Da Zhang
Curriculum Vitae

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Current Position and Affiliations

Associate Professor, Institute of Energy, Environment, and Economy, Tsinghua University
Research Associate, Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology
Associate Editor, Journal of Global Economic Analysis
Associate Deputy Editor, Climatic Change
Editor, Springer Nature Humanities & Social Sciences

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.

Publications

Selected Publications (in English)

[#] equal contribution; [*] corresponding author(s)

Zhang, Da, Qingyi Wang, Shaojie Song, Simiao Chen, Mingwei Li, Lu Shen, Siqi Zheng, Bofeng Cai*, Shenhao Wang, Haotian Zheng*. Machine learning approaches reveal highly heterogeneous air quality co-benefits of the energy transition. *iScience*, accepted.

Siyue Guo, Yu Liu, Weichen Zhao, Jiaquan Li, Guangwen Hu, Hui Kong, Yifan Gu, Bang Xu, Xiaodan Huang, Yan Zheng, Shihan Zhang, Da Zhang, Lancui Liu, Xueting Peng, Yi-Ming Wei*, Xiliang Zhang*, Zuoren Nie*. Technological development pathway for carbon neutrality in China. *Science Bulletin*, 2023,68(02),117-120。

Zhang, Da, Hantang Peng, Lin Zhang*. Share of polluting input as a sufficient statistic for burden sharing. *Energy Economics*, 121 (2023), 106647.

Zhang, Hongyu, Da Zhang*, Xiliang Zhang. The role of output-based emission trading system in the decarbonization of China's power sector. *Renewable and Sustainable Energy Reviews*, 173 (2023) 113080.

Zhao, Mengzhen#, Xiaodan Huang#, Tord Kjellstrom, Jason Kai Wei Lee, Matthias Otto, Xiliang Zhang, Marina Romanello, Da Zhang*, Wenjia Cai*. Labour productivity and economic impacts of carbon mitigation: a modelling study and benefit-cost analysis. *The Lancet Planetary Health*, 2022, 6(12): e941-e948.

Li, Chenxing#, Yang Yu#, Andrew Chi-Chih Yao*, Da Zhang*, Xiliang Zhang*. An authenticated and secure accounting system for international emissions trading. *Climate Policy* (2022), 22:9-10, 1333-1342.

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, Soummya 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 CO_2 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 CO_2 intensity targets in China. *Energy Economics* (2013), 40: 687-701.

Selected Publications (in Chinese)

朱子恒,张策,丁肇豪,张达. 数据中心纳入全国碳排放权交易市场机制研究. 中国电机工程学报.（录用定稿）

王心昊,蒋艺璇,陈启鑫,姜楠,张达.可交易减排价值权证比较分析和衔接机制研究. 电网技术. 2023,47(02):594-603.

张达,李彬.应对气候变化与军备控制的关联研究. 世界知识. 2022(03):72-73.

张希良,黄晓丹,张达,耿涌,田立新,范英,陈文颖.碳中和目标下的能源经济转型路径与政策研究.管

理世界. 2022,38(01):35-66.
张钦,张达,张希良. 在线监测应用于中国碳排放监测的相关问题和制度建议. 环境经济研究. 2021,6(03):136-146.
张鸿宇,黄晓丹,张达,张希良. 加速能源转型的经济社会效益评估. 中国科学院院刊. 2021(09):1039-1048.
张希良,张达,余润心. 中国特色全国碳市场设计理论与实践. 管理世界. 2021(08):80-95.
谷宇辰,张达,张希良. 关于完善能源消费“双控” 制度的思考与建议—基于“十三五”能源消费变化的研究.中国能源. 2020,42(09):4-9.

Other Peer-reviewed Publications

Mulvaney, Kathleen M., Noelle E. Selin, Amanda Giang, Marilena Muntean, Chiao-Ting Li, Da Zhang, Hélène 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 CO_2 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.

王新宇,卢韦伟,石睿杰,陈启鑫,张达,杜尔顺,黄俊灵.三峡集团乌兰察布“源网荷储一体化”示范项目设计.电力需求侧管理. 2023,25(04):41-47.

余润心,张丹玮,刘运辉,李智,张达.建设特色有偿分配机制发挥碳市场减排作用. 金融博览. 2022(10):53-55.

陈启鑫,房曦晨,郭鸿业,何冠楠,张达,夏清. 储能参与电力市场机制：现状与展望. 电力系统自动化. 2021(16):14-28.

程颖,张佳乐,张少君,郭继孚,张达.大型货运车辆生态驾驶及节油潜力评估. 交通运输系统工程与信息. 2020,20(06):253-258.

张旭,齐天宇,张达,欧训民,张希良.能源与气候变化领域研究热点及主要趋势. 可再生能源. 2015,33(08):1214-1218.

熊威明,朱桂萍,张达,张希良.可再生能源经济决策支持工具 IRPP 的构建及分析案例. 可再生能源. 2013,31(04):65-70.

张达,熊威明,张希良,欧训民,朱兆雄.能源与气候变化议题下政策和经济研究的热点识别. 可再生能源. 2012,30(04):116-120.

刘贞,张希良,高虎,唐纯,齐天宇,张达.一种基于可再生能源潜力和能源消费的目标分解模型. 可再生能源. 2011,29(03):78-83.

刘贞,张希良,高虎,于智为,张达,齐天宇,唐纯,樊京春.区域可再生能源规划基本框架研究. 中国能源. 2010,32(02):38-41.

刘贞,张希良,张达. 欧盟可再生能源目标分解对我国省域规划的启示. 中国矿业. 2009,18(09):66-70.

Working papers

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.

Research Projects

Co-PI,“The top-level design of multi-scale interaction mode coupling, data monitoring support, and decision support research for the optimal path of carbon neutrality in China's natural social system”, the National Science Foundation of China (RMB20,000,000), 01/2023-12/2025.

PI, “Research on fiscal and tax policies supporting the development of "dual carbon"”, the Ministry of Finance (RMB100,000), 07/2023-10/2023.
PI, “Market and policy mechanisms for decarbonizing the power sector in the EU and China”, the Sino-German Center (RMB 629,600), 11/2022-10/2025.
Co-PI, “Comprehensive study on carbon peak and carbon neutralization paths and countermeasures”, the National Science Foundation of China (RMB3,000,000), 01/2022-12/2025.
Co-PI,“Special plan for the deep integration of industry, university and research in the development of forestry carbon sink”, China Forestry Group Corporation (RMB30,000,000), 07/2022-06/2027.
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 National Overseas High-level Young Talent Award”, the Organization Department of the Central Committee of the CPC (RMB2,000,000), 01/2021-12/2023.
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, “Analysis of Factors Influencing Carbon Price in the National Carbon Market and Research on Auction Mechanism”, the Environmental Defense Fund (RMB 450,000), 09/2022-09/2023.
PI, “Prospective research on energy supply guarantee under dual carbon targets”, the Ministry of Finance (RMB 470,000), 10/2022-12/2022.
PI, “Research on the development strategy of carbon assets in power grid enterprises”, State Grid (RMB 1,398,000), 07/2022-12/2022.
PI, “Development of flexible interactive data management application for source networks based on blockchain technology”, State Grid (RMB 981,000), 03/2022-08/2022.
PI, “Research on green and low carbon development of state owned enterprises”, State-Owned Assets Supervision And Administration Commission (RMB100,000), 04/2022-06/2022.
PI, “Regional analysis of China’s carbon pricing policy implications on energy and CO_2 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 pentration”, 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.