Jinyu Shiwang

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114 at Andlinger Center for Energy and the Environment, 86 Olden Street, Princeton University, Princeton, NJ, United States of America

RESEARCH INTERESTS

Integrated multi-sector energy system modelling

Health impacts of climate change mitigation

Decision-making under deep uncertainties

EDUCATION EXPERIENCES

Princeton University, Princeton, NJ, USA   2024 - 2026 (est.)
  Ph.D. trailing student, School of Public and International Affairs
The Pennsylvania State University, State College, PA, USA   2022 - 2026 (est.)
  Ph.D. student in Environmental Engineering, Department of Civil and Environmental Engineering
Imperial College London, London, UK   2021 - 2022
  M.Sc. in Environmental Technology, Center for Environmental Policy
Nanjing University, Nanjing, China   2017 - 2021
  B.Sc. in Environmental Science
  Certificate in the Institute of Advanced Study in Humanity and Social Sciences

PUBLICATIONS

Review and revision, submitted, in preparation ([#] denotes equal contribution)

6. Keyan Guo, Wei Peng, **Jinyu Shiwang**, Xizhe Yan, Dan Tong, Mark Budolfson, Noah Scovronick (2025) "Evaluating the distribution of air pollution and health impacts under global climate mitigation pathways". (working paper)

5. **Jinyu Shiwang**, Wei Peng, John Bistline, Jamil Farbes, Xinyuan Huang, Gokul Iyer, Jesse D. Jenkins, Eladio Knipping, Nicholas Mailloux, Erin Mayfield, Aranya Venkatesh, Qianru Zhu (2025) "Energy technology choices influencing the air quality and health effects of a net-zero transition". (working paper)

4. Xinyuan Huang, **Jinyu Shiwang**, Klaus Keller, Wei Peng. (2025) "Fine-scale population, emissions, and atmospheric dynamics driving health disparity outcomes from energy transition". (submitted to *One Earth*)

3. **Jinyu Shiwang**, Wei Peng, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller. (2025) "Technology indicators enable early detection of decarbonization failures". (original submitted at *Nature*, now transfer to *Nature Climate Change*) [preprint]

2. Wei Peng[#], Aniruddha Deshpande[#], Pengfei Wang[#], Xinyuan Huang[#], **Jinyu Shiwang**[#], Mark Budolfson, Fabian Wagner, Frank Errickson, Gokul Iyer, Daniel H Loughlin, Christopher Nolte, Steven Smith, Noah Scovronick. (2025) "Complexities in achieving air pollution related equity goals using climate policy in the United States". (revision in progress at *Nature Sustainability*)

1. Brelsford Christa, Maria Amaya, Mohammed Basheer, Pranab Roy Chowdhury, Alysha Helmrich,

Christian JA Klassert, Xinchang Li, Landon Marston, Wei Peng, **Jinyu Shiwang**, Taryn Waite, James Yoon, Shan Zuidema. (2025) "Key moments in coupled human-natural systems". (revision in progress at *Earth's Future*)

Peer-reviewed ([#] denotes equal contribution)

5. Noah Scovronick[#], **Jinyu Shiwang**[#], Maddalena Ferranna[#], Fabian Wagner[#], Frank Errickson[#], Dan Tong, Xizhe Yan, Navroz Dubash, Yang Liu, Bhargav Krishna, Marc Fleurbaey, Pengfei Wang, Shaohui Zhang, Gregor Kiesewetter, Steve Smith, Francis Dennig, Wei Peng[#], Mark Budolfson[#]. (2025) "Energy and Health: Global Climate Policy and the Future of Air Quality Co-Benefits in LMICs". (Accepted by *The Lancet Global Health*) [preprint]

4. Wei Peng, Carla Campos, **Jinyu Shiwang,** Huilin Luo, Gokul Iyer, Mark Budolfson, Noah Scovronick. (2025) "Effects of the low-carbon energy transition on air pollution and health disparities", *Nature Reviews Clean Technology*, pp.1-14. [Paper Link] [Princeton News]

3. Anjali Sharma[#], Jinyu Shiwang[#], Anna Lee, Wei Peng[#]. (2023) "Equity implications of electric vehicles: A systematic review on the spatial distribution of emissions, air pollution and health impacts", *Environmental Research Letters*, 18(5), p. 053001. [Paper Link] [Penn State News]

2. **Jinyu Shiwang**, Jun Bi, Riyang Liu, Miaomiao Liu, Zongwei Ma. (2021) "Decrease in the chronic health effects from $PM_{2.5}$ during the 13th Five-Year Plan in China: Impacts of air pollution control policies", *Journal of Cleaner Production*, 317, p. 128433. [Paper Link]

1. **Jinyu Shiwang**[#], Yangyang Wu[#], Xue Sun, Xueyuan Gu, Rong Ji, Mei Li. (2021) "Environmental Governance of Western Europe and Its Enlightenment to China: In Context to Rhine Basin and the Yangtze River Basin", *Bulletin of Environmental Contamination and Toxicology*, 106(5), pp. 819-824. [Paper Link]

CONFERENCE/WORKSHOP PRESENTATIONS

2025
Jinyu Shiwang, Wei Peng, John Bistline, Jamil Farbes, Xinyuan Huang, Gokul Iyer, Jesse D. Jenkins, Eladio Knipping, Nicholas Mailloux, Erin Mayfield, Aranya Venkatesh, Qianru Zhu, "Effects of model choices and technology strategies on the assessment of air quality and health benefits from Net-Zero transition", *2025 AGU Fall meeting*. **(oral)**

Jinyu Shiwang, Wei Peng, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller, "Technology indicators enable early detection of decarbonization failures", *GCAM-USA/GLIMPSE State Applications Community of Practice*. **(invited talk)**

Jinyu Shiwang, Wei Peng, John Bistline, Jamil Farbes, Xinyuan Huang, Gokul Iyer, Jesse D. Jenkins, Eladio Knipping, Nicholas Mailloux, Erin Mayfield, Aranya Venkatesh, Qianru Zhu, "Energy technology choices influencing the air quality and health effects of a net-zero transition", *The Andlinger Center for Energy and the Environment 2025 Annual Meeting*. **(poster)**

Jinyu Shiwang, Wei Peng, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller, "Technology indicators enable early detection of decarbonization failures", *12th annual Princeton E-ffiliates Partnership Retreat*. **(poster)**

2024
Jinyu Shiwang, Wei Peng, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller, "Technology milestones improve an early warning system for off-track decarbonization strategies", *2024 AGU Fall*

meeting. **(oral)**

Jinyu Shiwang, Wei Peng, John Bistline, Xinyuan Huang, Gokul Iyer, Jesse Jenkins, Eladio M. Knipping, Nicholas Mailloux, Erin Mayfield, Aranya Venkatesh, Qianru Zhu, "Air quality and health co-benefits of the U.S. net-zero transition: A multi-model analysis on energy and policy drivers", *2024 AGU Fall meeting.* **(elightning poster)**

Wei Peng, **Jinyu Shiwang**, Mark Budolfson, Steven Smith, Noah C. Scovronick, Dan Tong, Pengfei Wang, Xizhe Yan, "Global equity in climate mitigation burden and health co-benefits", *2024 AGU Fall meeting.* **(elightning poster)**

Jinyu Shiwang, Wei Peng, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller, "Technology milestones improve an early warning system for off-track decarbonization strategies" *11th Annual Conference of the Society for Decision Making Under Deep Uncertainty (DMDU).* **(oral)**

Jinyu Shiwang, Wei Peng, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller, "Technology milestones improve an early warning system for failed decarbonization strategies", *17th Integrated Assessment Modeling Consortium (IAMC) annual meeting.* **(poster)**

Jinyu Shiwang, Wei Peng, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller, "Technology milestones improve an early warning system for failed decarbonization strategies", *Global Change Assessment Model (GCAM) annual meeting.* **(invited poster)**

2023

Wei Peng, **Jinyu Shiwang**, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller, "Exploring the effects of technology uncertainties on deep decarbonization", *2023 AGU Fall meeting.* **(poster)**

Jinyu Shiwang, Anjali Sharma, Anna Lee, Wei Peng, "Equity implications of electric vehicles: A systematic review on the spatial distribution of emissions, air pollution and health impacts", *Workshop on Scaling up electric vehicles in China and India for a cleaner and healthier future, Johns Hopkins University.* **(invited talk)**

Jinyu Shiwang, Wei Peng, Xinyuan Huang, Gokul Iyer, Vivek Srikrishnan, Klaus Keller, "Exploring the effects of technology uncertainties on deep decarbonization", *Inaugural Multi-sector Dynamics (MSD) Workshop, UC Davis.* **(poster)**

TEACHING EXPERIENCES

Guest lectures

2023 Fall   *Environmental Engineering Seminar* (*CE591*), Pennsylvania State University

Teaching Assistant

2020 Fall   *Environmental Policy Analysis*, Nanjing University, China

2021 Spring   *Environmental Planning*, Nanjing University, China

SERVICE

Member of American Geophysical Union (AGU).

Student communicator. Working Group on Multi-Sector Impacts of Energy Transitions, Multi-Sector Dynamics (MSD) Community. March 2023 - present

Reviewer:

- Academic journal: Environmental Health Perspectives (5), Environmental Research Letters (2), Scientific Reports (1), Environmental Research Communications (1).

SKILLS

Programming: R, Python, C

Software: ArcGIS, Origin, SPSS, Adobe Illustrator

Model: Integrated Assessment Model: Global Change Assessment Model (GCAM/GCAM-USA)

     Air Quality Model: Intervention Model for Air Pollution (InMAP/ISRM)

Language: English (fluent), Mandarin Chinese (native)