

# Kelly L. Fleming, Ph.D.

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Research and Policy Analyst

Policy Institute for Energy, Environment, and the Economy

University of California, Davis

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## Professional Experience

### University of California, Davis: Policy Institute for Energy, Environment, and the Economy

Research and Policy Analyst

January 2020-Present

Promoted to include responsibilities in addition to Rapid Response Analysis. Including working directly with policymakers and providing support to researchers to author policy briefs. Lead research efforts on projects related to automated vehicles, electrification, transportation network companies, and micromobility, and equity.

Rapid-Response Transportation and Energy Policy Analyst

September 2018-January 2020

Interpret research in transportation, energy, and the environment to provide policy options and recommendations. Prepare policy memos, issue papers, journal articles, and blog posts for decision makers and the general public. Work closely with the Institute of Transportation Studies and affiliated research institutes, the State of California, and the Federal Government.

### American Association for the Advancement of Science (AAAS) Science and Technology Policy Fellow

*U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy*

Vehicle Technologies Office, Analysis

September 2017-August 2018

Manage a diverse portfolio in vehicle technologies, with emphasis on electric vehicles and infrastructure, autonomous vehicles, advanced fuel, lightweighting materials, and battery technology. Provide guidance and technical support, including peer-reviewed and laboratory reports, to seven national laboratories to research energy and emissions impacts of innovative vehicle technologies. Collaborate with vehicle manufacturers, transportation network companies, and federal, state, and local transportation relevant agencies, including the Department of Transportation and Environmental Protection Agency.

*U.S. Department of Energy, Office of Science*

Office of the Deputy Director for Science Programs, International Program

September 2016-August 2017

Served as advisor for the office in international engagement. Assisted in preparation of briefings for DOE leadership, the White House, and Congress. Facilitated science and technology agreements between DOE and foreign counterparts, international inter-laboratory agreements, and government-to-government. Corresponded between laboratories or technical offices and foreign agencies.

## Research Experience

Doctoral Research - Graduate Research Assistant, University of Washington

January 2011-December 2015

Principal Investigator: Dr. Jim Pfaendtner

Thesis Title: New Solution to an Old Problem: Exploring Properties of Chemical Reactions in Condensed Phases Using Molecular Simulation

Research Intern, National Renewable Energy Lab

May 2009 – August 2010

Assisted in the design and development of an experiment to study biomass fueled solid oxide fuel cells.

Undergraduate Research, Colorado Fuel Cell Center: Colorado School of Mines

August 2008 – May 2009

Studied solid oxide fuel cells operating on fossil or biomass fuels.

Intern, Versa Power Systems

May 2008 – August 2008

DARPA project to study solid oxide electrolysis cells to assist in the development of a large-scale system to be used in a long-term flight airplane.

## Education

University of Washington - Ph.D. Chemical Engineering

October 2015

University of Washington - M.S. Chemical Engineering

August 2013

Colorado School of Mines - B.S. Chemical and Biochemical Engineering

May 2010

Minors: Energy, Economics and Business

## Volunteer Service and Outreach

<u>Clean Energy for America</u>	June 2020-present
Clean energy professionals group of over 11,000 who are coordinating clean energy fundraising events, policy proposals, and get out the vote initiatives. Co-lead the Clean Transportation and Equity, Inclusion, and Diversity affinity groups, and co-authoring 4 recommendation papers on clean transportation and serving as an editor for others for the incoming Biden-Harris administration.	
<u>500 Women Scientists National Leadership Board</u>	
<i>Policy Team co-lead</i>	January 2021-present
<i>Partnerships Coordinator</i>	November 2016-September 2018
Leader on the national board of directors for a start-up 501(c)3 non-profit with the mission to make science more inclusive and accessible. The organization has over 300 global chapters, 5,000 active members, and 20,000 supporters	
<ul style="list-style-type: none"><li>• Created a global platform and professional network for women scientists</li><li>• Designed successful fundraising campaigns and funding proposals</li><li>• Initiated ideas for highly visible publications</li><li>• Advised on high impact decisions in starting a successful non-profit</li><li>• Founded an editorial board to provide a resource for members</li><li>• Initiated, coordinated, and fostered strategic global partnerships to expand and build support and resources for women scientists and achieve the mission of the organization</li><li>• Co-led campaign of local op-eds around the country to advocate the importance of scientific funding</li><li>• Initiated the proposal and planning for a global research summit for women in STEM</li></ul>	
<u>Energy and Climate Affinity Group – co-chair</u>	2016 – 2018
<ul style="list-style-type: none"><li>• Organize and coordinate discussion panels, presentations, and topic discussion for network of over 500 professional climate and energy policy experts</li></ul>	
<u>Graduate and Professional Student Senate, University of Washington</u>	2013-2015
<ul style="list-style-type: none"><li>• Elected Senator for Chemical Engineering 2013-2015</li><li>• Elected Science Policy Steering Committee Chair</li></ul>	
<u>Engage Science Board of Directors</u>	2015-2016
<u>Forum on Science, Ethics, and Policy, University of Washington</u>	2013-2015
<u>Pacific Science Center Evaluation Assistant</u>	2014-2015
<u>AAAS Emerging Leaders in Science and Society Data Collection Volunteer</u>	2014-2015

## Other Training and Skills

- 2019 Clean Energy Leadership Institute (CELI) Fellow, San Francisco
- Nerd Nite Sacramento Host (March 2019-present)
- Science communication training– presenting, writing, and editing
- Certificate in Life Cycle Analysis from Northwestern University – Available upon request
- Climate Change and Energy Policy Coursework completed in the Evans School of Public Affairs
- High Performance Computing and Data Processing – proficient in Python, Shell, and Unix scripting
- Familiarity with vehicle and transportation models such as Autonomie, POLARIS, MA3T, ADOPT, FASTSim, VISION, NEAT, and Fleet DNA
- Researched and communicated broader impacts of science to ensure that diverse voices and backgrounds are included in the discussion of scientific experiments and implications of new technology
- Experimental research and data analysis

## Selected Honors and Awards

- American Chemical Society Journals: Editor’s Choice Article - 2016
- Graduate and Professional Student Senate Outstanding Committee Leadership Award - 2015
- Society of Women Engineers outstanding Chemical Engineering Female - 2012
- Runstad Family Endowed Fellowship - 2010
- ConocoPhillips Spirit Scholarship Award - 2008

## Select Issue Papers and Reports

1. Clean Energy for Biden. "Policy Recommendations for an Equitable Clean Energy-Powered Recovery and Achieving a 100% Carbon Neutral Economy by 2050." Developing Clean Transportation and Low Emissions Infrastructure, November 2020. <https://drive.google.com/file/d/140mnBYX5kqzruPEfKK5BQFz0yhyZGYI7/view>.
2. Brown, A. L, Fleming, K. L, Lipman, T., Fulton, L., Saphores, J., Tal, G., et al. (2020). Carbon Neutrality Study 1: Driving California's Transportation Emissions to Zero. UC Office of the President: University of California Institute of Transportation Studies. <http://dx.doi.org/10.7922/G2222S1B> Retrieved from <https://escholarship.org/uc/item/5zb1238j>
3. Fleming, Kelly L., D'Agostino, Mollie. "Policy Pathways to Transportation Network Companies Electrification in California" University of California, Davis. Policy Institute for Energy, Environment, and the Economy (2020).
4. Fleming, Kelly L. "Technology is Outpacing State Automated Vehicle Policy." University of California, Davis. Policy Institute for Energy, Environment, and the Economy (2020).
5. Jenn, Alan, Fleming, Kelly L., "Federal Road Charge Tax Administration Process." National Center for Sustainable Transportation, University of California, Davis, Institute of Transportation Studies (2020).
6. Jenn, Alan, Fleming, Kelly L., "A Zero-Emission Vehicle Registration Fee is Not a Sustainable Funding Source for Maintaining California's Roadways." University of California, Davis, Institute of Transportation Studies Policy Brief (2019).
7. Fleming, Kelly L., Singer, Mark. "Energy Implications of Current Travel and the Adoption of Automated Vehicles" *National Renewable Energy Laboratory Report* (2019).
8. Fuller, Sam J., Fleming, Kelly L., Brown, Austin L., "Environmental Regulation Impacts on Freight Diversion." University of California, Davis Issue Paper (2018).

## Journal Publications

1. Brown, Austin L., Fleming, Kelly L., Safford, Hannah R., "Prospects for a Highly Electric Road Transportation Sector in the USA." *Current Sustainable/Renewable Energy Reports* (2020)
2. Fleming, Kelly L., "Social Equity Considerations in the New Age of Transportation: Electric, Automated, and Shared Mobility." *Journal of Science Policy and Governance* (2018)
3. Fleming, Kelly L., Tiwary, Pratyush, Pfaendtner, Jim. "A New Approach for Investigating Reaction Dynamics and Rates with Ab Initio Calculations." *Journal of Physical Chemistry A* (2015), Editor's Choice.
4. Fleming, Kelly L., "New Solution to an Old Problem: Exploring Properties of Chemical Reactions in Condensed Phases Using Molecular Simulation." Dissertation for Doctorate of Philosophy in Chemical Engineering. *University of Washington Library* (2015).
5. Fleming, Kelly L., Matthaei, James, and Pfaendtner, Jim. "A New Graduate Level Seminar to Prepare Students for the Next Step in Their Careers." *Chemical Engineering Education* (2015).
6. Fleming, Kelly L., Pfaendtner, Jim. "Characterizing the Catalyzed Hydrolysis of  $\beta$ -1, 4 Glycosidic Bonds Using DFT." *The Journal of Physical Chemistry A* (2013).

## Selected Presentations

- Fleming, Kelly, "Automated Vehicles Policies to Reduce Emissions and Improve Equity," CE4B Recovery Recommendations and Clean Energy Summit: Developing Clean Transport and Low Emissions Infrastructure, Virtual: <https://www.cleanenergyforbiden.com/policysummit>, November 16, 2020.
- Fleming, Kelly, "Technology is Outpacing State Policy." Automated Vehicles Symposium, Regulatory Policy Session, Virtual, July 29<sup>th</sup>, 2020.
- Fleming, Kelly; Jenn, Alan, "The California Clean Miles Standard; Electrification of Uber and Lyft." Energy Graduate Students Group Virtual Seminar, UC Davis, April 21, 2020.
- Fleming, Kelly, "Technology is Outpacing State Policy" UC Davis Institute of Transportation Studies Webinar, March 10, 2020.