

**Carol S. Lenox, Physical Scientist in EPA's National Risk Management Research Laboratory**

Air and Energy Management Division

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**Areas of expertise:** Carol's research efforts provide the Agency and stakeholders with expertise and tools to conduct energy system analyses and modeling to help to identify cost effective strategies for meeting energy demands and environmental goals simultaneously. She is the database manager for a multi-disciplinary team using the MARKAL and TIMES family of models. In that role, she built the EPAUS9r database of the U.S. energy system for use with the TIMES energy system modeling platform and works with researchers both internally and outside of the EPA to utilize the database in their own analyses. She has conducted research on building energy use and conservation, the effect of natural gas upstream emissions on CO2 emissions, and completed a retrospective analysis of changes in the energy system and the effects those changes have had on CO2 emission projections out into the future.

**Select publications:**

**Lenox, C.S.** and D.H. Loughlin. (2017). [Effects of recent energy system changes on CO2 projections for the United States](#). *Clean Technologies and Environmental Policy*, doi: 10.1007/s10098-017-1417-y.

**Lenox, C.S.** and P.O. Kaplan. (2016). [Role of natural gas in meeting an electric sector emissions reduction strategy and effects on greenhouse gas emissions](#). *Energy Economics*, doi: 10.1016/j.eneco.2016.06.009.

Loughlin, D.H., Kaufman, K., **Lenox, C.** and Hubbell, B. (2015). [Analysis of alternative pathways for reducing nitrogen oxide emissions](#). *Journal of the Air & Waste Management Association*, 65(09), 1083-1093. doi: 10.1080/10962247.2015.1062440

Steckley, S.G., Meade, D.S., **Lenox, C.S.**, Hoffman, K.C., Reid, D.H., and Schoener, B.C.H. (2011). [Energy Demand Analytics Using Coupled Technological and Economic Models](#). *The Energy Journal*, 32(01). doi:10.5547/ISSN0195-6574-EJ-Vol32-S11-10

Decarolis, J., **Shay, C.**, Vijay, S. (2007). [The Potential Mid-Term Role of Nuclear Power in the United States: A Scenario Analysis Using MARKAL](#). In J. Mathur, H. Wagner, N. Bansal (Ed.), *Energy Security, Climate Change, and Sustainable Development*. Anamaya.

Yeh, S., Loughlin, D.H., **Shay, C.**, and Gage, C. (2006). [An Integrated Assessment of the Impacts of Hydrogen Economy on Transportation, Energy Use, and Air Emissions](#). *Proceedings of the IEEE*, 94(10), 1838-1851. doi:10.1109/jproc.2006.883719

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**Education:**

- B.S., North Carolina State University, Raleigh, NC; Textile Chemistry, 1988
- M.P.S., Loyola University, New Orleans, LA; Religion and Ecology, 2014

**Professional Experience:**

- Physical Scientist, USEPA, ORD, NRMRL, AEMD, ENSB 2003 – present
- Acting Branch Chief, USEPA, ORD, NRMRL, AEMD, ENSB, Nov. 2011 – Feb. 2012
- Engineering Technician, USEPA, ORD, NRMRL, AEMD, ENSB, 2001-2003
- Manager of Process Engineering, Swift Denim, Erwin, NC 1997-2000
- Process Engineer, Swift Denim, Erwin, NC, 1995-1997
- Plant Chemist, Swift Denim, Erwin, NC, 1992-1995
- Department Manager, Elastic Corporation of America, Columbiana, AL, 1988-1992

**Awards and Honors**

- EPA Gold Medal, Global Change Air Quality Assessment Team, 2010
- EPA Bronze Medal, MARKAL Development and Application Team, 2012
- EPA Bronze Medal, ACE Research Action Team, 2013
- EPA Bronze Medal, ACE Outreach Team, 2014
- EPA Bronze Medal, Community Air Monitoring Training Team, 2014
- EPA-RTP Federal Women's Program Women's History Month Recognition, 2013
- RTP-EPA STEM Outreach Program Certificate of Recognition, 2013

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