

Da Zhang

Curriculum Vitae

Address

Room 325, School of Environment,
Qinghuayuan 1, Beijing, China
Email: zhangda@tsinghua.edu.cn
Website: www.energyda.com

Current Position and Affiliations

Associate Professor, Institute of Energy, Environment and Economy, Tsinghua University, since 06/2020
Research Associate, Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology, since 11/2018
Associate Editor, Journal of Global Economic Analysis, since 12/2020
Associate Deputy Editor, Climatic Change, since 01/2021

Academic and Professional Experience

Assistant Professor, Institute of Energy, Environment and Economy, Tsinghua University, 12/2018 – 06/2020
Research Scientist, Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology, 07/2017 – 11/2018
Postdoctoral Associate, Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology, 06/2014 – 06/2017
Intern, Energy Research Institute, National Development and Reform Commission, Beijing, China, 04/2010 – 06/2010
Intern, Sino-Danish Renewable Energy Development Program / National Renewable Energy Center, 10/2010 – 09/2011
Intern, Northern Light Venture Capital Company, Beijing, China, 07/2010 – 10/2010

Education

Ph. D., Institute of Energy, Environment and Economy, Tsinghua University, China, 06/2014.
Visiting student, Chair of Economics/Energy Economics, Department of Management, Technology, and Economics D-MTEC, ETH Zurich, 06/2013 - 08/2013.
Visiting student, Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology, 01/2012 - 01/2013.
B.S., Industrial Engineering, Tsinghua University, China, 06/2009.

Research Interest

Energy and environmental economics, energy system modeling, applied general equilibrium modeling, organizational economics

Publications

Selected Publications

equal contribution; * corresponding author(s)

Qin, Shize[#], Sheng Nie[#], Yusheng Guan, Da Zhang^{*}, Cheng Wang^{*}, Xiliang Zhang. Forest emissions reduction assessment using airborne LiDAR for biomass estimation. *Resources, Conservation & Recycling* (2022), 181, 106224.

Xinhao Wang, Lulin Xu, Qin Zhang, Da Zhang^{*}, Xiliang Zhang. Evaluating the data quality of continuous emissions monitoring systems in China. *Journal of Environmental Management* (2022), 314, 115081.

Davidson, Michael[#], Valerie J. Karplus[#], Da Zhang[#], Xiliang Zhang[#]. Policies and institutions to support carbon neutrality in China by 2060. *Economics of Energy & Environmental Policy* (2021), 10(2): 7–24.

Zhao, Bin[#], Jing Zhao[#], Hao Zha, Ruolan Hu, Yalu Liu, Chengrui Liang, Hongrong Shi, Simiao Chen, Yue Guo, Da Zhang^{*}, Kristin Aunan, Shaojun Zhang, Xiliang Zhang, Lan Xue, and Shuxiao Wang^{*}. Health Benefits and Costs of Clean Heating Renovation: An Integrated Assessment in a Major Chinese City. *Environmental Science and Technology* (2021), 55, 14, 10046–10055.

He, Guannan, Jeremy Michalek, Qixin Chen, Soumya Kar, Da Zhang^{*}, Jay Whitacre^{*}. Utility-scale portable energy storage systems. *Joule* (2021), 5(2): 379–392.

Zhang, Da^{*}, Jun Gao, Ding Tang, Xiaomeng Wu, Junye Shi, Jiangping Chen, Yinghong Peng, Shaojun Zhang^{*}, Ye Wu. Switching on auxiliary devices in vehicular fuel efficiency tests can help cut CO₂ emissions by millions of tons. *One Earth* (2021), 4: 135–145.

Karplus, Valerie J., Thomas Geissmann, Da Zhang. Institutional complexity, management practices, and firm productivity. *World Development* (2021), 142: 105386.

Qu, Chenfei, Xi Yang, Da Zhang^{*}, Xiliang Zhang^{*}. Estimating health co-benefits of climate policies in China: An application of the regional emissions-air quality-climate-health (REACH) framework. *Climate Change Economics* (2020), 11(3): 2041004.

Zhang, Xiliang^{*}, Andreas Löschel^{*}, Joanna Lewis^{*}, Da Zhang^{*}, Jinyue Yan^{*}. Emissions trading systems for global low carbon energy and economic transformation. *Applied Energy* (2020), 279: 115858.

Guo, Hongye, Michael R. Davidson, Qixin Chen^{*}, Da Zhang^{*}, Nan Jiang, Qing Xia, Chongqing Kang, Xiliang Zhang. Power Market Reform in China: Motivations, Progress, and Recommendations. *Energy Policy* (2020), 145: 111717.

Karplus, Valerie J., Xingyao Shen, Da Zhang^{*}. Herding cats: Firm non-compliance in China's industrial energy efficiency program. *The Energy Journal* (2020), 41(4): 3531.

Filippini, Massimo, Thomas Geissmann, Valerie J. Karplus, Da Zhang. The productivity impacts of energy efficiency programs in developing countries: Evidence from iron and steel firms in China. *China Economic Review* (2020), 59: 101364.

Zhang, Da, Qin Zhang, Shaozhou Qi, Jinpeng Huang, Valerie J. Karplus^{*}, Xiliang Zhang^{*}. Integrity of firms' emissions reporting in China's early carbon markets. *Nature Climate Change* (2019), 9:

164-169.

Zhang, Da*, Justin Caron, Niven Winchester. Sectoral aggregation bias in the accounting of emissions embodied in trade and consumption. *Journal of Industrial Ecology* (2019), 23(2): 402-411.

Rausch, Sebastian, Da Zhang*. Capturing natural resource heterogeneity in top-down energy-economic equilibrium models. *Energy Economics* (2018), 74: 917-926.

Li, Mingwei#, Da Zhang# (co-first author), Chiao-Ting Li, Kathleen M. Mulvaney, Noelle E. Selin, Valerie J. Karplus. Air quality co-benefits of carbon pricing in China. *Nature Climate Change* (2018), 8: 398-403.

Davidson, Michael R. #, Da Zhang# (co-first author), Weiming Xiong, Xiliang Zhang*, Valerie J. Karplus*. Modelling the potential for wind energy integration on China's coal-heavy electricity grid. *Nature Energy* (2016), 1: 16086 ([Nature Energy Editors' picks from 2016](#)).

Zhang, Da, Marco Springmann, Valerie J. Karplus. Equity and emissions trading in China. *Climatic Change* (2016), 134: 131-146.

Karplus, Valerie J., Sebastian Rausch, Da Zhang*. Energy caps: Alternative climate policy instruments for China? *Energy Economics* (2016), 56: 422-431.

Springmann, Marco, Da Zhang, Valerie J. Karplus. Consumption-Based Adjustment of China's Emissions-Intensity Targets: An Analysis of its Potential Economic Effects. *Environmental and Resource Economics* (2015), 61: 615-640.

Zhang, Da, Valerie J. Karplus, Cyril Cassisa, Xiliang Zhang. Emissions Trading in China: Progress and Prospects. *Energy Policy* (2014), 75: 9-16.

Zhang, Da, Sebastian Rausch, Valerie J. Karplus, Xiliang Zhang. Quantifying regional economic impacts of CO₂ intensity targets in China. *Energy Economics* (2013), 40: 687-701.

Other Peer-reviewed Publications

Mulvaney, Kathleen M., Noelle E. Selin, Amanda Giang, Marilena Muntean, Chiao-Ting Li, Da Zhang, H el ene Angot, Colin P. Thackray, Valerie J. Karplus. Mercury benefits of climate policy in China: Addressing the Paris agreement and the Minamata convention simultaneously. *Environmental Science and Technology* (2020), 54, 3: 1326-1335.

Cai, Bofeng, Can Cui, Da Zhang, Libin Cao, Pengcheng Wu, Lingyun Pang, Jihong Zhang, Chunyan Dai. China city-level greenhouse gas emissions inventory in 2015 and uncertainty analysis. *Applied Energy* (2019), 253: 113579.

Li, Mingwei, Da Zhang, Chiao-Ting Li, N. E. Selin, Valerie Karplus. Co-benefits of China's climate policy for air quality and human health in China and transboundary regions in 2030. *Environmental Research Letters* (2019), 14: 084006.

Yang, Yuanzhe, Hongyu Zhang, Weiming Xiong, Da Zhang* (corresponding author), Xiliang Zhang*. Regional power system modeling for evaluating renewable energy development and CO₂ emissions reduction in China. *Environmental Impact Assessment Review* (2018), 73: 142-151.

Kwon, Sae Yun, Noelle E. Selin, Amanda Giang, Valerie J. Karplus, and D. Zhang. Present and future mercury concentrations in Chinese rice: Insights from modeling. *Global Biogeochemical Cycles* (2018), 32(3): 437-462.

Weng, Yuyan, Da Zhang* (corresponding author), Lanlan Lu, Xiliang Zhang*. A general equilibrium analysis of floor prices for China's national carbon emissions trading system. *Climate Policy* (2018), 18(S1): 60-70.

Zhang, Xu, Xunmin Ou, Xi Yang, Tianyu Qi, Kyung-Min Nam, Da Zhang, Xiliang Zhang.

Socioeconomic burden of air pollution in China: Province-level analysis based on energy economic model. *Energy Economics* (2017), 68: 478-489.

Zhang, Xiliang, Valerie J. Karplus, Tianyu Qi, Da Zhang, Jiankun He. Carbon emissions in China: How far can new efforts bend the curve? *Energy Economics* (2016), 54: 388–395.

Luo, Xiaohu, Justin Caron, Valerie J. Karplus, Da Zhang, Xiliang Zhang. Interprovincial Migration and the Stringency of Energy Policy in China. *Energy Economics* (2016), 58: 164-173.

Qi, Tianyu, Niven Winchester, Valerie J. Karplus, Da Zhang, Xiliang Zhang. An analysis of China's climate policy using the China-in-Global Energy Model. *Economic Modelling* (2016), 52, Part B: 650–660.

Zhu, Zhao, Da Zhang* (corresponding author), Peggy Mischke, Xiliang Zhang. Electricity generation costs of concentrated solar power technologies in China based on operational plants. *Energy* (2015), 89: 65–74.

Zhang, Da, Weiming Xiong, Chun Tang, Zhen Liu, Xiliang Zhang. Determining the appropriate amount of subsidies in wind power: The Integrated Renewable Power Planning (IRPP) model and its application in China. *Sustainable Energy Technologies and Assessments* (2014), 6: 141-148.

Kishimoto, Paul, Da Zhang, Valerie J. Karplus. Modeling regional transportation demand in China and the impacts of a national carbon constraint. *Journal of the Transportation Research Board* (2014).

Zhang, Da, Qimin Chai, Xiliang Zhang, Jiankun He, Li Yue, Xiufen Dong, Shu Wu. Economical assessment of large-scale photovoltaic power development in China. *Energy* (2012), 40: 370-375.

Zhang, Da, Songlin Tang, Bao Lin, Zhen Liu, Xiliang Zhang. Co-benefit of polycrystalline large-scale photovoltaic power in China. *Energy* (2012), 41: 436-442.

He, Jiankun, Zhiwei Yu, Da Zhang. China's strategy for energy development and climate change mitigation. *Energy Policy* (2012), 53: 7–13.

Zhang, Da, Xiliang Zhang, Jiankun He, Qimin Chai. Offshore wind energy development in China: Current status and future perspective. *Renewable and Sustainable Energy Reviews* (2011), 15: 4673–4684.

Working papers

Li, Chenxing, Yang Yu, Andrew Yao*, Da Zhang*, Xiliang Zhang*. An authenticated and secure accounting system for international emissions trading.

Qin, Shize, Lena Klaaßen, Ulrich Gallersdörfer, Christian Stoll*, Da Zhang*. Bitcoin's future carbon footprint.

Karplus, Valerie J., Da Zhang*. When low hanging fruit is beyond reach: New practice orientation and firm energy efficiency.

Karplus, Valerie J., Yasheng Huang, Da Zhang. State Control as a Substitute for Environmental Regulation? Evidence from Chinese Cities.

Research Projects

Co-PI, “Tsinghua-Three Gorges Climate Governance and Green Transition Research Program”, University-level Research Program (RMB 30,000,000), 08/2021-08/2026.

PI, “The optimization and supporting mechanism of coordinated development of wind and solar power in China”, the National Science Foundation of China (RMB 495,000), 01/2020-12/2023.

PI, “Regional analysis of China's carbon pricing policy implications on energy and CO₂ emissions”,

the International Energy Agency (EUR 131,200), 07/2019-06/2023.

PI, “The role of grid companies in carbon emissions accounting and finance”, Southern Grid (RMB 1,775,000), 02/2022-12/2022.

PI, “Monitoring and diagnosis of urban carbon emissions using power data”, State Grid (RMB 1,600,000), 05/2022-12/2023.

PI, “Green power exchange and power-carbon market coordination for Xiong’an District”, State Grid (RMB 930,000), 05/2022-12/2022.

PI, “Key technologies for power-carbon nexus and green power certification”, State Grid (RMB 800,000), 05/2022-12/2023.

PI, “Simulation platform development for firms’ business strategy under the carbon neutrality target”, Wokeda consulting firm (RMB 1,000,000), 06/2022-06/2025.

PI, “Integrated economic and social benefit evaluation of energy revolution led by renewable energy in China”, the National Energy Administration/ World Bank China Renewable Energy Scale-up Program (CRESP) (RMB 1,500,000), 10/2019-10/2020.

PI, “Impacts of carbon peaking on economy restructuring”, the National Development and Reform Commission (RMB 100,000), 09/2021-06/2022.

PI, “The embodied domestic demand for oil to support energy security”, the National Development and Reform Commission (RMB 100,000), 04/2020-12/2020.

PI, “Energy consumption forecast and control targets in the 14th Five-Year Plan period”, the National Development and Reform Commission (RMB 100,000), 10/2019-04/2020.

PI, “Financing a new power system with high-share renewable penetration”, the Ministry of Finance (RMB 220,000), 05/2021-12/2021.

PI, “Economic analyses on the heating renovation campaign”, the Ministry of Ecology and Environment (RMB 100,000), 05/2021-12/2021.

PI, “Introducing auctioning in China’s national emissions trading scheme”, the Environmental Defense Fund (RMB 495,000), 10/2021-10/2022.

PI, “Data quality analysis and warning systems for the ETS firms”, the Environmental Defense Fund (RMB 495,000), 10/2020-10/2021.

PI, “The application of big data in enterprise continuous online monitoring system to environmental governance practice: Statistical analysis and field trials”, Tsinghua-INDITEX Sustainable Development Fund (RMB 300,000), 01/2020-12/2021.

PI, “Research and application demonstration of big data system for energy environment of new energy vehicles”, Tsinghua University - Toyota Joint Research Institute (RMB 300,000), 01/2020-12/2021.

Professional Activities

2021

- Invited talk at Duke Kunshan University, February 2021.
- Invited talk at School of Management, Fudan University, January 2021.
- Invited talk at Economics and Technology Research Institute, China National Petroleum Corporation, January 2021.

2020

- Invited talk at US-China Climate Study Group, December 2020.
- Organizer of Symposium on the Global Climate Governance and Trustworthy Algorithms (with

Shanghai Qizhi Institute), November 2020.

- Invited talk at State Grid Shanxi, October 2020.
- Invited talk at School of Business, Hunan University, October 2020.
- Invited talk at School of Management, Tianjin University, September 2020.
- The Association of Environmental and Resource Economists Conference, online, June 2020.

2019

- Research visit at MIT Joint Program on the Science and Policy of Global Change, December 2019
- Research visit at Department of Economics, Stanford University (host: Prof. Lawrence Goulder), November 2019.
- Invited talk at School of Environment, Peking University, Beijing, China, October 2019.
- Invited discussant, The IEA/OECD Climate Change Expert Group (CCXG) Global Forum, the 19th Annual International GHG ETS workshop, Paris, France, October 2019.
- Invited discussant, Asia-Pacific Climate Week (APCW), Bangkok, Thailand, September 2019.
- CAERE-RUC Summer School of Environment and Natural Resources Economics 2019, Beijing, China, July 2019.
- Invited talk at School of Environment, Nanjing University, Nanjing, China, June 2019.
- Invited talk at School of Urban and Regional Science, Shanghai University of Finance and Economics, Shanghai, China, June 2019.
- Invited talk at School of Management, Shanghai Jiaotong University, Shanghai, China, June 2019.
- Invited talk at School of Economics, Fudan University, Shanghai, China, June 2019.
- Invited talk at China-Australia Forum on New Energy Opportunities, Beijing, China, May 2019.
- Invited talk at School of Management, Beihang University, Beijing, China, April 2019.

2018

- Session Chair, the 6th World Congress of Environmental and Resource Economists, Gothenburg, Sweden, June 2018.
- Invited speaker at USAEE Energy Symposium: China's Role in The Global Energy Landscape, Lehigh University, Bethlehem, U.S., April 2018.
- The Association of Environmental and Resource Economists Session at Eastern Economics Association Conference, Boston, U.S., March 2018.
- Invited talk at School of Environment, Southern University of Science and Technology, Shenzhen, China, January 2018.

2017

- The 1st China Association of Environmental and Resource Economists (CAERE) Conference, Beijing, August 2017.
- Invited talk at School of Economics and Management, China University of Petroleum, Beijing, China, July 2017.
- The 40th IAEE Conference. Singapore, June 2017.
- 2017 China Econometric Society Meeting, Wuhan, China, June 2017
- The 3rd Biennial Conference of China Development Studies, Shanghai, China, June 2017.
- Invited talk at School of Environment, Shanghai Jiao Tong University, Beijing, China, June 2017.

2016

- Invited talk at School of Management, Beihang University, Beijing, China, June 2016.

2015

- The 2nd Empirical Management Conference, Stanford, U.S., December 2015.

- Invited talk at “New Developments in CGE Modeling” Workshop, Mannheim, Germany, November 2015.
- The 33rd USAEE Conference, Pittsburgh, U.S., October 2015.
- The 2nd Biennial Conference of China Development Studies, Shanghai, China, June 2015.
- The 4th AERE Conference, San Diego, U.S., June 2015.
- Organizer and speaker at the 2nd Chinese Youth Environmental Scholar Forum at Yale University, New Haven, U.S., May 2015.
- Invited discussant at “Brown University workshop on environmental governance in China”, Providence, U.S., May 2015.

2014

- Invited talk at “Climate Policy in China and Europe: Progress and Prospects in Emissions Trading” Workshop, Mannheim, Germany, December 2014.
- Moderator at MIT Center for Energy and Environment Policy Research (CEEPR) Workshop, Cambridge, U.S., November 2014.
- Presentation at EPPA Workshop, MIT Joint Program on the Science and Policy of Global Change, Cambridge, U.S., November 2014.
- Invited talk at the 1st Chinese Youth Environmental Scholar Forum at Harvard University, Cambridge, U.S., November 2014.
- Invited talk at Zentrum für Europäische Wirtschaftsforschung (ZEW) lunch seminar, Mannheim, Germany, August 2014.
- Invited research tour at Humboldt University of Berlin, University of Bonn and Deutsche Forschungsgemeinschaft, Germany, August 2014.
- The 5th Lindau Meeting on Economics Sciences, Lindau, Germany, August 2014.
- Invited short visit, Chair of Economics / Energy Economics, Department of Management, Technology, and Economics D-MTEC, ETH Zurich, Zurich, Switzerland, August 2014.
- The 5th World Congress of Environmental and Resource Economists, Istanbul, Turkey, June 2014.
- The 37th IAEE Conference. New York, U.S., June 2014.
- 2014 International Energy Workshop, Beijing, China, June, 2014.

2013

- Invited presenter, Tsinghua-Rio Tinto Energy Modeling Workshop, Brisbane, Australia, December 2013.
- Invited short visit, Zentrum für Europäische Wirtschaftsforschung (ZEW), Mannheim, Germany, July 2013.
- Annual GTAP conference, Shanghai, China, June 2013.

2012

- The 31st USAEE Conference. Austin, U.S., November 2012.
- The 6th Graduate Climate Conference. Pack Forest, U.S., October 2012.
- Ecomod 2012 Conference, Seville, Spain, July 2012.
- The 4th International Conference on Applied Energy, Suzhou, China, July 2012.
- Annual GTAP conference, Geneva, Switzerland, June 2012.

2011

- RETScreen International 2011 Conference, Niagara, Canada, June 2011.

2010

- The 8th National Doctoral Student Forum, Hohhot, China, September 2010.

Fellowships and Awards

Outstanding Reviewer, Energy, 05/2015.

Scholarship for the 5th Lindau Meeting on Economics Sciences, 06/2014.

Excellent Graduate Student of Beijing, 06/2014.

Excellent Graduate Student of Tsinghua University, 06/2014.

Excellent Ph.D. thesis at Tsinghua University, 06/2014.

Best Student Poster Award, the 37th IAEE Conference. New York, U.S., 06/2014.

Excellent Graduate Student for Research (Tsinghua top research award), Tsinghua University, 05/2013.

National Scholarship by Ministry of Education, China, 01/2013.

Outstanding PhD student by Ministry of Education, China, 12/2012.

First Prize Scholarship by Tsinghua University, 11/2012.

Scholarship for a one-year visit at MIT, Tsinghua University, 01/2012 - 01/2013.

Scholarship for attending RETScreen International 2011 Conference (3,000 CAD), National Resources Canada, 06/2011.

Scholarship for attending 2010 Intel-Berkeley Technology Entrepreneurship Competition, Intel Corporation, 11/2010.

Referee Service

Reviewer for Nature Energy, Nature Climate Change, Nature Geoscience, Nature Sustainability, Joule, The Energy Journal, Climatic Change, China Economic Review, Environmental and Resource Economics, Environmental Politics, Resource and Energy Economics, Energy Economics, Ecological Economics, Journal of Global Economic Analysis, Transportation Research Part A: Policy and Practice, World Development, Global Environmental Politics, China: An International Journal, Climate Policy, Energy Policy, Policy Sciences, Applied Energy, Energy, Energy Strategy Reviews, Utility Policy, Journal of Cleaner Production, Resources, Conservation and Recycling, Science of the Total Environment, Environment and Planning C: Government and Policy, Computers & Industrial Engineering, Energy Science and Engineering, Sustainability Science, Computers & Industrial Engineering.