

Rebecca Dodder, Physical Scientist in EPA's National Risk Management Research Laboratory

Air and Energy Management Division

[Mailing Address](#)

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Areas of Expertise:

- Environmental implications of transitions in the U.S. energy system using an engineering-economic system model of the U.S. energy economy, from primary resources to end-use demands.
- The environmental impacts of the production and use of biofuels for transportation.
- Water use associated with energy production, including thermoelectric power and biomass feedstock production.
- Vehicle automation, electrification, and other technology advancements how they affect the full energy system and emissions.
- Hands-on outreach materials to translate complex topics such as energy and the environment into STEM activities for students.

Select Publications:

Brown, K.E., Hottle, T., Bandyopadhyay, R., Babaei, S., **Dodder, R.**, Kaplan, O., Lenox, C., and Loughlin, D. 2018. [Evolution of the United States Energy System and Related Emissions under Varying Social and Technological Development Paradigms: Plausible Scenarios for Use in Robust Decision Making](#). *Environmental Science and Technology*. 52(14): 8027-8038.

Hottle, T., Caffrey, C., McDonald, J., **Dodder, R.** 2017. [Critical factors affecting life cycle assessments of material choice for vehicle mass reduction](#). *Transportation Research Part D: Transport and Environment*. 56: 241–257.

Dodder, R., Barnwell, J., Yelverton, W. 2016. [Scenarios for low carbon and low water electric power plant operations: implications for upstream water use](#). *Environmental Science and Technology*. 50(21): 11460-11470.

Dodder, R.S., Kaplan, P.O., Elobeid, A., Tokgoz, S., Secchi, S., Kurkalova, L.A., 2015. [Impact of energy prices and cellulosic biomass supply on agriculture, energy and environment: an integrated modeling approach](#). *Energy Economics*. 51: 77-87.

Dodder, R.S. 2014. [A review of water use in the U.S. electric power sector: insights from systems-level perspectives](#). *Current Opinion in Chemical Engineering* 5: 7-14.

Cameron, C., Yelverton, W., **Dodder, R.**, West, J.J., 2014. Strategic responses to CO₂ emission reduction targets drive shift in US electric sector water use. *Energy Strategy Reviews* 4: 16-27.

View more research publications by [Rebecca Dodder](#)

Education:

- Ph.D., Massachusetts Institute of Technology, Cambridge, MA; Technology, Management and Policy, 2006.
- M.A., The George Washington University, Washington, DC; Science, Technology and Public Policy, 1999
- B.A., Vanderbilt University, Nashville, TN; Physics and Spanish, 1997

Professional Experience:Workgroups and Project Leads:

- Developer of Generate: The Game of Energy Choices (2010-present)
- Project Lead for Sustainable Energy and Mitigation in the Air, Climate and Energy National Research Program (2012-2017)
- Intra-Agency Working Groups for EPA's Light Duty Vehicle Greenhouse Gas Emissions Standards and Mid-Term Evaluation (2010-2017)
- Intra-Agency Working Group for EPA's Renewable Fuel Standard Program (2009-2010)
- Federal Inter-Agency Working Group on Biofuel Conversion Technologies (2009-2011)

Committees and Affiliations

- National Academy of Science (NAS), Transportation Research Board (TRB), Transportation Energy Committee: Member (2012-present); Secretary (2016-2018); Paper Review Editor (2017-present)
- Editorial Board for *Transportation Research Part D: Transport and Environment*
- Reviewer for: *Environmental Science and Technology*; *Environmental Research Letters*; *Energy Strategy Reviews*; *Climatic Change*; *Clean Technologies and Environmental Policy*; *Transportation Research Record*; *Energy Policy*; *Energy Economics*; *Journal of Cleaner Production*.

Awards and Honors

- Presidential Early Career Award for Scientists and Engineers (PECASE), 2016
- EPA Honor Award for Exceptional/Outstanding ORD Technical Assistance to the Regions or Program Offices: Workgroup for the Light-Duty Vehicle GHG Program, 2016
- EPA ORD Bronze Medal: ACE National Program Team, 2015
- EPA ORD Bronze Medal, ACE Outreach Team, 2014
- EPA ORD Bronze Medal, MARKAL Development and Application Team, 2012.
- EPA ORD Honor Award for Exceptional/Outstanding ORD Technical Assistance to the Regions for Program Offices: ORD Palm Oil Assessment Team, 2011.
- EPA ORD Bronze Medal: Biofuels Assessment Team, 2011.

[Science Matters: Meet EPA Physical Scientist Dr. Rebecca Dodder](#)

[Science Matters: Breaking Through? Evaluating Technologies for Greenhouse Gas Mitigation](#)

[EPA Press Release on PECASE Award Winners](#)

[EPA Science Bite Podcast: Engaging Students on Energy and Climate Change](#)

[Science Matters: Modeling Matters](#)

[Air Quality and Energy Choice STEM Activities for Educators](#)