research Development Grant, Indiana University Office of Sustainability. \$15,000. 2011-2012.

“Energy-based Economic Development.” Co-PI with Adrienne Brown (PI) and Sara Lawrence (PI). RTI International R&D Grant, RTI International. \$63,000. 2009-2010.

Conference Travel Grant. GPSF Travel Award, University of North Carolina at Chapel Hill. \$400. 2009

Conference Travel Grant Department of Public Policy, University of North Carolina at Chapel Hill. \$600. 2008.

Grant awarded for travel to Ghana, West Africa, to establish an environmental study abroad program for an East coast consortium of colleges. Environmental Studies Grant, Swarthmore College. \$10,500. 2001.

INVITED TALKS, LECTURES, WEBINARS, PANEL PRESENTATIONS, OR CONFERENCE PRESENTATIONS

2022: Syracuse University (planned); Association for Public Policy Analysis and Management (planned); Nature Portfolio Energy Community annual meeting (planned).

2021: Harvard University Energy Policy Seminar Series; Texas Energy Poverty Research Institute; Midwest Regional Sustainability Summit; University of Miami; Prairie View A&M University; UT Energy Week Panel, University of Texas at Austin; University of Houston, Law Center; Niskanen Center Infrastructure Panel; NSF Workshop on Equity in the Energy Transition; Indiana University Sustainability Scholars; Climate Policy Summit, University of Wisconsin-Madison; Macro-Energy Systems Speaker Series; Network of Schools of Public Policy Affairs and Administration (NASPAA).

- 2020: Climate Talks, Emory University; NASPAA; Environmental Resilience Institute, Indiana University; O'Neill School Conversation Series, Energy and Environment; O'Neill Honor's Program; APPAM Ask the Experts; GT-Scholars featured presentation; Energy Law Symposium, Texas A&M.
- 2019: Indiana State Bar Association, Bloomington, IN; Congressional Research Service, Washington, D.C.; Department of Energy, Solar Energy Technologies Office, Washington, D.C.; School of Public Policy, University of Maryland, College Park, MD; John Glenn College of Public Affairs, The Ohio State University, Columbus, OH; Renewable Energy Policy Initiative Workshop, University of Michigan, Ann Arbor, Michigan; APPAM conference; U.S. Association of Energy Economics (USAEE) conference.
- 2018: NU Searle-Purdue Schnatter Center Energy Research Roundtable, Chicago, IL; Clean Energy States Alliance; Resource Energy Demand Analysis Program, University of Wisconsin-Madison, Madison, WI; Center for Local, State, and Urban Policy, University of Michigan, Ann Arbor, Michigan; Strategic Studies Fellows Program, Kelley School of Business, Indiana University, Bloomington, Indiana; APPAM; USAEE; Energy Policy Research Conference; Midwest Political Science Association (MPSA) conference; Association for Public Policy Analysis and Management International Conference.
- 2017: Innovation, Property Rights, and the Structures of Energy, Property and Environment Research Center (PERC), Bozeman, MT; Environmental Protection Agency, Ann Arbor; Environmental Protection Agency, Washington D.C.; Electricity Dialogue, Northwestern University; Association of Public Policy Analysis and Management Webinar, Washington D.C.; Workshop on Durability and Adaptability in Energy Policy, Resources for the Future; Earth and Mineral Sciences Energy Institute, Pennsylvania State University; USAEE; APPAM.
- 2016: 2016 Austin Electricity Conference, University of Texas; U.S. Association of Energy Economics, dual plenary session on Transportation; South Carolina Journal of International Law and Business Symposium; University of Texas at Austin, Regional Challenges and Opportunities in Energy Transformations Workshop; APPAM; USAEE; MPSA.
- 2015: Panel on National Science Foundation funding, Indiana University; U.S. Association of Energy Economics, session on Energy Economics Education; Workshop on Manufacturing and Public Policy; Mini University, Indiana University; Richard G. Lugar Center for Renewable Energy; University of Utah, S.J. Quinney College of Law, 20th Annual Stegner Symposium; University of North Carolina at Chapel Hill, Odum Institute; USAEE; APPAM.
- 2014: Kelley School of Business, Indiana University; Martin School of Public Policy and Administration, University of Kentucky; Ford School of Public Policy, University of Michigan; APPAM.
- 2013: ARPA-E; Centre for Energy Economics and Policy, ETH Zurich; Global Mini-Conference, Indiana University; Energy Student Leaders Association, Indiana University; Energy and Climate Seminar Series, Georgetown University; International Public Affairs Association, Indiana University; 13th Annual Association of SPEA Ph.D. Students Conference, Indiana University; Kelley School of Business Renaissance Week, Indiana University; Energy systems in Transition Conference; Transatlantic Policy Consortium conference; USAEE; APPAM.
- 2012: Center for Local, State, and Urban Policy, University of Michigan; School of Public and Environmental Affairs Dean's Council Meeting, Indiana University; Kelley School of Business Renaissance Week, Indiana University; Policy Lecture Series, UNC-Chapel Hill Department of Public Policy; APPAM; USAEE.
- 2011: Mini University, Indiana University; Ph.D. Student Research Seminar, School of Public and Environmental Affairs, Indiana University; APPAM; American Political Science Association; International Conference on Environmental, Cultural, Economic and Social Sustainability.
- 2010: Ph.D. Student Research Seminar, School of Public and Environmental Affairs, Indiana University; Ph.D. Student Research Seminar, School of Public and Environmental Affairs, Indiana University; University Research Day, University of North Carolina at Chapel Hill; Carolina Institute for the Environment Board of Visitors, University of North Carolina at Chapel Hill; APPAM; USAEE; SPEA-Speyer Workshop; Solar Energy Research Center's conference.
- 2009: APPAM
- 2007: RTEC Sustainable Energy Symposium

- 2006: Wisconsin's Bioindustry Consortium Taskforce, Madison, WI.
- 2005: Jefferson County Board of Supervisors, Jefferson County, WI; Upper Midwest Regional Planning Conference.

PANEL CHAIR OR MODERATOR:

- 2021: Resources for the Future research and policy workshop
- 2020: Association for Public Policy Analysis and Management conference; Association for Public Policy Analysis and Management student research series; O'Neill School Presidential Election energy and environment panel
- 2019: O'Neill D.C. Career Catalyst; O'Neill SPEA Wider World Conference; Association for Public Policy Analysis and Management conference; U.S. Association of Energy Economics conference
- 2018: Midwest Political Science Association conference; Association for Public Policy Analysis and Management International Conference; Association for Public Policy Analysis and Management conference; U.S. Association of Energy Economics conference
- 2017: Environmental Politics & Governance conference; Association for Public Policy Analysis and Management conference; U.S. Association of Energy Economics conference
- 2016: Midwest Political Science Association conference; U.S. Association of Energy Economics annual conference; Association for Public Policy Analysis and Management conference
- 2015: U.S. Association of Energy Economics conference; Association for Public Policy Analysis and Management conference
- 2014: Association for Public Policy Analysis and Management conference
- 2013: Association for Public Policy Analysis and Management conference; International Public Affairs Association conference; U.S. Association of Energy Economics conference
- 2011: U.S. Association of Energy Economics conference; Association for Public Policy Analysis and Management conference
- 2010: Association for Public Policy Analysis and Management conference
- 2006: Wisconsin Public Utility Institute conference

SELECTED PUBLICITY AND MEDIA MENTIONS

- Energy News Network, January 14, 2022. "Ohio advocates say there's still a need to knock on doors before utility shutoffs."
- Marketplace, November 30, 2021. "Coal prices are high as stockpiles hit new lows."
- Fox59, November 8, 2021. "Home heating bills expected to increase."
- Financial Times, October 29, 2021. "The impact of American energy insecurity."
- U.S. News and World Report, June 28, 2021. "Public administration and public policy degrees."
- National Public Radio, June 8, 2021. "'Energy justice' nominee brings activist voice to Biden's climate plans."
- The Guardian, March 17, 2021. "'They aren't used to losing': wealthy New York enclave battles over offshore windfarm."
- Wired, February 1, 2021. "Biden wants the government to run on EVs. It won't be easy."
- CNN, October 10, 2020. Interview with Fredricka Whitfield.
- Time, August 31, 2020. "A 'tidal wave' of power cuts may be coming as electric companies resume shutoffs."
- The Washington Post, August 6, 2020. "Congress under pressure as states lift electricity shut-off bans during coronavirus crisis."
- IndyStar, August 3, 2020. "'Food is more important right now': COVID-19 forces some to struggle paying energy bills."
- National Public Radio, July 28, 2020. "'Tidal Wave' of Power Shut-Offs Looms As Nation Grapples With Heat."
- E&E News, April 20, 2020. "How the pandemic upended climate politics."
- National Public Radio, June 18, 2019. "Going 'zero carbon' is all the rage. But will it slow climate change?"

The Washington Post, April 2, 2019. "The Energy 202: EPA's own adviser finds Trump's rollback of car rules could cost jobs."

CleanTechnica, March 3, 2019. "We must keep in mind the costs of the Green New Deal to vulnerable communities."

Grist, December 12, 2018. "The stinkiest, dirtiest, nastiest renewable energy you never heard of."

Esquire, October 11, 2018. "Maybe Consider Paying \$1 More for the Pack of Budweiser."

National Public Radio, The Salt, October 13, 2018. "Good News for 'Green' Brews: Consumers Say They'll Pay More for Sustainable Beer."

WFHB.org, EcoReport, September 6, 2018.

Ensisia, August 20, 2018. "Minimizing the downsides of the energy transition."

Utility Dive, August 16, 2018. "Modernizing renewables mandates is no longer about the megawatts."

Science News, May 7, 2018. "Vulnerable communities may be adversely affected by the transition to clean energy." (Similar study printed in five other news outlets).

NexusMedia, January 18, 2018. "Coal Country Knows Trump Can't Save It."

How Stuff Works, January 18, 2018. "Germany's Power Prices go Negative, But Who's Getting Paid?"

Convenience Store Decisions, January 19, 2018. "C-Stores Meet New Fuel Demands."

Forward Kentucky, November 13, 2017. "Did environmental rules kill mining? For coal country, that's yesterday's debate."

Science Daily, October 27, 2017. "Efforts to revive coal industry unlikely to work, may slow job growth." (Similar story printed in Science Newsline: Nature & Earth, Common Dreams, IWW Environmental Unionism Caucus, and the Indiana Daily Student)

Greenwire, August 2017. "EPA gathers consumer data as it rethinks GHG standards."

CNBC, Washington Times, March 2017. "TU research shows mileage regulations bring long-term benefits but short-term economy lag." (Reprinted in over 150 other media outlets).

Indianapolis Star, March 2017. "Solar energy in crossroads in Indiana" (Reprinted in 24 other sources).

Inside EVs, March 2016. "U.S. Cities Ranked for Plug-in Electric Car Readiness – Portland takes Top Spot." Similar news reports appear in Autocarr, Fleet Management Weekly, and Greener Ideal.

Herald Times, February 19, 2016. "TU Researchers Urge Review of Fuel Economy Standards."

WalletHub, July, 2015. "2015 Most & Least Energy-Expensive States."

CQ Researcher, April 2015. "Sustainability."

Society for Risk Analysis, Press Release, October 30, 2013. "Residents weigh global benefits and local risks in views of climate change measures." (Reprinted by 289 other media outlets across the country).

Freakonomics, July 24, 2013. "How Politicians Plug Electric Cars."

Indiana Daily Student, April 4, 2013. "Awards granted to outstanding junior faculty."

Inside Higher Ed and WAMC, Northeast Radio, Academic Minute, March 14, 2013. "Dr. Sanya Carley, Indiana University—Consumer Attitude and Electric Cars."

CBS, January 7, 2013. "American Drivers Not Interested in Electric Cars."

International New York Times, International Herald Tribune, January 7, 2013. "Will 2013 be the Year of the Electric Car?"

New York Times, December 26, 2012. "Car Buyers Lack Interest in Electric Cars, Study Says."

Indianapolis Business Journal, January 2, 2013. "Report: Plug-in vehicles slow to spark interest in Indy."

WTIU "Weekly Special," September 15, 2011. "Early Adopters."

WTIU News, July 19, 2011. "Next-Generation Electric Vehicle Appears in Bloomington."

AOL Autos, February 23, 2011. "Are Obama's Million EV's Just Science Fiction?"

Newswise, August 20, 2010. "Energy-based Economic Development: A Fad of Here to Stay?"

TEACHING EXPERIENCE

V674: *Energy Economics and Policy* (Graduate level)

School of Public and Environmental Affairs, Indiana University.

Spring 2011, Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2018

V600: Capstone (Graduate level)
 School of Public and Environmental Affairs, Indiana University.
 Spring 2016, Spring 2018, Spring 2019, Spring 2021

R626: Energy Justice and Policy Seminar (Masters and Ph.D. level)
 School of Public and Environmental Affairs, Indiana University.
 Fall 2015, Fall 2017, Fall 2019, Fall 2021

V450: Research Design (Undergraduate level)
 School of Public and Environmental Affairs, Indiana University.
 Fall 2015, Fall 2017, Fall 2018

E574: Energy Analysis and Markets (Graduate level)
 School of Public and Environmental Affairs, Indiana University.
 Fall 2010, Fall 2011, Fall 2013

V680: Research Design (Ph.D. level)
 Co-instructor, School of Public and Environmental Affairs, Indiana University.
 Fall 2011, Fall 2013, Fall 2014, Fall 2015, Fall 2016

E555: Energy Resources and Policy (Undergraduate level)
 Teaching Fellow, The Department of Public Policy and the Institute for the Environment, University of North Carolina at Chapel Hill.
 Spring 2009

E190H: Honors Freshman Seminar on Energy and Society (Undergraduate level)
 Co-instructor, Institute for the Environment, University of North Carolina at Chapel Hill.
 Spring 2009

PROFESSIONAL SERVICE

Referee and Reviewer Service:

American Journal of Political Science, Climate Policy, Ecological Economics, Economic Development Quarterly, Energies, Energy Economics, Energy Policy, Energy Journal, Energy Research & Social Science, Environmental and Resource Economics Environmental Practice, Environmental Science & Technology, Ethics, Policy & Environment, Evaluation Review, Geography, Global Environmental Change, International Journal of Business and Economics, IEEE Transactions on Power Systems, Journal of the Association of Environmental and Resource Economists, Journal of Environmental Economics and Management, Journal of Geography and Regional Planning, Journal of Policy Analysis and Management, Journal of Policy History, Journal of Politics, Journal of Public Administration Research and Theory, National Science Foundation, Nature Energy, Nature Climate Change, Nature Sustainability, PLOS One, Policy Sciences, Policy & Society, Policy Studies Journal, Public Administration Review, Publius: The Journal of Federalism, Regulation & Governance, Review of Policy Research, Renewable and Sustainable Energy Reviews, Springer Publishing, SPEA Insights, State and Local Government Review, Sustainability: Science, Practice & Policy, Transportation Letters, Transportation Research Part D: Transport and Environment, Utilities Policy

Professional, National, and State Service:

Author, Fifth National Climate Assessment Report, 2021-2023.
 Technical Advisory Council, National Renewable Energy Laboratory, 2021-present.
 Energy Justice Research Network, 2021.
 Advisory Council, Alfred P. Sloan Foundation, Energy and Environment Program, 2020-present.
 Co-editor, *Journal of Policy Analysis and Management*, 2018-present.
 Treasurer, Association of Public Policy and Analysis, 2019-2020.
 Managing Editor, *Journal of Policy Analysis and Management*, 2017-2018.
 Peer Review Committee Member, EPA Response Surface Methodology, 2017.
 VP for Academic Affairs, U.S. Association of Energy Economics, 2018.
 Secretary/Treasurer, U.S. Association of Energy Economics, 2015-2016.

Editorial Board, *Energy Research and Social Science*, 2017-2019.
 Editorial Board, *Public Administration Review*, 2015-present.
 Executive Committee, Richard G. Lugar Center for Renewable Energy, 2017-present.
 Editorial Board, *State and Local Government Review*, 2014-2016.
 Conference student paper judge, U.S. Association of Energy Economics, 2014, 2015, 2017, 2018.
 Conference poster judge, Association of Public Policy Analysis and Management, 2016-2017.
 Conference poster judge, U.S. Association of Energy Economics, 2016-2017.
 Guest editor, Special issue on the American Recovery and Reinvestment Act of 2009, *Review of Policy Research*, 2015-2016.
 Nominations Committee, U.S. Association of Energy Economics, 2017.
 Finance Committee, Chair, U.S. Association of Energy Economics, 2015-2016.
 Legal Affairs Committee, U.S. Association of Energy Economics, 2016.
 Co-Chair, Sponsorship Committee, U.S. Association of Energy Economics, 2016.
 Contract Committee, U.S. Association of Energy Economics, 2016.
 Chair, Natural Resource Security, Energy, and Environmental Policy Conference Program Committee, Association of Public Policy Analysis and Management, 2015-2016.
 Committee Member, Natural Resource Security, Energy, and Environmental Policy Conference Program Committee, Association of Public Policy Analysis and Management, 2013-2016.
 Conference Program Committee, U.S. Association of Energy Economics, 2015-2018.
 Council Member, U.S. Association of Energy Economics, 2014.
 Presidential Advisor, U.S. Association of Energy Economics, 2013.
 Academic Affiliate, National Renewable Energy Laboratory, 2013.
 Member, Policy Choices Energy and Environment Commission, IU Public Policy Institute, 2011-2012.

University Service:

Member, Executive Vice President and Provost Search Committee, 2021.
 Member, Tenure Advisory Committee, Indiana University, 2021-present.
 Member, Research Integrity Committee, Indiana University, 2021-present.
 Member, Gender Equity in Research Taskforce, Indiana University, 2020-2021.
 Member, Search Committee for Director of Governing the Commons, Ostrom Workshop, Indiana University, 2020.
 Member, Workshop Advisory Council, Ostrom Workshop, Indiana University, 2020-present.
 Member, Environmental Law Fellow Search Committee, Indiana University, 2020.
 Member, Bloomington Faculty Council Research Affairs Committee, 2015-2016.
 Co-Chair, Energy and the Built Environment, Indiana University, 2013-2016.
 Advisory Committee, Workshop in Methods, 2013-2016.
 Member, Academic Initiatives Working Group, Indiana University, 2011-2013.
 Steering committee, Student Summit on a Green Economy, Indiana University, 2010.

School Service:

Program Director, Master of Public Affairs programs, O'Neill School for Public and Environmental Affairs, Indiana University, 2019-present.
 Chair/member, MPA Curriculum Committee, O'Neill School, 2017-present (chair 2019-present).
 Chair/member, MPA Admissions Committee, O'Neill School, 2013-2014, 2019-present.
 Chair, Policy Analysis and Public Finance Faculty Group, 2016-2019.
 Member, Faculty Hiring Committee, Dean, School for Public and Environmental Affairs, Indiana University, 2018-2019.
 Member, Faculty Hiring Committee, Social Policy, School for Public and Environmental Affairs, Indiana University, 2018-2019.
 Member, Promotion and Tenure Committee, Indiana University Northwest, 2017.
 Chair, Policy Committee, School for Public and Environmental Affairs, Indiana University, 2015-2016.

Ph.D. Public Affairs Program Committee or Reader, School for Public and Environmental Affairs, Indiana University, 2015-2016, 2017.

Chair, Environmental Policy Search Committee, School for Public and Environmental Affairs, Indiana University, 2014-2015.

Policy Committee, School for Public and Environmental Affairs, Indiana University, 2014-2016.

Budgetary Affairs Committee, School for Public and Environmental Affairs, Indiana University, 2014-2016.

Faculty Advisor, Energy Student Leaders Association, Indiana University, 2012-present.

Environmental Policy Ph.D. Exam Committee, School for Public and Environmental Affairs, Indiana University, 2013-2014, ad hoc.

Faculty Hiring Committee, Industrial Ecology and Life-Cycle Assessment, School for Public and Environmental Affairs, Indiana University, 2011-2012.

Faculty Hiring Committee, MPA Program Director, School for Public and Environmental Affairs, Indiana University, 2011-2012.

Member, Hiring Priorities Committee, Policy Analysis and Public Finance faculty group, School for Public and Environmental Affairs, Indiana University, 2011-2012.

Faculty Hiring Committee, Energy Policy, School for Public and Environmental Affairs, Indiana University, 2010-2011.

Committee Member, Energy Concentration, School for Public and Environmental Affairs, Indiana University, 2010-2011.

Ph.D. Dissertation Committee Member:
 Laura Helmke-Long, 2022; Michelle Graff, 2021; Arthur Ku, 2020; Ian Zhengyan, 2020; Adam Abelkop, 2017; Yu Zhang, 2017; Jose Iracheta, 2020; Dave Warren, 2017; Sojin Jang, 2017; Jessica Alcorn, 2016; Zach Wendling, 2016; Elizabeth Baldwin, 2015; Shuang Zhao, 2015.

Ph.D. Program Committee Member, School of Public and Environmental Affairs, Indiana University:
 Maddy Yozwiak 2021; Deidra Miniard 2020; Trevor Memmott 2020; Zoya Atiq, 2019; Laura Helmke-Long, 2018; Michelle Graff, 2017; Arthur Ku, 2017; Ian Zhengyan, 2018; Zichao Yu, 2016; Michelle Lee, 2016; Yu Zhang, 2014; Jessica Alcorn, 2014; Ben Inskeep, 2013; Naveed Paydar, 2013; Chris Miller, 2012; Elizabeth Baldwin, 2012; Dave Warren, 2011; Zach Wendling, 2011; Shuang Zhao, 2010.

Honors Undergraduate or Graduate Thesis Committee Member:
 Kylie Clouse, Indiana University, 2021; Bailey Decker, Indiana University, 2019; Mason Walther, Indiana University, 2019; Damon Smith, Indiana University, 2015; Chip Gaul, Department of Public Policy, University of North Carolina-Chapel Hill, 2011; Elinor Benami, Department of Economics, University of North Carolina-Chapel Hill, 2010; Rachel Escobar, Depart. of International Studies, University of North Carolina-Chapel Hill, 2009; Jessie Prentice-Dunn, Depart. of Public Policy, University of North Carolina-Chapel Hill, 2007.

PROFESSIONAL MEMBERSHIP

Association for Public Policy Analysis & Management (APPAM)
 Association of Collegiate Schools of Planning (ACSP)
 Midwest Political Science Association (MPSA)
 International Association of Energy Economists (IAEE)
 United States Association for Energy Economics (USAEE)

CURRICULUM VITAE

Gil Tal Ph.D.

Current Positions

Director, The Plug-in Hybrid & Electric Vehicle (PH&EV) Research Center, University of California, Davis

Admission Advisor, Graduate Groups in Transportation Technology and Policy (TTP), University of California, Davis

Faculty Member, Energy Graduate Group, University of California, Davis

Education

Ph.D. Transportation Technology and Policy, 2008 University of California at Davis

M.A. 'magna cum Lauda' Geography: Environmental Planning and Policy, 2001 The Hebrew University Jerusalem

B.A. Geography, sociology & anthropology, 1999. The Hebrew University Jerusalem

Professional Experience History

2016-Current	Member of the Faculty, Graduate Groups in Energy (EGG)
2014-Current:	Member of the Faculty, Graduate Groups in Transportation Technology and Policy (TTP)
2014-Current:	Professional Researcher, Institute of Transportation Studies, University of California, Davis
2014 – 2018:	Transportation Research Director, The China Center for Energy and Transportation
2010 – 2014	Postdoctoral Researcher, Institute of Transportation Studies, University of California, Davis
2008-2010:	Postdoctoral Researcher, University of California Berkeley.
2002-2008:	Research assistant, University of California at Davis.
1998-2002:	Consultant Transportation planning
1999-2002:	Graduate Student Researcher, The Hebrew University Jerusalem

Editorial and Advisory Boards

2020-2028	Member of the Standing Committee on Alternative Fuels and Technologies, Transportation Research Board (TRB) The National Academies of Sciences, Engineering, and Medicine.
2020-2023	Member, Technical advisory board, EV WATTS Project Advisory Committee.
2019-2021	Committee Member in the advisory Committee of the Behavior Energy and Climate Conference.

2018-2019 Committee Member in the Technical Advisory Board, Autonomous Vehicle Heaven or Hell? Creating a Transportation Revolution That Benefits All, The Greenlining Institute.

Publications
Journals

- 2022 Tsoi, Ka Ho, Becky PY Loo, Gil Tal, and Daniel Sperling. Pioneers of electric mobility: Lessons about transport decarbonisation from two bay areas Journal of Cleaner Production 330: 129866.
- 2022 Debapriya Chakraborty, David S Bunch, David Brownstone, Bingzheng Xu, Gil Tal, *Plug-in electric vehicle diffusion in California: Role of exposure to new technology at home and work*, Transportation Research Part A: Policy and Practice, 156 133-151
- 2022 Chakraborty, Debapriya, Scott Hardman, and Gil Tal; *Integrating plug-in electric vehicles (PEVs) into household fleets-factors influencing miles traveled by PEV owners in California*, Travel Behaviour and Society 26: 67-83.
- 2021 Muratori, Matteo; Alexander, Marcus; Arent, Doug; Bazilian, Morgan; Dede, Ercan M; Farrell, John; Gearhart, Chis; Greene, David; Jenn, Alan; Keyser, Matthew; . *The rise of electric vehicles—2020 status and future expectations*. Progress in Energy, 3(2): 22002.
- 2021 Chaitanya Karanam, Vaishnavi; Tal, Gil; . *Emission Implications of Plug-in Hybrid Electric Vehicles Through an Empirical Exploration of Engine Starts* . Transportation Research Record, 10.1177/036119812110.
- 2021 Raghavan, Seshadri Srinivasa; Tal, Gil; . *and technology implications of electromobility on household travel emissions*. Transportation Research Part D: Transport and Environment, 94: 102792.
- 2021 Hardman, Scott; Tal, Gil; . *Understanding discontinuance among California's electric vehicle owners* . Nature Energy, 6(5): 538-545.
- 2021 Davis, Adam Wilkinson; Tal, Gil; . *Investigating the Sensitivity of Electric Vehicle Out-of-Home Charging Demand to Changes in Light-Duty Vehicle Fleet Makeup and Usage: A Case Study for California 2030* . Transportation Research Record, 2675 (10), 1384-1395.
- 2021 Benoliel, Peter; Jenn, Alan; Tal, Gil; . *Examining energy uncertainty in battery bus deployments for transit agencies in California*. Transportation Research Part D: Transport and Environment, 98: 102963.
- 2021 Xu, Bingzheng; Davis, Adam Wilkinson; Tal, Gil; . *Estimating the Total Number of Workplace and Public Electric Vehicle Chargers in California* . Transportation Research Record, 2675 (12), 759-770.
- 2021 Hamza, Karim; Chu, Kang-Ching; Favetti, Matthew; Benoliel, Peter Keene; Karanam, Vaishnavi; Laberteaux, Kenneth P; Tal, Gil; .

- Comparisons of Real-World Vehicle Energy Efficiency with Dynamometer-Based Ratings and Simulation Models*. World Electric Vehicle Journal, 12(4): 161.
- 2021 Sugihara, Claire; Sutton, Katrina; Davis, Adam; Karanam, Vaishnavi; Tal, Gil; . *From sport to eco: A case study of driver inputs on electric vehicle efficiency* . Transportation Research Part F: Traffic Psychology and Behaviour, 82: 412-428.
- 2020 Jenn, Alan; Lee, Jae Hyun; Hardman, Scott; Tal, Gil. *An In-Depth Examination of Electric Vehicle Incentives: Consumer Heterogeneity and Changing Response Over Time*. Transportation Research Part A: Policy and Practice, 132: 97-109.
- 2020 Srinivasa Raghavan Seshadri; Tal Gil. *Influence of User Preferences on the Revealed Utility Factor of Plug-In Hybrid Electric Vehicles*. International Journal of Sustainable Transportation, 11(1): 6.
- 2020 Lee, Jae Hyun; Chakraborty, Debapriya; Hardman, Scott; Tal, Gil. *Exploring Electric Vehicle Charging Patterns: Mixed Usage of Charging Infrastructure*. Transportation Research Part D: Transport and Environment, 79(220): 102249.
- 2020 Debapriya Chakraborty, Scott Hardman, Gil Tal. *Why do some consumers not charge their plug-in hybrid vehicles? Evidence from Californian plug-in hybrid owners*. Environmental Research Letters, 15(8): 084030.
- 2020 Wei Ji, Gil Tal, . *Scenarios for Transitioning Cars from Internal combustion engine vehicles to battery electric vehicles and plug-in hybrid electric vehicles Using Household Level GPS Travel Data*. Transportation Research Part D, 88: 102555.
- 2019 Hardman, Scott; Berliner, Rosaria; Tal, Gil. *Who will be the Early Adopters of Automated Vehicles? Insights from a Survey of Electric Vehicle Owners in the United States*. Transportation Research Part D: Transport and Environment, 71: 248-264.
- 2019 Chakraborty, Debapriya; Bunch, David S; Lee, Jae Hyun; Tal, Gil. *Demand Drivers for Charging Infrastructure-Charging Behavior of Plug-In Electric Vehicle Commuters*. Transportation Research Part D: Transport and Environment, 76: 255-272.
- 2019 Lee, Jae Hyun; Hardman, Scott; Tal, Gil. *Who is Buying Electric Vehicles in California? Characterizing Early Adopter Heterogeneity and Forecasting Market Diffusion*. Energy Research & Social Science, 55: 218-226.
- 2019 Berliner, Rosaria M.; Hardman, Scott; Tal, Gil. *Uncovering Early Adopter's Perceptions and Purchase Intentions of Automated Vehicles: Insights from Early Adopters of Electric Vehicles in California*. Transportation Research Part F: Traffic Psychology and

Behaviour, (60) 712-722.

- 2019 Hardman, Scott; Berliner, Rosaria; Tal, Gil;. *Who will be the Early Adopters of Automated Vehicles? Insights from a Survey of Electric Vehicle Owners in the United States*. Transportation Research Part D: Transport and Environment, 71: 248-264.
- 2019 Canepa, Kathryn; Hardman, Scott; Tal, Gil;. *An Early Look at Plug-In Electric Vehicle Adoption in Disadvantaged Communities in California*. Transport Policy, 78: 19-30.
- 2019 Hardman, Scott; Lee, Jae Hyun; Tal, Gil. *How Do Drivers Use Automation? Insights from a Survey of Partially Automated Vehicle Owners in the United States*. Transportation Research Part A: Policy and Practice, 129: 246-256.
- 2018 Hardman, Scott; Jenn, Alan; Tal, Gil; Axsen, Jonn; Beard, George; Daina, Nicolo; Figenbaum, Erik; Jakobsson, Niklas; Jochem, Patrick; Kinnear, Neale; Plötz, Patrick; Pontes Jose; Refa, Nazir; Sprei Frances. *A review of consumer preferences of and interactions with electric vehicle charging infrastructure*. Transportation Research Part D: Transport and Environment, 62: 508-523.
- 2018 Hardman, Scott; Tal, Gil. *Who are the Early Adopters of Fuel Cell Vehicles?* International Journal of Hydrogen Energy, 43(37): 17857-17866.
- 2017 Yunshi Wang, Daniel Sperling, Gil Tal, Haifeng Fang. *China's electric car surge*. Energy Policy, 102: 486-490.
- 2017 Scott Hardman, Amrit Chandan, Gil Tal, Tom Turrentine. *The Effectiveness of Financial Purchase Incentives for Battery Electric Vehicles - A Review of the Evidence Renewable & Sustainable Energy Reviews*. Renewable & Sustainable Energy Reviews, 80: 1100-1111.
- 2016 Tal Gil, Michael Nicholas. *Exploring Impact of the Federal Tax Credit on the Plug-in Vehicle Market*. Transportation Research Record series Journal of the Transportation Research Board, 2572: 95-102.
- 2016 Hardman Scott, Gil Tal. *Exploring the Decision to Adopt a High-End Battery Electric Vehicle: Role of Financial and Nonfinancial Motivations*. Transportation Research Record series Journal of the Transportation Research Board, 2572: 20-27.
- 2015 Ji, Wei Nicholas, Michael Tal, Gil. *Electric Vehicle Fast Charger Planning for Metropolitan Planning Organizations: Adapting to Changing Markets and Vehicle Technology*. Transportation Research Record: Journal of the Transportation Research Board, (2502) 134-143.

- 2014 Tal, Gil, Nicholas, Michael A, Davies, Jamie, Woodjack, Justin. *Charging behavior impacts on electric vehicle miles traveled: who is not plugging in?* Transportation Research Record, 2454(1): 53-60.
- 2013 Nicholas, Michael, Tal, Gil. *Dynamics of workplace charging for plug-in electric vehicles: How much is needed and at what speed?* World Electric Vehicle Journal, 6(4): 819-828.
- 2012 Tal, Gil and Susan L. Handy. *Measuring Nonmotorized Accessibility and Connectivity in a Robust Pedestrian Network.* Transportation Research Record: Journal of the Transportation Research Board 2299, 48–56.
- 2012 Salon, D., M.G. Boarnet, S. Handy, S. Spears, and G. Tal. *How Do Local Actions Affect VMT? A Critical Review of the Empirical Evidence.* Transportation Research Part D: Transport and Environment 17, no. 7 : 495-508.
- 2012 Woodjack, Justin, Dahlia Garas, Andy Lentz, Tom Turrentine, Gil Tal and Michael Nicholas. *Consumers' Perceptions and Use of Electric Vehicle Range Changes over Time Through a Lifestyle Learning Process.* Transportation Research Record 2287, 1–8.
- 2011 Tal, Gil and Galit Cohen-Blankshtain. *Understanding the Sources of Overestimation Bias in Studies of Travel Demand Management Policies: Optimism Bias Versos Scientific Skepticism.* Transportation Research Part A: Practice and Policy. 45 (5), 389–400.
- 2010 Tal, Gil. and Susan L. Handy. *Travel Behavior of Immigrants: Analysis of 2001 National Household Travel Survey.* Transport Policy, 17 (2) 85-93.
- 2008 Tal, Gil. *Overestimation Reduction in Forecasting Telecommuting as a TDM Policy.* Transportation Research Record, 2082 (1) 8-16.
- 2008 Tal, Gil, and Susan L. Handy. *Increasing Children's Biking for Non-School Purposes Lessons from the Davis, CA 'Bike to AYSO' Program.* Transportation Research Record, 2074 (1) 40-45.

Journals Submitted

- 2021 Ahmet Mandev; Patrick Plötz; Frances Sprei; Gil Tal. *Empirical charging behavior of plug-in hybrid electric vehicles.* Transportation Research Part D. ** SUBMITTED **
- 2021 Chaitanya Vaishnavi Karanam; Co-Authors: Adam Davis; Claire Sugihara; Katrina Sutton; Gil Tal. *From Shifting Gears to Changing Modes The Impact of Driver Inputs on Plug-in Hybrid Electric Vehicle Energy Use & Emissions.* Transportation Research Part A. **

SUBMITTED **

Book Chapters

- 2013 Mokhtarian Pat and Gil Tal: *Impacts of ICT on Travel Behavior: A Tapestry of Relationships*, Jon Shaw, Jean-Paul Rodrigue and Theo Notteboom, (ed), Transport Handbook, Saga Publication, London. 241.
- 2016 Yan Xing, Gil Tal, Yunshi Wang, Ying Liu, Xiaohua Ding, Pinxi Wang, Wenjie Wang: *A Comparison of Plug-in Electric Vehicle Markets Between China and the U.S. Based on Surveys*, Blue Book of New Energy Vehicles, SOCIAL SCIENCES ACADEMIC PRESS(CHINA) 2011.
- 2020 Gil Tal, Ken Kurani Alan Jenn, Debapriya Chakraborty, Scott Hardman, Dahlia Garas: *PEVs in the US: Policy Evolution and Behavioural Perspectives*, Marcello Contestabile, Gil Tal and Thomas Turrentine, (ed), Who's Driving Electric Cars - Understanding Consumer Adoption and Use of Plug-in Electric Cars, Springer Nature Switzerland AG.
- 2020 Yan Xing, Gil Tal, Yunshi Wang: *PEV Market Research on Consumers in Xix Cities in China*, Marcello Contestabile, Gil Tal and Thomas Turrentine, (ed), Who's Driving Electric Cars - Understanding Consumer Adoption and Use of Plug-in Electric Cars, Springer Nature Switzerland AG.

Books Edited

- 2020 *Who's Driving Electric Cars: Understanding Consumer Adoption and Use of Plug-in Electric Cars*, Contestabile Marcello, Gil Tal, Thomas Turrentine, (ed), Springer Nature, Switzerland.

Grants and Contracts

Grants Active

- 6/1/2019 - 9/30/2022 Grant #65A0730, \$300,000, Principal Investigator, DCFC Evaluation, Caltrans
- 10/1/2019 - 9/30/2022 Grant #600-19-007, \$400,000, Principal Investigator, Innovative Mobility Impacts on Electric Vehicle Infrastructure, CA Energy Commission,
- 02/01/2019 - 03/31/2021 Grant #65A0720, \$120,000, Principal Investigator, Electric Bus and Train Infrastructure, Caltrans,

08/01/2018 - 12/31/2020	\$25,000, Principal Investigator, Together in a Sustainable Transport Dream at the Two Bay Areas (One Dream, Two Bay Areas), UC Davis
03/01/2019 - 10/1/2021	Grant #18CAR030, \$100,000, Principal Investigator, VMT of Alternative Fuel Vehicles, California Air Resources Board, Percentage
04/01/2019 - 03/21/2021	Grant # 18RD027, \$49,869, Principal Investigator, White Papers - CA Transportation Landscape, CARB
10/1/2018 - 9/30/2021	Grant #CCRP0017, \$70,000, Principal Investigator, Climate Smart Transportation and Communities Consortium: Task 3, Strategic Growth Council (SGC)
06/01/2017 - 03/31/2021	Grant #16RD009, \$650,000, Principal Investigator, Emerging Technology Zero Emission Vehicle Household Travel and Refueling Behavior, California Air Resources Board

Selected Grants Completed

02/01/2016 - 12/31/2020	\$400,000, Principal Investigator, Driving Research and Leadership in Buildings and Transportation Efficiency by engaging veteran and ROTC students on research projects in building and transportation technologies and analytics: Plug in Electric Vehicle Decision Making Data Based Tools, US Navy, Percentage Effort=30%
7/1/2017 - 2/28/2019	\$180,000, Principal Investigator, Exploring the Potential of Plug-in Hybrid Electric Vehicles in Reducing Equivalent Greenhouse Gas Emissions at the Vehicle and Household Levels, Toyota Motor Corporation
10/01/2014 - 12/31/2016	\$200,000, Principal Investigator, The Dynamics of Plug-in Electric Vehicles in the First and Secondary Market and their Implications for Vehicle Demand, Durability, and Emissions, California Air Resources Board
03/01/2016 - 12/31/2017	\$207,000, Principal Investigator, Consumers and Advance Design Vehicles, BMW
10/01/2017 - 10/01/2018	\$90,000, Principal Investigator, Expanding the UC Davis GIS EV Planning Toolbox, NCST
11/01/2014 - 09/30/2015	\$168,000, Co-Principal Investigator, eVMT Analysis as, Michael Nicholas (Principal Investigator), Oak Ridge National Lab (ORNL)
04/04/2012 - 07/30/2015	\$400,000, Co-Principal Investigator, GIS Toolbox, Michael Nicholas (Principal Investigator), UCLA Subcontract on CEC Award
06/01/2016	\$120,000, Co-Principal Investigator, PEV Consumer Impact,

	Michael Nicholas (Principal Investigator), Oak Ridge National Lab (ORNL)
06/01/2014 - 06/30/2016	\$120,000, Principal Investigator, Davis Alternative Fuel Readiness Plan, California Energy Commission
11/01/2016 - 02/28/2017	Grant #201700381, \$90,000, Principal Investigator, Exploring the Potential of Plug-in Hybrid Electric Vehicles in Reducing Equivalent Greenhouse Gas Emissions at the Vehicle and Household Levels, TOYOTA MOTOR CORPORATION
05/01/2013 - 01/31/2017	\$650,000, Co-Investigator, eVMT Projects, Thomas Turrentine (Principal Investigator), California Air Resources Board

Service

Administrative Activities

2016-2021	Admission Advisor, Graduate Groups in Transportation Technology and Policy (TTP),
2018-2029	Director, Plug-In Hybrid & Electric Vehicle Research Center (PH&EV) UC Davis

Committees

Department/Section

2008-2010	Reviewer of grant proposals and dissertation proposals for the University of California, Transportation Center.
2016-2021	Graduate Adviser, Transportation Technology and Policy Graduate Group - Graduate Adviser, admission adviser at the Transportation Technology and Policy Graduate Group.

Campus

2016-2017	Federation Representative at the Graduate Council Educational Policy - Senate Committee, Federation Representative.
1999-2002	Member in a consultancy group for a transportation agency preparing transportation master plans for local authorities, and on the reorganization of the public transportation system in Tel-Aviv.

Editorial and Advisory Boards

2020-2028	Member of the Standing Committee on Alternative Fuels and Technologies, Transportation Research Board (TRB) The National Academies of Sciences, Engineering, and Medicine.
2020-2023	Member, Technical advisory board, EV WATTS Project Advisory Committee.
2019-2021	Committee Member in the advisory Committee of the Behavior Energy

2017-2021	and Climate Conference . Committee Member in the Global EDV Advisory Group, ClimateWorks.org.
2016-2019	Committee Member in the Program Committee of the Behavior Energy and Climate Conference 2016-2019.
2018-2019	Committee Member in the Technical Advisory Board, Autonomous Vehicle Heaven or Hell? Creating a Transportation Revolution That Benefits All, The Greenlining Institute.

Reviewer of Manuscripts

Transportation Research Policy and Practice (Part A)
 Environment and Planning B
 Journal of Transport Geography
 Transport Policy
 Transportation Research Records
 Transportation Research Part C: Emerging Technologies
 Transportation Research Part D: Transport and Environment
 International Journal of Geographical Information Science
 Transportation
 Journal of the American Planning Association (JAPA)
 Energy Policy
 Sustainable Cities and Society
 Nature Energy

Teaching

Courses

2015	Spring Quarter, Course Number=TTP 289B 007, A Geographic Perspective on Travel Behavior and Travel Modeling Subject Area: Transportation Tech & Policy, Units=2, Undergraduate Count=0, Graduate Count=8, Percentage Effort=20
2009	Fall Quarter, Course Number=ECI 165, Transportation Policy, Units=3, Undergraduate Count=0, Graduate Count=0

Lecture/Seminar/Lab/Other

2009 Summer Special Session
 Other: Sustainable city planning summer studio for post-baccalaureate students, College of Environmental Design (CED) at UC Berkeley,

Student Advising

2019 - 2021 Number of undergraduate advisees: (2), Number of graduate advisees: (4), Number of graduate co-advisees: (4)
 2015 - 2016 Number of undergraduate advisees: (3), Number of graduate advisees: (3), Co-advisees (3)

Thesis Committees

2015-2016 Julie R Schiffman
 2015-2017 Wei Ji
 2015-2017 Kathleen Harris
 2015-2018 Wei Ji
 2016-2017 Laura Cackette
 2016-2017 Dominique Meroux
 2016-2018 Rosaria Berliner
 2016-2018 Kathleen Yip
 2017-2019 Malik, Jai, PhD Student
 2017-2020 Xiuli Zhang
 2017-2020 Jinpeng Gao
 2017-2020 Srinivasa Raghavan, Seshadri
 2017-2020 Campbell, Alexander
 2017-2021 Benoliel, Peter
 2018-2020 Xu, Bingzheng
 2018-2020 Sutton, Katrina
 2018-2020 Sugihara, Claire
 2019-2021 Hoogland, Kelly

Michael Maness

Curriculum Vitae

4202 E. Fowler Avenue, ENG 030
University of South Florida
Tampa, FL 33620

(813) 974-6144
manessm@usf.edu
michaelmaness.com

Summary

- Twelve years of experience conducting research in light-duty vehicle preferences, including at the university and DOE national laboratory level
- Ph.D. in Transportation Engineering with specialization in travel demand forecasting, travel behavior analysis, and discrete choice methods
- Authored three peer-reviewed journal articles (with two under review) on consumer preferences for light-duty plug-in electric vehicles with over 60 citations total
- Led and co-led projects worth over \$1.5 million dollars with project topics in transportation electrification and automation
- Researches adoption behavior in transportation including through means of social influence/learning and diffusion of innovation

Professional Experience

- 2019-Present *Assistant Professor*, Department of Civil and Environmental Engineering, University of South Florida (Tampa, FL)
- 2018-Present *Affiliated Faculty*, Center for Urban Transportation Research, University of South Florida (Tampa, FL)
- 2017-2018 *Postdoctoral Research Fellow*, Department of Civil and Environmental Engineering, University of South Florida (Tampa, FL)
- 2017-2018 *Adjunct Instructor*, Department of Civil and Environmental Engineering, University of South Florida (Tampa, FL)
- 2015-2016 *Postdoctoral Research Associate*, Center for Transportation Analysis, Oak Ridge National Laboratory (Knoxville, TN)
- 2015 *Visiting Researcher*, Centre for Choice Modelling and Institute for Transport Studies, University of Leeds (Leeds, UK)
- 2014-2015 *Graduate Research Assistant*, Department of Civil and Environmental Engineering, University of Maryland (College Park, MD)
- 2013-2014 *Graduate Research Fellow*, Office of Operations Research & Development, Federal Highway Administration, Turner-Fairbank Highway Research Center (McLean, VA)
- 2011-2013 *Graduate Research Assistant*, Department of Civil and Environmental Engineering, University of Maryland (College Park, MD)

Education

- 2015 **University of Maryland, College Park. Ph.D. Civil Engineering**
Dissertation – *Choice Modeling Perspectives on Social Networks, Social Influence, and Social Capital in Activity and Travel Behavior*
- 2010 **University of Maryland, College Park. M.S. Civil Engineering**
Thesis – *Modeling Vehicle Ownership Decisions in Maryland: A Preliminary Stated Preference Survey and Model*
- 2009 **University of Maryland, College Park. B.S. Civil Engineering**
- 2009 **University of Maryland, College Park. B.S. Computer Science**

Peer Reviewed Journal Articles

1. L.B. Palaio, T. Vo, M. Maness, R. Bertini, and N. Menon (forthcoming). A Multi-City Investigation of the Effect of Holidays on Bikeshare System Ridership. *Transportation Research Record: Journal of the Transportation Research Board*

2. M. Maness and Z. Lin (2019). Free Charging: Exploratory Study of Its Impact on Electric Vehicle Sales and Energy. *Transportation Research Record: Journal of the Transportation Research Board*, 2673(9), 590-601.
3. H. Aziz, H. Park, A. Morton, R. Stewart, M. Hilliard, and M. Maness (2018). A High Resolution Agent-based Model to Support Walk-Bicycle Infrastructure Investment Decisions: A Case Study with New York City. *Transportation Research Part C: Emerging Technologies*, 86, 280-299.
4. M. Maness (2017). Comparison of Position Generators and Name Generators as Social Capital Indicators in Predicting Activity Selection. *Transportation Research Part A: Policy and Practice*, 106, 374-395.
5. M. Maness (2017). A Theory of Strong Ties, Weak Ties, and Activity Behavior: Leisure Activity Variety and Frequency. *Transportation Research Record: Journal of the Transportation Research Board*, 2665, 30-39.
6. C. Cirillo, Y. Liu, and M. Maness (2017). A Time-dependent Stated Preference Approach to Measuring Vehicle Type Preferences and Market Elasticity of Conventional and Green Vehicles. *Transportation Research Part A: Policy and Practice*, 100, 294-310.
7. C. Calastri, S. Hess, A. Daly, M. Maness, M. Kowald, and K. Axhausen (2017). Modelling Contact Mode and Frequency of Interactions with Social Network Members Using the Multiple Discrete-continuous Extreme Value Model. *Transportation Research Part C: Emerging Technologies*, 76, 16-34.
8. M. Maness and C. Cirillo (2016). An Indirect Informational Conformity Social Influence Choice Model: Formulation and Case Study. *Transportation Research Part B: Methodological*, 93, 75-101.
9. M. Maness, C. Cirillo, and E. Dugundji (2015). Generalized Behavioral Framework for Choice Models of Social Influence: Behavioral and Data Concerns in Travel Behavior. *Journal of Transport Geography*, 46, 137-150.
10. X. Jiang, J. Bared, M. Maness, and D. Hale (2015). Traffic Performance Analysis of Dynamic Merge Control Using Micro-simulation. *Transportation Research Record: Journal of the Transportation Research Board*, 2484, 23-30.
11. C. Cirillo, M. Maness, and N. Serulle (2014). Measuring Value of Travel Time in the Presence of Managed Lanes: Results from a Pilot Stated Preference Survey on the Capital Beltway. *Transportation Letters*, 6(1), 23-35.
12. M. Maness and C. Cirillo (2012). Measuring Future Vehicle Preferences: Stated Preference Survey Approach with Dynamic Attributes and Multiyear Time Frame. *Transportation Research Record: Journal of the Transportation Research Board*, 2285, 100-109.

Book Chapters

1. M. Maness (2020). Choice Modeling Perspectives on the Use of Interpersonal Social Networks and Social Interactions in Activity and Travel Behavior. *Mapping the Travel Behavior Genome: The Role of Disruptive Technologies, Automation, and Experimentation*.
2. D. Tahlyan, S. Balasu, P.V. Sheela, M. Maness, and A. Pinjari (2020). Improving the spatial transferability of travel demand forecasting models: An empirical assessment of the impact of incorporating attitudes on model transferability. *Mapping the Travel Behavior Genome: The Role of Disruptive Technologies, Automation, and Experimentation*.

Working Papers

1. M. Maness, D. Mishra, N. Barbour, and Z. Lin. A National Estimate of the Zero-Price Effect for Public Electric Vehicle Charging: A Stated Preference Approach. *Energy Policy*.
2. M. Maness, D. Mishra, N. Barbour, and Z. Lin. A Random Parameters Latent Class Analysis to Estimate the Value of Free Charging Bundle in Electric Vehicle Purchases. *Energy Policy*.

Research Project Grants

- 2021-Present *Equitable Transportation Electrification Learning Module for Civil Engineering Students*,
Funded by Center for Transportation Equity, Decisions, and Dollars (A USDOT Tier 1
University Transportation Center), Co-PI (PI: Shams Tanvir) [\$79,944]

- 2020-2021 *Influencing Travel Behavior via an Open-Source Platform – Year 1*, Funded by National Institute for Congestion Reduction, Co-PI (PI: Sean Barbeau) [\$151,364]
- 2019-2020 *An Inferential Study of the Potential Consumer Value of Free Charging*, Oak Ridge National Laboratory (Department of Energy), PI [\$48,082]
- 2017-2021 *Investigation of the role of attitudinal factors on adoption of emerging automated vehicle and vehicle safety technologies*, Funded by Center for Teaching Old Models New Tricks (A USDOT Tier 1 University Transportation Center), Co-PI (PI: Fred Mannering) [\$1,320,000]

Other Grants and Fellowships

- 2020 *Systemic Transformation of Education through Evidence Based Reforms Travel Grant*, University of South Florida [\$1,100]
- 2014-2015 *Future Faculty Fellowship*, University of Maryland [\$3,000]
- 2013-2014 *Eisenhower Grants for Research Fellowships*, Federal Highway Administration [\$60,000]
- 2012 *International Conference Student Support Award*, University of Maryland [\$500]
- 2010-2012 *Eisenhower Transportation Fellowship*, Federal Highway Administration [\$43,500]
- 2009-2010 *Bridge to the Doctorate Fellowship*, National Science Foundation and University of Maryland [\$40,000]

Honors and Awards

- 2017-Present *Member of Traveler Behavior and Values Committee*, Transportation Research Board
Serving a three-year appointment where responsible for reviewing papers, participating in committee meetings, and chairing sessions at conferences
- 2017 *2015 Eric Pas Dissertation Prize*, International Association for Travel Behaviour Research
Prize recognizes the best doctoral dissertation in travel behavior research that was defended and accepted for a Ph.D. degree in 2015
- 2015 *Outstanding Student of the Year*, University Transportation Centers Program
US Department of Transportation award to honor students based on research, academic, and leadership merit (representing Center for Advanced Transportation Technology)
- 2013 *Best Oral Presentation in Urban Studies*, University of Maryland
University-wide research conference (Graduate Research Interaction Day) for graduate students
- 2004-2008 *Banneker-Key Scholarship*, University of Maryland
University of Maryland's most prestigious merit scholarship, awarded full scholarship

Conference Presentations (* presenter)

- 2021 T. Luong* and M. Maness. Comprehensive Analysis of Leisure Activity Variety as an Instrumental Outcome of Social Capital. Presentation at the *2021 Annual Meeting of the Transportation Research Board*, Washington, DC. [Virtual Poster]
- 2021 L.B. Palaio*, T. Vo*, M. Maness, R. Bertini, and N. Menon. A Multi-City Investigation of the Effect of Holidays on Bikeshare System Ridership. Presentation at the *2021 Annual Meeting of the Transportation Research Board*, Washington, DC. [Virtual Poster]
- 2021 D. Tahlyan*, A. Stathopoulos, and M. Maness. Disentangling Social Capital – Understanding the Effect of Social Support and Social Network Resources on Social Activity Participation. Presentation at the *2021 Annual Meeting of the Transportation Research Board*, Washington, DC. [Virtual Poster]
- 2019 M. Maness*. An Inferential Study of the Potential Consumer Value of Free Charging. Presentation at the *2019 Behavior, Energy, and Climate Change Conference*, Sacramento, CA. [Talk]
- 2019 T. Luong* and M. Maness. Using Social Capital Data to Account for Heterogeneity in Activity Behavior Within and Between Genders. Presentation at the *6th International Conference on Women's Issues in Transportation*, Irvine, CA. [Poster]

- 2019 D. Tahlyan, M. Maness*, and A. Stathopoulos. Incorporating Social Capital as a Latent Variable in Discrete Choice Models. Presentation at the *International Choice Modelling Conference 2019*, Kobe, Japan. [Talk]
- 2019 M. Maness*. Leveraging Social Capital Questions for Travel and Activity Surveys. Presentation at the *Conference on Current Trends in Survey Statistics 2019*, Singapore, Singapore. [Talk]
- 2019 M. Maness and Z. Lin*. The Value of Free Electric Vehicle Charging Infrastructure: An Exploratory Analysis. Presentation at the *2019 Annual Meeting of the Transportation Research Board*, Washington, DC. [Talk]
- 2018 M. Maness*. Exploring the Effects of Social Resources on Leisure Activity and Autonomous Vehicle Intention. Presentation at the *2018 INFORMS Annual Meeting*. [Talk]
- 2018 M. Maness*. Developing a Survey for Modeling Autonomous Vehicle Adoption Through Weak Tie Social Capital and Diffusion of Innovation Constructs. Presentation at the *2018 Behavior, Energy, and Climate Change Conference*, Washington, DC. [Talk]
- 2018 M. Maness*. New Models of Random Taste Variation and Constraint Change Induced by Social Influence. Presentation at the *15th International Conference on Travel Behaviour Research*, Santa Barbara, CA. [Talk]
- 2018 P. V. Sheela, S. K. Balusu*, M. Maness, and A. Pinjari. When Neutral Responses on a Likert Scale Do Not Mean Opinion Neutrality: Accounting for Unsure Responses in a Hybrid Choice Modeling Framework. Presentation at the *15th International Conference on Travel Behaviour Research*, Santa Barbara, CA. [Talk]
- 2018 D. Tahlyan, P.V. Sheela*, M. Maness, and A. Pinjari. Improving the spatial transferability of travel demand forecasting models: An empirical assessment of the impact of incorporating attitudes on model transferability. Presentation at the *15th International Conference on Travel Behaviour Research*, Santa Barbara, CA. [Talk]
- 2018 P. V. Sheela, S. K. Balusu, M. Maness*, and A. Pinjari. When Neutral Responses on a Likert Scale Do Not Mean Opinion Neutrality: Accounting for Unsure Responses in a Hybrid Choice Modeling Framework. Presentation at the *7th International Conference on Innovations in Travel Modeling*, Atlanta, GA. [Talk]
- 2018 D. Tahlyan, P.V. Sheela, M. Maness*, and A. Pinjari. Improving the spatial transferability of travel demand forecasting models: An empirical assessment of the impact of incorporating attitudes on model transferability. Presentation at the *7th International Conference on Innovations in Travel Modeling*, Atlanta, GA. [Talk]
- 2017 M. Maness*. A Theory of Strong Ties, Weak Ties, and Activity Behavior: Leisure Activity Variety and Frequency. Proceedings from the *2017 Annual Meeting of the Transportation Research Board*, Washington, DC. [Talk]
- 2017 C. Calastri*, S. Hess, A. Daly, M. Maness, M. Kowald, and K. Axhausen. Modelling Contact Mode and Frequency of Interactions with Social Network Members Using the Multiple Discrete-continuous Extreme Value Model. Presentation at the *2016 Annual Meeting of the Transportation Research Board*, Washington, DC. [Poster]
- 2016 M. Maness* and C. Liu. Social Adoption of Plug-in Electric Vehicles: A Review of Modeling and Policy Implications. Presentation at the *2016 Behavior, Energy, and Climate Change Conference*, Baltimore, MD. [Talk]
- 2016 M. Maness*. Social Influence Choice Modelling of Travel Behavior: The Policy Implications of Differentiating Social Effects and Possible Pathways to Accomplish Differentiation. Presentation at the *5th Symposium of the European Association for Research in Transportation*, Delft, Netherlands. [Talk]
- 2016 C. Calastri*, S. Hess, A. Daly, M. Maness, M. Kowald, and K. Axhausen. Modelling Contact Mode and Frequency of Interactions with Social Network Members Using the Multiple Discrete-continuous Extreme Value Model. Presentation at the *5th Symposium of the European Association for Research in Transportation*, Delft, Netherlands. [Talk]

- 2016 M. Maness*. Forecasting Demand for Electric Bicycles and Their Sustainability Impacts: Case Study for a University Campus. Presentation at the *Transportation Research Board Committees on Resource Conservation & Recovery and Geo-Environmental Processes 2016 Summer Workshop*, Asheville, NC. [Talk]
- 2016 M. Maness*. Choice Modeling Perspectives on Social Networks, Social Influence, and Social Capital in Activity and Travel Behavior. Presentation at the *2016 Annual Meeting of the Transportation Research Board*, Washington, DC. [Talk]
- 2015 M. Maness*. Comparison of Position Generators and Name Generators as Social Capital Indicators in Modeling Activity Selection. Presentation at *Frontiers in Transportation 2015: An Update on Social Networks and Travel*, London, UK. [Talk]
- 2015 M. Maness* and C. Cirillo. Incorporating Heterogeneous Social Influence Motivations in Choice Models: A Formulation and Case Study. Presentation at the *14th International Conference on Travel Behaviour Research*, London, UK. [Talk]
- 2015 X. Jiang*, Q. Gan, J. Bared, M. Maness*, and D. Hale. Traffic Performance Analysis of Dynamic Merge Control Using Micro-simulation. Proceedings from the *2015 Annual Meeting of the Transportation Research Board*, Washington, DC. [Poster]
- 2014 M. Maness*. Measurement Error Bias from Social Network Data used in Discrete Choice Models. Presentation at the *3rd Symposium of the European Association for Research in Transportation*, Leeds, UK. [Talk]
- 2012 C. Cirillo and M. Maness*. A Dynamic Stated Preference Survey and Modeling Approach for Future Vehicle Preference, Presentation at the *2012 International Association for Travel Behavior Research Conference*, Toronto, Canada. [Talk]
- 2012 M. Maness* and C. Cirillo. Measuring and Modeling Future Vehicle Preferences: A Preliminary Stated-Preference Survey in Maryland. Proceedings from the *2012 Annual Meeting of the Transportation Research Board*, Washington, DC. [Poster]
- 2012 M. Maness*. Bicycle Ownership in the United States: Empirical Analysis of Regional Differences. Proceedings from the *2012 Annual Meeting of the Transportation Research Board*, Washington, DC. [Poster]
- 2011 M. Maness* and C. Cirillo. Future Vehicle Preferences: Lessons from a SP Survey. Presentation at the *2011 Behavior, Energy, and Climate Change Conference*, Washington, DC. [Poster]
- 2011 C. Cirillo* and M. Maness. Estimating Demand for New Technology Vehicles. Proceedings from the *European Transport Conference 2011*, Glasgow, Scotland. [Talk]
- 2010 M. Maness* and C. Cirillo. A Modeling Framework for Vehicle Ownership Decisions in Maryland. Presentation at the *First International Symposium on Advances in Transport Sustainability*, Tempe, AZ. [Talk]

Invited Talks

- 2020 M. Maness. Can my activity choices be explained through what my friends offer? Exploring a Social Capital Theory of leisure activity. *Centre for Choice Modelling Online Seminar Series*, University of Leeds, Leeds, UK.
- 2020 M. Maness. Autonomous Vehicles: Potential Travel Behavior Implications. *The ABCs (Attitudes – Behaviors – Choices) of Future Mobility*, Arizona State University, Phoenix, AZ.
- 2020 N. Menon and M. Maness. People's Lifestyle Preferences, Attitudes, and Travel Patterns. *The ABCs (Attitudes – Behaviors – Choices) of Future Mobility*, Arizona State University, Phoenix, AZ.
- 2020 C. Wang and M. Maness. Impacts of the COVID-19 Pandemic on Person-Trips and Tele-Activities (Part I). The Impacts of COVID-19 on Tele-Activities, Travel, and Purchasing Behaviors Webinar Series, Rensselaer Polytechnic Institute, Troy, NY.

- 2018 M. Maness. Using Hybrid Choice Models to Differentiate Opinion Neutrality and Unfamiliarity. *TOMNET Leadership Webinar Series*.
- 2018 M. Maness. Choice Modeling Perspectives on Social Networks, Social Influence, and Social Capital in Activity and Travel Behavior. *Eric Pas Dissertation Prize Plenary Session*. 15th International Conference on Travel Behaviour Research, Santa Barbara, CA.
- 2018 M. Maness. Enhancing the Social Realism of Activity and Travel Behavior Models by Incorporating Social Capital and Social Influence. University at Buffalo, Buffalo, NY.
- 2017 M. Maness. Incorporating Social Interactions in Activity and Travel Behavior Models: New Directions in Social Capital and Social Influence. University of South Florida, Tampa, FL.
- 2016 M. Maness. Behavioral Realism in Transportation: Dynamic Vehicle Markets and Providing Free Charging Infrastructure. National Renewable Energy Laboratory, Golden, CO.
- 2015 M. Maness. Choice Modelling Perspectives on Social Influence in Travel Behaviour – A Behavioural Review with Future Research Directions. *Centre for Transport Studies Seminar Series*. Imperial College London, London, UK.
- 2015 M. Maness. Incorporating Social Networks into Choice Models of Social Interaction – Behavioural and Data Perspectives. University of Leeds, Leeds, UK.
- 2015 M. Maness. Choice Modeling Perspectives on Social Networks, Social Influence, and Social Capital in Activity and Travel Behavior. Oak Ridge National Laboratory, Knoxville, TN.
- 2014 M. Maness. Application of the Active Traffic and Demand Management Analysis Framework to Virginia's I-66 Active Traffic Management Project. *TFHRC Brown Bag Lunchtime Technical Presentation Program*. Turner-Fairbank Highway Research Center, McLean, VA.
- 2013 M. Maness. Transportation Considerations. *Exploring the Adolescent Need for Sleep*. Start School Later, Montgomery College, Rockville, MD.

Research Project Experience

- 2019-Present *Assistant Professor*, University of South Florida (Tampa, FL)
- Influencing Travel Behavior via an Open Source Platform (*smartphone app, activity and travel imputation*)
 - Tourism and Special Events Planning and Operations for Smart Cities (*tourism demand, distributed computing, leisure activity, agent-based modeling*)
 - A Social Capital Theory of Activity Behavior (*leisure activity, social network analysis, social capital, gender bias, latent variable count data models, discrete-continuous models*)
 - An Inferential Study of the Potential Consumer Value of Free Charging (*incentive compatibility, stated preference survey design, electric charging infrastructure, equity analysis*)
- 2017-2018 *Postdoctoral Research Fellow*, University of South Florida (Tampa, FL)
- Investigation of the Role of Attitudinal Factors on Adoption of emerging automated vehicle and vehicle safety technologies (*autonomous vehicles, attitudes, latent variable discrete choice models, survey design, social network analysis, model transferability*)
- 2015-2016 *Postdoctoral Research Associate*, Oak Ridge National Laboratory (Knoxville, TN)
- A National Model of the Adoption of Personal Connected and Autonomous Vehicle and Ridesharing (*autonomous vehicles, ridesharing, vehicle ownership*)
 - A Free Public Charging Policy: An Exploratory Analysis (*vehicle ownership, behavioral economics, travel behavior analysis, policy analysis*)
 - Social and Neighborhood Effects in the Adoption of New Vehicle Technology (*agent-based modeling, social network analysis*)
 - A High-Performance, Data-Driven Simulator of the American Population for Modeling Urban Dynamics (*agent-based modeling, travel demand, non-motorized transport*)
 - US Job Impacts of Battery Investment Strategies for Plug-in Electric Vehicles (*simulation, vehicle ownership, policy analysis*)

- 2015 *Visiting Researcher*, University of Leeds (Leeds, UK)
- Role of Social Networks and Societal Influences on Transport, Activity, and Household Energy Behavior (*activity diary, social network analysis, smartphone app*)
 - Joint Modeling of Communication Mode and Frequency using Egocentric Social Network Data (*social network analysis, ICT, discrete-continuous modeling*)
- 2014-2015 *Graduate Research Assistant*, University of Maryland (College Park, MD)
- Dynamic Choice Models for Challenging Societies with an Application to Car Ownership Decisions (*data analysis, long-term & short term elasticity*)
 - Dissertation – Choice Modeling Perspectives on Social Interactions (*nonlinear optimization, social network analysis, Bayesian inference, simulation*)
- 2013-2014 *Graduate Research Fellow*, Turner-Fairbank Highway Research Center (McLean, VA)
- Analyzing Active Traffic Management Systems: Application to I-66 in Virginia (*data analytics, data fusion, traffic operations analysis, cost-benefit analysis*)
 - Development of Dynamic Merge Control Guidelines (*traffic simulation*)
 - Dynamic Speed Harmonization through Vehicle-to-Infrastructure Communications Field Experiment (*data collection, connected vehicles technology*)
 - Calibrating Models of Car-Following Behavior in Work Zones (*data analysis*)
- 2011-2013 *Graduate Research Assistant*, University of Maryland (College Park, MD)
- Dynamic Choice Models for Challenging Societies with an Application to Car Ownership Decisions (*dynamic adaptive stated preference survey design*)
 - Departure Time Choice Model in the Presence of Time-of-Day Toll Pricing (*stated preference survey design, semi-parametric discrete choice model, managed lanes*)
 - Estimating Drivers' Willingness to Pay for HOT Lanes on I-495 in Maryland (*stated preference survey design, value-of-time study, managed lanes*)
- 2009-2011 *Graduate Student (independently funded)*, University of Maryland (College Park, MD)
- Integrating Vehicle Ownership Decisions into the Maryland Statewide Transportation Model (*stated preference survey design, vehicle ownership, alternative fuels, taxation*)

Teaching Experience

- 2020 *Instructor*, Computational Methods for Transportation Modeling (Graduate)
- Proposed and developed a three-credit course on using functional programming, parallel computing, and object-oriented programming for performing transportation modeling
- 2019 *Instructor*, Intro to Data Science for Civil Engineers (Graduate)
- Proposed and developed a two credit course on applying statistical programming, data analysis, and machine learning for civil engineering problems using interactive learning
- 2018-2021 *Instructor*, Transportation Engineering I (Undergraduate)
- Developed a three credit course that introduces students to the principles of transportation engineering including geometric design, pavements, traffic, and transportation planning; developed a transportation electrification module for use with undergraduate students
- 2018, 2019 *Instructor*, Independent Study (Graduate)
- Directed students' research in topics including: survey design, latent variable discrete choice models, and social network analysis
- 2017, 2018 *Instructor*, Travel Demand Modeling (Graduate)
- Developed a three credit course on the methodology and application of regression and discrete choice methods in models of travel demand and forecasting
- 2017 *Guest Lecturer*, Survey Methods in Transportation (Graduate)
- Taught two lectures on stated preference surveys and experimental design
- 2016 *Guest Lecturer*, Advanced Transportation Demand Modeling (Graduate)
- Taught a lecture on social networks and travel demand modeling
- 2014, 2013 *Teaching Assistant*, Transportation Engineering & Planning (Undergraduate)
- Graded assignments and exams; wrote exams; aided students at office hours

- 2012 *Teaching Assistant, Highway Engineering (Undergraduate)*
Prepared and taught an 8-lecture sequence about traffic control devices and intersection design; conducted weekly lab sessions on traffic engineering software; designed exams
- 2012 *Guest Lecturer, Computational Methods for Transportation Demand Analysis (Graduate)*
Designed and taught a 3-lecture sequence on discrete choice models of social influence
- 2011 *Guest Lecturer, Survey Methods in Transportation (Graduate)*
Designed and taught a 4-lecture sequence about web-based survey design; designed the class' final project; critiqued project presentations and reports
- 2006 *Teaching Fellow, Introduction to Engineering Design (Undergraduate)*
Graded assignments, aided students during lab sessions

Other Relevant Experience

- 2010-2012 *Lead Developer, JULIE (<https://github.com/mmaness/JULIE>)*
Started an open-source software framework for designing stated preference web-based surveys and computer-assisted interviews; actively developed new features and bug fixes; wrote documentation and provided a publicly available codebase

Mentoring Experience

As an Assistant Professor, University of South Florida

- 2019-Present *Trang Luong, University of South Florida*
Directing students' dissertation; managing students' involvement in research projects with direct delegation of project tasks; awarded an Eisenhower Transportation Fellowship (2019-2020)
- 2019-Present *Divyamitra Mishra, University of South Florida*
Directed students' Master thesis; managing students' involvement in research projects with direct delegation of project tasks; awarded a Pre-Court Fellowship for 2019 Behavior, Energy, and Climate Change Conference
- 2019-Present *Tung Vo, University of South Florida*
Managing a student's involvement in a research project with direct delegation of project tasks
- 2019-2020 *Nikhil Menon, University of South Florida*
Directing postdoctoral scholar's involvement with research projects and promoting his mentoring of students involved in his projects; employed as a research associate at the Center for Urban Transportation Research
- 2019-2020 *Lori Palaio, University of South Florida*
Co-directed students' Master thesis; managed students' involvement in research projects with direct delegation of project tasks; awarded an Eisenhower Transportation Fellowship (2019-2020); employed as a civil engineer at JMT
- 2019-2020 *Nameetha Ramachandra, University of South Florida*
Managed a master student's involvement in a research project with direct delegation of project tasks; employed as a data scientist at Citi Bank
- 2019-2020 *Madisen Kerr, University of South Florida*
Managed an undergraduate student's involvement in a research project
- As a Postdoctoral Research Fellow, University of South Florida*
- 2017-Present *Suryaprasanna Kumar Balusu, University of South Florida*
Managed students' involvement in research projects with direct delegation of project tasks
- 2017-2018 *Parvathy Vinod Sheela, University of South Florida*
Managed students' involvement in research projects with direct delegation of project tasks
- 2017-2018 *Divyakant Tahlyan, University of South Florida*
Managed students' involvement in research projects with direct delegation of project tasks

As a Visiting Researcher, University of Leeds

2016 *Chiara Calastri, University of Leeds*
 Provided instruction on social network analysis and discrete-continuous modeling methods; collaboration resulted in a published journal article

As a Doctoral Student, University of Maryland

2012-2015 *Yan Liu, University of Maryland*
 Provided one-on-one tutorials on discrete choice methods and software; Aided in editing her thesis; Discussed research direction regularly

2014-2015 *Han Dong, University of Maryland*
 Discussed research direction regularly

2011 *Camille Rocher, ENSI de Bourges*
 Provided instruction on discrete choice methods and qualitative data collection; assisted in developing her English writing skills

As a Master's Student, University of Maryland

2009 *Arnaud Manzano, Ferreira Antoni, and Chabre Romain, ENSI de Bourges*
 Provided instruction on travel survey methods; assisted in developing their English writing skills

Professional Service*Peer Review*

Transportation Research Record
 Transportation Research Board Annual Meeting
 International Conference on Travel Behaviour Research
 Journal of Transportation Engineering
 Journal of Transport Geography
 Research in Transportation Economics
 International Journal of Sustainable Transportation
 Journal of Choice Modelling
 7th International Conference on Innovations in Travel Modeling
 Sustainability
 Atmosphere
 Transportation Research Part A: Policy and Practice
 Journal of Planning Literature

Volunteer Work for Organizations

Committee Communications Coordinator, Traveler Behavior and Values Committee, Transportation Research Board (2021-present)
Member, Traveler Behavior and Values Committee, Transportation Research Board (2017-present)
Member, Subcommittee on Behavioral Processes: Qualitative and Quantitative Methods, Transportation Research Board (2014-present)
Conference Session Chair
 International Choice Modeling Conference 2019
 2019 Transportation Research Board Annual Meeting
 IATBR 2018: 15th International Conference on Travel Behavior Research
 5th Symposium of the European Association for Research in Transportation
 2015 International Conference on Travel Behaviour Research

University Service*University of South Florida*

2019-Present *Member, Advisory Board, Master of Urban and Regional Planning Program*
 2019-Present *Member, Curriculum Committee, Department of Civil and Environmental Engineering*
 2017-Present *Member, Area Committee: Transportation, Department of Civil and Environmental Engineering*

University of Maryland

- 2013-2014 *Member, University Senate Elections, Representation, & Governance Committee*
2013 *Member, Department of Civil & Environmental Engineering Chair Search Committee*
2011-2012 *Graduate Student Representative, University of Maryland Facilities Advisory Committee*

Extracurricular University Service

- 2014-2015 *Secretary, UMD ITE-ITS America Student Chapter*
2013-2015 *President, Civil & Environmental Engineering Graduate Student Council*
2012-2013 *Vice-President, Civil & Environmental Engineering Graduate Student Council*
2011-2012 *Graduate Student Affairs Committee Co-Chair, Graduate Student Government (GSG)*

Appendix B: Conflict of Interest (COI) Forms



ORGANIZATIONAL CONFLICT OF INTEREST CERTIFICATE

Customer: U.S. Environmental Protection Agency

Contractor: ICF Incorporated, LLC, 9300 Lee Highway, Fairfax, VA 22031

Prime Contract: Task Order 68HERC22F0112

Subject Report: Peer review of the report "Literature Review of U.S. Consumer Acceptance of Light Duty Plug-in Electric"

Subcontractor/Peer Reviewer: Sanya Carley, Indiana University

In accordance with EPAAR 1552.209-70 through 1552.209-73, Subcontractor/Consultant certifies to the best of its knowledge and belief, that:

☒ No actual or potential conflict of interest exists.

☐ An actual or potential conflict of interest exists. See attached full disclosure.

Subcontractor/Consultant certifies that its personnel, who perform work on this contract, have been informed of their obligations to report personal and organizational conflict of interest to Contractor and Subcontractor/Consultant recognizes its continuing obligation to identify and report any actual or potential organizational conflicts of interest arising during performance under referenced contract.

Sanya Carley
Subcontractor/Consultant

6/2/22
Date



ORGANIZATIONAL CONFLICT OF INTEREST CERTIFICATE

Customer: U.S. Environmental Protection Agency

Contractor: ICF Incorporated, LLC, 9300 Lee Highway, Fairfax, VA 22031

Prime Contract: Task Order 68HERC22F0112

Subject Report: Peer review of the report "Literature Review of U.S. Consumer Acceptance of Light Duty Plug-in Electric"

Subcontractor/Peer Reviewer: Gil Tal, University of California, Davis

In accordance with EPAAR 1552.209-70 through 1552.209-73, Subcontractor/Consultant certifies to the best of its knowledge and belief, that:

☒ No actual or potential conflict of interest exists.

☐ An actual or potential conflict of interest exists. See attached full disclosure.

Subcontractor/Consultant certifies that its personnel, who perform work on this contract, have been informed of their obligations to report personal and organizational conflict of interest to Contractor and Subcontractor/Consultant recognizes its continuing obligation to identify and report any actual or potential organizational conflicts of interest arising during performance under referenced contract.

Gil Tal
Subcontractor/Consultant

6/28/22
Date



ORGANIZATIONAL CONFLICT OF INTEREST CERTIFICATE

Customer: U.S. Environmental Protection Agency

Contractor: ICF Incorporated, LLC, 9300 Lee Highway, Fairfax, VA 22031

Prime Contract: Task Order 68HERC22F0112

Subject Report: Peer review of the report "Literature Review of U.S. Consumer Acceptance of Light Duty Plug-in Electric"

Subcontractor/Peer Reviewer: Michael Maness, University of South Florida

In accordance with EPAAR 1552.209-70 through 1552.209-73, Subcontractor/Consultant certifies to the best of its knowledge and belief, that:

☒ No actual or potential conflict of interest exists.

☐ An actual or potential conflict of interest exists. See attached full disclosure.

Subcontractor/Consultant certifies that its personnel, who perform work on this contract, have been informed of their obligations to report personal and organizational conflict of interest to Contractor and Subcontractor/Consultant recognizes its continuing obligation to identify and report any actual or potential organizational conflicts of interest arising during performance under referenced contract.


Subcontractor/Consultant

6/28/2022
Date

Appendix C: Notes from peer-review meetings with EPA, ICF, and the contracted peer reviewers

To: Elizabeth Miller, TO COR, U.S. EPA
From: Sam Pournazeri, Project Manager, ICF
Date: June 13, 2022
Re: Peer Reviewers' Kick-off meeting for Task Order 68HERC22F0112

Meeting Date/Location

- **Date:** Thursday, June 2, 2022
- **Location:** Virtual using Microsoft Teams

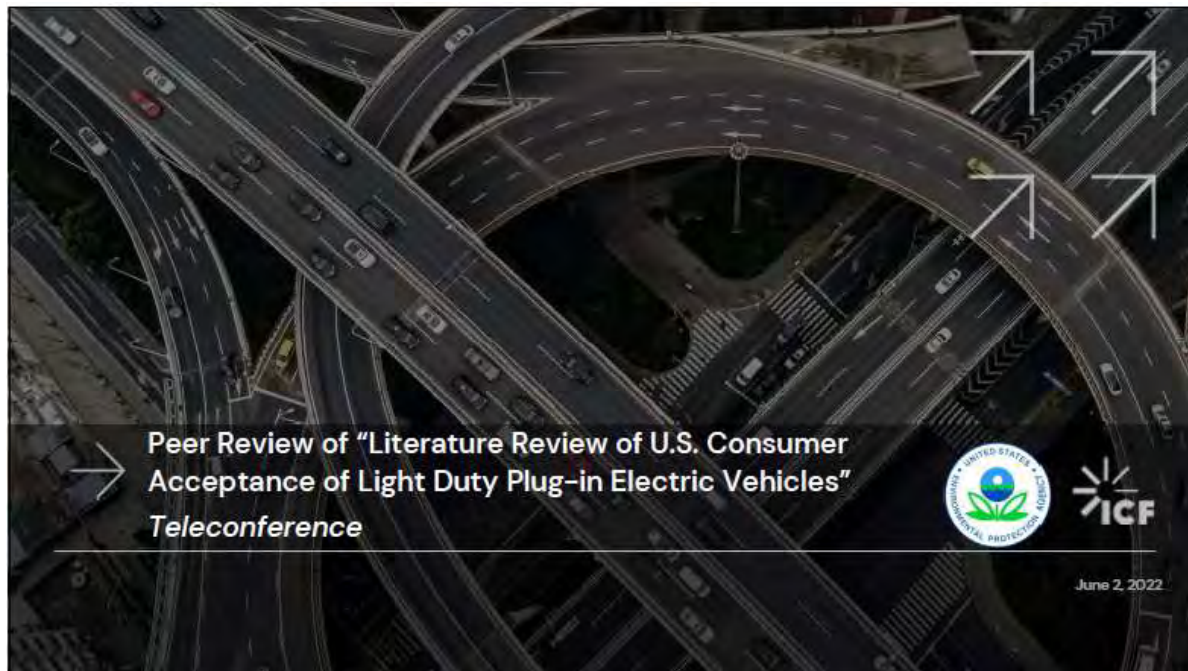
Meeting Participants:

- Elizabeth Miller, EPA, TO COR
- Jeff Cherry, EPA, Alternative TO COR
- Dana Jackman, EPA, Lead author of the report titled "Literature Review of U.S. Consumer Acceptance of Light Duty Plug-in Electric"
- Sam Pournazeri, ICF, Project manager for the peer review
- Emma Cost, ICF, Support staff for the peer review
- Michael Maness, University of South Florida
- Gil Tal, University of California, Davis
- Sanya Carley, Indiana University

Meeting Minutes:

- Emma Cost from ICF initiated the meeting with a slide presentation
- ICF, EPA staff, and peer reviewer panel introduced themselves.
- Dana Jackman from EPA provided an overview of the document and gave some guidance to peer reviewers on the overall structure of the document, and how it has come together.
- Dana mentioned that this is rather a compilation of all available literature out in the field from 2016 till the end of 2021. Rather than criticizing the literature, the review tends to acknowledge and cover the range of studies and viewpoints on this topic.
- Emma continued the presentation with providing an overview of charge questions, materials to review as well as the schedule. Upon covering all slides, she opened the meeting for Q&A.
- Peer reviewers asked couple of questions regarding the areas where they should focus on as well the timeline.
- Michael Maness asked if it is possible for him to deliver the final report by Friday June 17, and Gil Tal asked if he could deliver his report by June 19th. EPA agreed to that timeline.
- Gil Tal mentioned that an area where most of the literature is still missing is the supply side. He asked whether he could mention that in his review, and EPA agreed that it would be a good addition.

ICF Slide Presentation



- Introductions
- EPA: Background of the Literature Review
- ICF: Peer Review Overview
 - Charge Questions
 - Materials to Review and Submit
 - Schedule
- Questions/Comments

→ Agenda





Introductions

3

ICF Team

- Sam Pournazeri, Ph.D., Director of Clean Transportation and Energy
- Emma Cost, Clean Transportation Researcher

EPA Team

- Beth Miller, Ph.D., Economist, Office of Air and Radiation
- Dana Jackman, Ph.D., Economist, Office of Transportation and Air Quality

Peer Reviewers

- Sanya Carley, Ph.D., Professor, School of Public and Environmental Affairs, Indiana University
- Michael Maness, Ph.D., Assistant Professor, Civil and Environmental Engineering, University of South Florida
- Gil Tal, Ph.D., Director, PH&EV Research Center, University of California, Davis



Background of the Literature Review

5

- The Draft Literature Review summarizes the current scientific literature regarding:
 - The state of consumer acceptance of LD PEVs
 - How consumers become aware of PEVs and progress to PEV adoption
 - The obstacles and enablers that hinder and facilitate LD PEV acceptance

→ **Technical Background and Information**



Peer Review Overview



7



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?



Does the report miss any relevant literature?



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.



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?



Additional comments

→ Charge Questions



8

Materials to Review:

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

Materials to Submit

- A cover letter that states your name and address of your organization
- A completed Conflict of Interest (COI) form
- Your report addressing the charge questions in tabular format

→ Materials to Review and Submit



9

1

May 24, 2022:
Charge letter and
draft distributed to
peer reviewers

2

June 2, 2022:
Conference call with
EPA, ICF, and
reviewers

3

June 16, 2022:
Comment/review
due via email to
Sam Pournazeri

Sam.Pournazeri@icf.com

→ Schedule



10



Thank you!
Questions & Next Steps



Appendix D: Peer Reviewer Selection Memo

To: Elizabeth Miller, TO COR, U.S. EPA

From: Sam Pournazeri, Project Manager, ICF

Date: February 25, 2022

Re: Task Order 68HERC22F0112 – Peer Reviewer Selection

Under Task Order 68HERC22F0112, ICF is coordinating an independent peer review of the report “Literature Review of U.S. Consumer Acceptance of Light Duty Plug-in Electric” on behalf of the U.S. Environmental Protection Agency Office of Transportation and Air Quality (EPA OTAQ).

To assemble the panel of three independent peer reviewers, ICF reviewed a pool of subject matter experts both suggested by EPA OTAQ and identified by ICF through independent research. ICF first assessed the experts’ availability to perform the peer review within the timeline agreed upon with the EPA Contracting Officer Representatives (COR). After that, ICF reviewed academic publications and other relevant work to select peer reviewers that represented the best qualified candidates to cover the two focus fields of this analysis:

1. Consumer preference of alternative fuel technologies
2. Behavioral and preference modeling
3. Conducting surveys to assess consumer acceptance of advanced technologies

While all candidates were highly qualified to act as peer reviewers, ICF sought to select candidates that can bring diverse and complementary perspective to the peer review process. ICF also evaluated actual or apparent conflicts of interest that would preclude an independent review, in accordance with the EPA Peer Review Handbook Sections 3.4.5 and 3.4.6. To the best of ICF’s knowledge, no conflicts of interest were found for the proposed peer reviewers in our preliminary research but will finalize the COI evaluation as part of the contracting process. This peer review selection memorandum presents ICF’s initial selection of three proposed reviewers.

Upon the selection of the peer reviewers, ICF shared the qualifications and resume for each proposed peer reviewers with EPA, and discuss the strengths that each peer reviewer will bring into this project. Upon discussion with TO COR, ICF finalized the list of peer reviewers.

Peer Reviewer Selection Process

ICF first compiled a set of suggested peer reviewers for the report. This list was based on both EPA’s initial recommendations and ICF’s suggestions for additional potential reviewers. Six candidates (three selected by EPA and three identified by ICF) were considered. ICF also prioritized peer reviewers based on the relevance of their background and experience with the topic of the report. Through an initial contact with the selected peer reviewers, ICF assessed each potential reviewer’s ability to perform the work during the period of performance and to identify any association they have with the work that would preclude them from being objective. ICF contacted and communicated with all candidates by e-mail.

In our outreach we identified ourselves as independent contract employees and provided initial information on the relevant report, including the length of the material and the expected time commitment. We asked the potential reviewers to assess their availability for this study and for their hourly rate. We also collected a curriculum vitae for each peer reviewer that expressed availability and interest in participating.

List of Peer Reviewers



Sanya Carley

Professor, School of Public and
Environmental Affairs
Indiana University

Research Interest

Energy Policy, Energy Equity and Justice, Electricity Markets, Transportation Industry, Energy-based Economic Development, Policy Instruments, Electric Vehicles, Distributed Generation



Gil Tal

Director,
PH&EV Research Center
University of California, Davis

Research Interest

Future need for electric vehicle infrastructure, and the correlation between charging infrastructure, travel behavior and the demand for EV's



Michael Maness

Assistant Professor
Civil and Environmental Engineering
University of South Florida

Research Interest

Methodology and application of behavioral modeling in urban and regional systems. Advanced choice models with applications to car ownership, managed lanes, cycling behavior, activity behavior, and communication behavior.



Kate Whitefoot

Associate Professor
Engineering & Public Policy
Carnegie Mellon University

Research Interest

Sustainable transportation and manufacturing systems, the influence of innovation and technology policies on engineering design and production, product lifecycle systems optimization, and automation with human-machine teaming.



Ken Kurani

Associate Researcher,
Institute of Transportation Studies
University of California, Davis

Research Interest

Household response to alternative fuel and electric-drive vehicles; Energy, climate, and environment in household travel choices; Behavioral theory in transportation and energy



JR DeShazo

Dean of the LBJ School
of Public Affairs
University of Texas at Austin

Research Interest

Economics, public finance, climate change policy, and organizational governance. Designing policy incentives for cleaner technologies. Understanding demand in the plug-in electric vehicles. Factors affecting plug-in electric vehicle sales

Final List of Peer Reviewers

Upon completion of the initial contact, the top three peer reviewers selected for this project accepted to participate in this peer review process. Their resumes were collected and shared with U.S. EPA TO COR. Upon approval from U.S. EPA TO COR, ICF initiated the subcontracting process with the selected peer reviewers. Below is the final list of the peer reviewers that will serve on this task order.



[Gil Tal](#)

Director,
PH&EV Research Center
University of California, Davis



[Michael Maness](#)

Assistant Professor
Civil and Environmental Engineering
University of South Florida



[Sanya Carley](#)

Professor, School of Public and
Environmental Affairs
Indiana University