

# SHANGWEI LIU

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National University of Singapore, Singapore

## EMPLOYMENT

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Tenure-Track Presidential Fellow, Department of Civil and Environmental Engineering at the National University of Singapore	<i>Mar 2026 - present</i>
Postdoctoral Research Fellow, Harvard Kennedy School, Harvard University	<i>Sept 2024 - Mar 2026</i>
Postgraduate Research Associate (PGRA) Program, Princeton University	<i>Feb 2024 - July 2024</i>

## RESEARCH INTEREST

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Energy and climate policy; Macro-energy system modeling; Technology innovation; Climate change impacts

## EDUCATION

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<b>Princeton University</b>	<i>Aug 2018 - Mar 23, 2024</i>
Ph.D., Science, Technology and Environmental Policy (STEP) Program, Princeton School of Public and International Affairs	
<i>Thesis Committee:</i> Denise L. Mauzerall (advisor), Valerie J. Karplus, Fabian Wagner, Jesse D. Jenkins	
<b>Beijing Normal University</b> , Sc.B., with honors, Environmental Science	<i>Sep 2014 - Jun 2018</i>
<b>Duke Kunshan University</b> , Global Learning Semester	<i>Feb 2016 - Jun 2016</i>

## PUBLICATIONS

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11. **Shangwei Liu**, Gang He, Minghao Qiu, Daniel M. Kammen (2025). China reins in the spiralling construction costs of nuclear power – what can other countries learn? *Nature*, 643: 1186–1188. [Link](#)  
Coverage: [New York Times](#), [The Economist](#), [Harvard Belfer](#), [CUNY](#), [JHU](#)  
[My comment blog for Roosevelt Institute](#)  
Social media (X, Facebook, etc.): millions of views, wide discussion
10. Bo Li, Ruotao Yu, Kaiye Gan, Guangchun Ruan, Wei Dai, **Shangwei Liu**, Mingxia Yang, Haiwang Zhong. (2025). A Large-Scale Residential Load Dataset in Extreme Weather Events: A Case in Southern China. *Scientific Data*, 12, 450. [\[Link\]](#)
9. Jing Liang, Yueming (Lucy) Qiu, Bo Wang, Xingchi Shen, **Shangwei Liu**. (2025). Impacts of heatwaves on electricity reliability: Evidence from power outage data in China. *iScience*, 111855. [\[Link\]](#)
8. **Shangwei Liu**, Yang Guo, Fabian Wagner, Hongxun Liu, Ryna Yiyun Cui, Denise L. Mauzerall. (2024) Diversifying heat sources in China’s urban district heating systems will reduce risk of carbon lock-in. *Nature Energy*, 9, 1021–1031 [\[Link\]](#) [\[Princeton reports\]](#); Policy brief submitted to China’s State Council
7. **Shangwei Liu**, Hongxun Liu, Denise L. Mauzerall. (2023). Improving building envelope efficiency lowers costs and emissions from rural residential heating in China. *Environmental Science & Technology*, 57, 595-605. [\[Link\]](#)

6. Liqun Peng, Yang Guo, **Shangwei Liu**, Gang He, Denise L. Mauzerall. (2024) Subsidizing grid-based electrolytic hydrogen could increase GHG emissions in coal dominated power systems. *Environmental Science & Technology*, 58(12), 5187-5195. [\[Link\]](#)
5. Yiling Xiong, Xin Tian, **Shangwei Liu**, Zhipeng Tang. (2020). Deciphering the pattern for inter provincial water stress transferring: A case study on China's mainland. *China Population, Resources and Environment*, 30(12):75–83 (in Chinese) [\[Link\]](#)
4. **Shangwei Liu**, Xin Tian, Yiling Xiong, Yan Zhang, Hiroki Tanikawa. (2020). Challenges towards carbon dioxide emissions peak under in-depth socioeconomic transition in China: Insights from Shanghai. *Journal of Cleaner Production*, 247, 119083. [\[Link\]](#)
3. Yiling Xiong, Xin Tian, **Shangwei Liu**, Zhipeng Tang. (2020). New patterns in China's water footprint: analysis of spatial and structural transitions from a regional perspective. *Journal of Cleaner Production*, 245, 118942. [\[Link\]](#)
2. Jie Wang, Yiling Xiong, Xin Tian, **Shangwei Liu**, Jiashuo Li, Hiroki Tanikawa. (2018). Stagnating CO2 emissions with in-depth socioeconomic transition in Beijing. *Applied Energy*, 228, 1714-1725. [\[Link\]](#)
1. **Shangwei Liu**, Xin Tian, Wenjia Cai, Weiqiang Chen, Yafei Wang. (2018). How the transitions in iron and steel and construction material industries impact China's CO2 emissions: comprehensive analysis from an inter-sector linked perspective. *Applied Energy*, 211, 64-75. [\[Link\]](#)

#### *Under review*

**Shangwei Liu**, Xiangwen Fu, Liqun Peng, Siyue Guo, Denise L. Mauzerall. Energy system benefits justify the cost-effectiveness of building energy efficiency improvements. (under review)

**Shangwei Liu**, Gang He, Daniel M. Kammen. Breaking the Cost Escalation Curse of Nuclear Power (under review)

## TEACHING EXPERIENCE

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Assistant instructor for SPI594S Topics in Policy Analysis (Half-Term): Climate Change: Science, Policy and Mitigation, graduate-level *Spring 2023 and Fall 2021*

Assistant instructor for ENV302 Practical Models for Environmental Systems, undergraduate-level *Spring 2022*

Assistant instructor for CEE334 Global Environmental Issues, undergraduate-level *Fall 2021*

## FELLOWSHIP & AWARDS

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Energy, Climate, and Technology Policy Postdoctoral Fellowship, Belfer Center for Science and International Affairs, Harvard Kennedy School *2024-2026*

Princeton Dean's Completion Fellowship/Postgraduate Research Associates Program *2023*

Princeton Institute for International and Regional Studies (PIIRS) Graduate Fellows Program *2023*

Fellowship in Princeton School of Public and International Affairs *2018-2023*

*Zhou Tingru* Scholarship *2018*

Awarded to 1 top undergraduate student university-wide annually

*Tang Xiaoyan* Scholarship *2018*

National award granted to 2 undergraduate students in environmental studies each year

Nominated as one of the Top 20 Students University-wide, Beijing Normal University

*2017*

National Scholarship by Ministry of Education of China

*2015*

## CONFERENCES & PRESENTATIONS

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2025

Cimate Week NYC 2025: The Role of Nuclear Energy in Decarbonization and Powering the AI [\[Link\]](#)

MIT CEEPR Spring 2025 Workshop [\[Link\]](#), *invited speaker*

Harvard University, Harvard-China Project [\[Link\]](#), *invited speaker*

Harvard University, Energy Policy Seminar [\[Link\]](#), *invited speaker*

2024

American Geophysical Union (AGU) 2024 Fall Meeting, *poster*

Boston University, Energy and climate Workshop, *invited speaker*

MIT Energy Initiative weekly research seminar, *invited speaker*

The 2024 Macro-Energy Systems Workshop, *oral presentation and poster*

Nature Conference on Air Pollution and Climate Change, *oral presentation*

2018-2023

American Geophysical Union (AGU) 2023 Fall Meeting, *poster*

American Geophysical Union (AGU) 2022 Fall Meeting, *oral & poster*

The 2018 International Conference on Resources Sustainability, *oral presentation*, Best Young Scientist Oral Presentation

The 12th International Congress of Ecology, *oral presentation*

## TECHNICAL SKILLS

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**Energy & environmental analysis:** techno-economic assessment, power system model (GridPath), building energy model (EnergyPlus), air pollution model (WRF-Chem), industrial ecology (input-output analysis, LCA), econometrics

**Coding skills:** R, Python, Matlab, STATA,  $\text{\LaTeX}$

## SERVICE

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**Journal referee:** *Nature Reviews Clean Technology*, *Nature Climate Change*, *Energy Economics*, *Energy Policy*

Host of *Carbon Talk* podcast (in Chinese), [\[XiaoYuZhou\]](#) [\[Ximalaya\]](#) [\[Apply Podcast\]](#), Chinese Podcast of the Year 2023, 10k followers

Author of *Environmental Science and Policy* blog (in Chinese), 12k followers

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