

Dr. Eleanor M. Hennessy

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CURRENT APPOINTMENT

Arizona State University, Tempe, AZ Sep '23 – present
Postdoctoral Scholar
School of Sustainable Engineering and the Built Environment

EDUCATION

Stanford University, Palo Alto, CA Sep '18 - June '23
Ph.D., Energy Science and Engineering
Thesis: Equity and Environmental Justice in the Clean Energy Transition in the United States
Primary advisor: Dr. Inês Azevedo
Co-Advisor: Dr. Sally Benson
Committee members: Dr. Margot Gerritsen, Dr. Corinne Scown, Dr. Sarah Fletcher

Stanford University, Palo Alto, CA Sep '15 - June '17
M.S., Civil and Environmental Engineering
Concentration: Atmosphere and Energy

Rice University, Houston, TX Aug '11 - May '15
B.S., Civil and Environmental Engineering
Concentration: Environmental Engineering
Minor: Energy and Water Sustainability

PEER-REVIEWED JOURNAL PUBLICATIONS

- Hennessy, E.M.**, Scown, C., and Azevedo, I.M.L. 2024. "The health, climate, and equity benefits of freight truck electrification in the United States." *Environmental Research Letters* 19 (10) 104069. DOI: [10.1088/1748-9326/ad75a9](https://doi.org/10.1088/1748-9326/ad75a9).
- Syal, S.M., **Hennessy, E.M.**, Eggerman, K., Carrillo, E., and Gerritsen, M. 2024. "Inclusive Community Identification and Selection for Equitable Engagement in Transportation Projects." *Journal of Cleaner Production*. 143439. DOI: [10.1016/j.jclepro.2024.143439](https://doi.org/10.1016/j.jclepro.2024.143439).
- Hennessy, E.M.**, Singh, M., and Azevedo, I.M.L. 2024. "Pathways to zero emissions in California's heavy-duty transportation sector." *Environmental Research: Infrastructure and Sustainability* (4) 035001. DOI: [10.1088/2634-4505/ad54ed](https://doi.org/10.1088/2634-4505/ad54ed).
- Hennessy, E.M.** and Azevedo, I.M.L. 2024. "Emerging environmental justice issues at the intersection of transportation and electricity systems." *Progress in Energy* 6 (3) 033003. DOI: [10.1088/2516-1083/ad422e](https://doi.org/10.1088/2516-1083/ad422e).
- Okoroafor, E.R. , Bracci, J., Boness, N.L., Saltzer, S.D., Shrimali, G., **Hennessy, E.M.**, Kim, T.W., Benson, S.M., Zoback, M.D., Kovysek, A.R. 2024. "A Methodology for Fueling the California Mobility Market with Hydrogen from Natural Gas plus Carbon Capture and Sequestration." *International Journal of Greenhouse Gas Control* 133 104095. DOI: [10.1016/j.ijggc.2024.104095](https://doi.org/10.1016/j.ijggc.2024.104095).
- Hennessy, E.M.** and Syal, S.M. 2023. "Assessing Justice in California's Transition to Electric Vehicles." *iScience* 26 (7) 106856. DOI: [10.1016/j.isci.2023.106856](https://doi.org/10.1016/j.isci.2023.106856).

7. **Hennessy, E.M.**, de Chalendar, J.A., Benson, S.M., and Azevedo, I.M.L. 2022. “Distributional health impacts of electricity imports in the United States.” *Environmental Research Letters* 17 (6) 064011. DOI: [10.1088/1748-9326/ac6cfa](https://doi.org/10.1088/1748-9326/ac6cfa).
8. Jacobson, M.Z., Delucchi, M.A., ... **Hennessy, E.M.**, ... Yachanin A.S. 2018. “100% clean and renewable wind, water, and sunlight (WWS) all-sector energy roadmaps for 53 towns and cities in North America.” *Sustainable Cities and Society* 42, 22-37. DOI: [10.1016/j.scs.2018.06.031](https://doi.org/10.1016/j.scs.2018.06.031).
9. Jacobson, M.Z., Cameron, M.A., **Hennessy, E.M.**, ... Delucchi, M.A. 2017. “100% clean and renewable wind, water, and sunlight all-sector energy roadmaps for 139 countries of the world”. *Joule* 1 (1) 108-121. DOI: [10.1016/j.joule.2017.07.005](https://doi.org/10.1016/j.joule.2017.07.005).

ARTICLES IN SUBMISSION AND REVIEW

1. **Hennessy, E.M.** et al. 2024. “Changing Boundaries, Distributed Control, and Implications for Transport Sustainability.” *Major revision*.
2. **Hennessy, E.M.**, Chester, M.V. 2024. “Electric Utility Vulnerability to Wildfire and Post-Fire Debris Flow in California”. *Revise & resubmit*.
3. Singh, M., **Hennessy, E.M.**, Saltzer, S., Berson, A., Azevedo, I.M.L. 2024. “Policies to retire old light-duty vehicles will help achieve California’s zero-emissions targets and provide substantial air-pollution co-benefits.” *In submission*.

ARTICLES IN PREPARATION

1. **Hennessy, E.M.** “Disparities in Residential Proximity to Power Plants in the United States.” *In preparation*.
2. Bagi, T., **Hennessy, E.M.**, Syal, S.M. “High-resolution fleet turnover modeling to assess equity in electric vehicle adoption.” *In preparation*.
3. Hernandez-Cortes, D., Sheriff, G., Parker, N., Guerrero, J.M., **Hennessy, E.M.**, Paul, D. “Environmental justice implications of public transit electrification in Arizona.” *In preparation*.

REPORT CONTRIBUTIONS

1. **Hennessy, E.M.**, Singh, M., Azevedo, I., and Saltzer, S. 2022. “Pathways to Carbon Neutrality in California: Decarbonizing the Transportation Sector,” *Stanford Center for Carbon storage and Stanford Carbon Removal Initiative*.
2. Bracci, et al. 2022. “Fueling the California Mobility Market with Hydrogen from Natural Gas plus Carbon Capture and Storage”, *Stanford Natural Gas initiative and Stanford Center for Carbon Storage*.
3. AC Transit, 2021. “Zero Emission Transit Bus Technology Analysis,” *AC Transit*.

PRESENTATIONS

Selected Conference Presentations

1. Hennessy, E.M., Chester, M.V. “Electric Utility Vulnerability to Wildfire and Post-Fire Debris Flow in California”. June 2024. *International Symposium for Sustainable Systems and Technology*.
2. Hennessy, E.M. “Environmental Justice Implications of Power Plant Siting in the United States.” June 2024. *International Symposium for Sustainable Systems and Technology*.
3. Hennessy, E.M., Batur, I.M., Bhat, C., Pendyala, R. “Understanding Factors Contributing to Electric Vehicle Ownership in California”. June 2024. *International Conference on Transportation and Development*. (poster)

4. Hennessy, E.M. “Environmental Justice Implications of Power Plant Siting in the United States.” December 2023. *AGU Fall Meeting*. (poster)
5. Hennessy, E.M., Singh, M., Saltzer, S., and Azevedo, I.M.L. October 2023. “Pathways to zero-emissions in California’s Heavy-duty Transportation Sector.” *INFORMS 2023 Annual Meeting*.
6. Hennessy, E.M., Scown, C., and Azevedo, I.M.L. December 2022. “Commodity-specific health and climate impacts of long-haul truck electrification” *AGU Fall Meeting*.
7. Hennessy, E.M., Syal, S.M., and Gerritsen, M. November 2022. “Equity in the Electric Vehicle Transition in California. *Behavior, Energy, and Climate Change Conference*.
8. Hennessy, E.M., Singh, M., and Azevedo, I.M.L. October 2022. “Decarbonizing Heavy Duty Transport in California. *USAAE Annual Meeting*.
9. Hennessy, E.M., Benson, S.M., Azevedo, I.M.L. December 2021. “Distributional health impacts of electricity imports in the United States.” *AGU Fall Meeting*.
10. Hennessy, E.M., Benson, S.M., Azevedo, I.M.L. December 2020. “Distributional health impacts of electricity imports in the United States.” *C3E Conference*.
11. Hennessy, E.M., and Onori, S. April 2019. “Towards Electrification of the Military Vehicle Fleet. *SAE Conference*.

Workshops

1. Howard Energy Justice Workshop and Policy Dialogue. September 2024. Howard University.
2. Energy Justice in the Energy Transition. October 2023. Southern Methodist University.

Affiliate Meetings and Research Reviews

1. Hennessy, E.M. “Health, climate, and equity benefits of long-haul truck electrification.” May 2023. *Stanford Bits and Watts Annual Meeting*.
2. Hennessy, E.M., Eggerman, K., Litong, T., Gerritsen, M., and Syal, S.M. May 2022. “Understanding Social Drivers and Barriers to Sustainable Mobility in Sonoma County.” *Stanford Earth Research Review*.
3. Hennessy, E.M., Benson, S.M., Azevedo, I.M.L. November 2021. “Distributional health impacts of electricity imports in the United States.” *Stanford Center for Carbon Storage Affiliates Meeting*.

Invited Talks:

1. Chester, M.V. and Hennessy, E.M. “Fire and Post-fire Debris Flow Infrastructure Vulnerability.” September 2024. Kin Insurance.
2. Hennessy, E.M. and Syal, S.M. “Assessing Justice in California’s Transition to Electric Vehicles”. Equitable Access to Technology: Electric Vehicles Brown Bag. May 2024. Federal Energy Regulatory Commission.
3. Hennessy, E.M. “Centering Equity in the Transition to Clean Energy”. February 2023. Arizona State University.
4. Hennessy, E.M. “Centering Equity in the Transition to Clean Energy”. February 2023. University of California Irvine.

TEACHING EXPERIENCE

Course Instruction

ENERGY 312 Equitably Decommissioning Internal
 Combustion Engine Vehicles: Sonoma County Community Engagement
Primary Instructor

Fall '21

Designed and taught course in which students learned about the challenges associated with transitioning to electric vehicles and decommissioning conventional vehicles. Students conducted interviews with community members and did self-designed group projects.

ENERGY 104/204 Sustainable Energy for 9 Billion Spring '20, '21, '22
Teaching Assistant

Contributed to redesigning course, lecture material development, and homework creation. Taught students how to use the Python programming language to create global energy system models. Held office hours, TA sessions, and graded assignments.

CEE 64 / CEE 263D Air Pollution and Global Warming: Winter '17
History, Science, and Solutions
Teaching Assistant

Assisted with homework and quiz design, led recitation sessions, and organized course assistants.

CEE 63 / CEE 263C Weather and Storms Fall '16
Teaching Assistant

Led recitation sessions, graded final papers, organized course assistants (graders).

Guest Lectures:

“Sustainable Energy”. October 2023. ASU 101. Arizona State University

“Transportation”. September 2022. ENERGY 13SC Energy in Hawaii: Forefront of Clean Energy Technology and Policy. Stanford University

“Air Pollution.” March 2022. ENERGY 104/204 Sustainable Energy for 9 Billion. Stanford University

“Air Pollution.” May 2021. ENERGY 104/104 Sustainable Energy for 9 Billion. Stanford University

“Decarbonizing Transportation.” May 2020. ENERGY 104/204 Sustainable Energy for 9 Billion. Stanford University

“Energy Access.” March 2016. Air Pollution and Global Warming. Stanford University

GRANTS AND FELLOWSHIPS

External Funding

1. Burroughs-Wellcome Fund Climate Change and Human Health Seed Grant. "Granular Modeling of GHG and Air Pollutant Emissions Consequences of Electric Vehicle Adoption". \$50,000. 2025. Co-PI. (*Pending*).
2. Arizona Department of Transportation. “Arizona Roadway Wildfire Management Decision Support”. \$200,000. 2024-2025. Senior personnel. (*Awarded*).
3. Understanding the Future of Travel Behavior and Demand University Transportation Center. “Exploring the Changing Dynamics of Household Vehicle Ownership and Usage in the United States”. \$100,000. 2023-2025. Senior personnel. (*Awarded*).

Internal Funding (Stanford University)

1. McGee Levenson Grant. “Understanding Social Drivers and Barriers to Sustainable Mobility in Sonoma County.” \$4,819. 2021. (*Awarded*).
2. Stanford Environmental Justice Fellowship. “Understanding Social Drivers and Barriers to Sustainable Mobility in Sonoma County.” (\$5,000). 2021. (*Awarded*).

Summer Fellowships

Karl Knapp Fellow in City Government
Schneider Fellow

2019
2016

NON-ACADEMIC PROFESSIONAL EXPERIENCE

City of Palo Alto Utilities, Palo Alto, CA Summer 2019
Summer Fellow – Built a model to determine the cost-effectiveness of battery energy storage from utility and customer perspectives based on simulated battery dispatch and interaction with the wholesale electricity market.

Center for Sustainable Energy, San Diego, CA 2018
Research Analyst – Cleaned, analyzed, and visualized data for clean energy products including identifying factors contributing to readiness for solar adoption, updating a utility rate calculation tool, quantifying GHG emissions reductions due to program implementation, and visualizing EV purchase trends in San Francisco.

United Nations Foundation, Washington D.C. Summer 2016
Summer Fellow in Energy Access – Designed, implemented, and analyzed a survey of energy access practitioners to understand the current challenges in the sector's work.

MENTORSHIP AND LEADERSHIP ACTIVITIES

Mentorship

Alumni Mentor, Stanford Energy Resources Engineering Summer 2023 - present
 New Student Mentor, Stanford Energy Resources Engineering 2019 - 2023
 Mentor, Stanford Earth Young Investigators Summer 2022
 Project Leader, Stanford Energy Club – Collaboration with Antora Energy 2020
 Project Leader, Stanford Energy Club – K-12 Educational Outreach 2017

Leadership Activities

Transportation Working Group Lead, Arizona Climate Action Plan Summer '24-present
 Diversity Liaison, Department of Energy Resources Engineering Fall 2022 – Spring 2023
 Stanford Rising Environmental Leaders Program Spring 2022
 Student Advisory Board: Partnerships for Climate Justice in the Bay Area, Stanford Haas Center 2021

PROFESSIONAL SERVICE

Journal Reviews:

Environmental Research Letters, Environmental Research: Infrastructure and Sustainability,
 Environmental Research: Energy, Environmental Research Communications, iScience, Environmental
 Science & Technology, Transport Policy

Conference Reviews:

Transportation Research Board Annual Conference, United States Association for Energy Economics
 North American Conference, International Symposium on Sustainable Systems and Technology

Panels and Moderator Roles

Panelist, Early Career Researchers Panel, ISSST 2024 Jun '24
 Session Moderator, Rising Environmental Leaders Program Summit Mar '24
 Session Moderator, IRF Global Conference 2023 Nov'23
 Student Moderator, Stanford Global Energy Dialogues Mar '21
 Panelist, Stanford @ SLAC New Student Panel Sep '19

LANGUAGES, SKILLS, AND CERTIFICATIONS

Languages

English (native speaker)

Spanish (working proficiency)

Skills

Python, R, MATLAB, GIS

Certifications

Engineer in Training (Civil Engineering)

Aug '15

IOP Trusted Reviewer

Jun '24

SELECTED MEDIA

1. Udasin, Sharon. July 2024. "California must retire gas-guzzling trucks to meet 2045 emissions targets: Study." *The Hill*. <https://thehill.com/policy/equilibrium-sustainability/4760409-california-trucks-retirement-carbon-neutrality/>
2. Golden, Mark. May 2022. "Electricity imports within the U.S. are associated with about 700 premature deaths annually, study finds." <https://energy.stanford.edu/news/within-us-exporting-electricity-imports-about-700-premature-deaths-annually-stanford-study>
3. Merchant, Emma. March 2024. "Potential Changes to Alternate-Fuel Standards Could Hike Gas Prices in California. Critics See a "Regressive Tax" on Low-Income Communities." <https://insideclimatenews.org/news/28032024/california-gas-prices-hike-impact-low-income-communities/>
4. Hennessy, E., and Syal, S. November 2021. "Uncovering Barriers to Clean Transportation in Sonoma County." <https://medium.com/ejstanford/uncovering-barriers-to-clean-transportation-in-sonoma-county-2d76b700bac5>
5. Gibson, Kate. February 2020. "A model internship: Evaluating batteries for customers of Palo Alto Utilities." <https://energy.stanford.edu/spotlight/nora-hennessy>