

Andrew J. Fang

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EDUCATION

University of Minnesota Ph.D. Public Affairs - Science, Technology, and Environmental Policy	Minneapolis, MN 2019
University of Michigan M.S./M.E. Sustainable Systems/Energy Systems Engineering	Ann Arbor, MI 2012
Northwestern University B.S. Chemical Engineering	Evanston, IL 2009

EMPLOYMENT

US Agency for International Development AAAS Science & Technology Policy Fellow	Washington, DC 09/2019 – Present
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Supporting the USAID Office of Energy & Infrastructure across the following areas:

- Activity manager for energy efficiency programming across 5 countries between Lawrence Berkeley National Laboratory and USAID with \$1 million annual budget
- Supporting USAID emerging technologies programming in electric vehicles, energy storage, and circular economy through development of online resources, trainings, white papers, and design of new programs.
- Led development Energy Division's Project Appraisal Document which provides strategic guidance for Washington-based activities for establishing critical preconditions for power sector development in USAID partner countries.
- Evaluated program outcomes and implementation of previous Caribbean Clean Energy Program through interviews with private sector, donors, and government partners
- Designed power sector programming for USAID Missions in the Caribbean, Mongolia, and the Philippines

LEIF, LLC Managing Partner/Engineering Consultant	Minneapolis, MN 09/2016 – 09/2019
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Co-founded a small consultancy focused on supporting climate action planning in cities through data acquisition and emission inventory management for cities reporting to the Global Covenant of Mayors in Climate & Energy.

University of Minnesota – Twin Cities Graduate Research Assistant	Minneapolis, MN 06/2014 – 08/2019
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Dissertation research involved three main topics, focused on the air pollution and health co-benefits of carbon mitigation at the sub-national scale:

1. Examining the distributional impacts of California's cap-and-trade market, based on the air pollution co-benefits of projected carbon emissions reductions across communities
2. Estimating the health benefits and marginal abatement costs of carbon mitigation strategies in Chinese cities
3. Determining how air pollution transport impacts the effectiveness of urban mitigation strategies in Chinese cities using two models estimating PM_{2.5} levels at the urban scale

The World Bank
Short-Term Consultant

Washington, DC
03/2018 – 06/2018

Developed technical note for the Global Platform for Sustainable Cities to estimate the impact of integrated urban planning strategies, such as compact urban development, on future emissions of rapidly growing cities in the Global South.

International Institute for Applied Systems Analysis
Young Scientists Summer Program Participant

Vienna, Austria
06/2017 – 08/2017

One of 50 PhD students, globally, to participate in the 2017 Young Scientists Summer Program. Selected to work with the Air Quality and Greenhouse Gases (AIR) group to evaluate air pollution exposure and health patterns in Chinese cities

University of Michigan
Research Associate

Ann Arbor, MI
9/2010 – 06/2014

Researcher at the Center for Sustainable Systems engaged in life cycle assessment and carbon footprinting work related to energy and infrastructure systems, including plug-in hybrid electric vehicles, algal biofuels, and the potable water supply of southern California.

US Environmental Protection Agency
ORISE Intern

Ann Arbor, MI
05/2012 – 01/2013

Worked with the National Vehicle Fuel and Emissions Laboratory on economic analyses of the Tier 2 Gasoline Sulfur Standards and the influence of ethanol production on the behavior of US oil refineries.

PUBLICATIONS

Peer-Reviewed Articles

Tong K, **Fang A**, Li Y, Shi L, Wang Y, Wang S, Ramaswami A. (2018) The collective contribution of Chinese cities to territorial and electricity-related CO₂ emissions. *Journal of Cleaner Production* 189: 910–21.

Tong K, **Fang A**, Li Y, Yu H, Shi L, Wang Y, Wang S. (2017) Estimating the potential for industrial waste heat reutilization in urban district energy systems: method development and implementation in two Chinese provinces. *Environmental Research Letters*. 12 125008

Ramaswami A, Tong K, **Fang A**, Lal R, Nagpure A, Li Y, Yu H, Jiang D, Russell AG, Shi L, Chertow M, Wang Y, Wang S. (2017) Urban Cross-Sector Actions for Carbon Mitigation with Local Health Co-Benefits in China. *Nature Climate Change* 7(10): 736–42.

Ramaswami A, Boyer D, Nagpure A, **Fang A**, Bogra S, Bakshi B, Cohen E, Rao-Ghorpade, A. (2016) Implementing a framework for assessing the food-energy-water nexus from an urban systems perspective: environmental impacts, supply chains and risk. *Environmental Research Letters* 12 025008

Tong K, **Fang A**, Boyer D, Hu Y, Cui S, Shi L, Kalmykova Y, and Ramaswami, A. (2016) Greenhouse gas emissions from key infrastructure sectors in larger and smaller Chinese cities: method development and benchmarking. *Carbon Management* 7 (1–2): 27–39.

Fang A, Newell JP, Cousins, JJ. (2015) The energy and emissions footprint of water supply for Southern California. *Environmental Research Letters* 10 114002

Orfield N, **Fang A**, Valdez P, Nelson M, Savage P, Lin X, Keoleian GA. (2014) Life Cycle Design of an Algal Biorefinery Featuring Hydrothermal Liquefaction: Effect of Reaction Conditions and an Alternative Pathway Including Microbial Regrowth. *ACS Sustainable Chemistry & Engineering* 2.4: 867-74.

Other Publications

Fang A and Ramaswami A. Review of Fine-Scale Air Quality Modeling for Carbon and Health Co-Benefits Assessments in Cities. *Managing Air Quality and Energy Systems* (2nd ed.). CRC Press. July 2020

Wang X, Ramaswami A, **Fang A**, Tabory S, Xu Q, Lewis L., World Bank. A Review of Integrated Urban Planning Tools for GHG Mitigation: Linking Land Use, Infrastructure Transition, Technology, and Behavioral Change. *Global Platform for Sustainable Cities* Washington, DC: World Bank. Feb 2020

Swilling M, Hajer M, Baynes T, Bergesen J, Labbé F, Musango JK, Ramaswami A, Robinson B, Salat S, Suh S, Currie P, **Fang A**, Hanson A, Kruit K, Reiner M, Smit S, Tabory S. The Weight of Cities: Resource Requirements of Future Urbanization. *International Resource Panel*. United Nations Environment Programme. Jan 2018

Prorok M, **Fang A**, Ramaswami A, Merrit D, Welch J, Violante T. Dane County Air Emission Inventory. Dane County Planning and Development. Aug 2016

PROFESSIONAL ACTIVITIES AND SERVICE

Professional Memberships: Association for Public Policy Analysis and Management, International Society for Industrial Ecology, United States Association for Energy Economics, Air & Waste Management Association

Referee Service: Journal of Cleaner Production, Energy Strategy Reviews, Environmental Research Letters