

# OWEN Q. WU

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## Current Research Interests

### *Operations Management for Environmental Sustainability:*

- Investment and operations management of energy resources
- Competition in electricity markets and supply chains
- Supply and demand management for energy and water resources
- Sustainable business models and policy frameworks

### *Operations Management for Social Sustainability:*

- Welfare economics and social justice
- Humanitarian operations and governance
- Anti-corruption and supply chain transparency
- Well-being and engagement in education

## Academic Positions

<b>Kelley School of Business, Indiana University</b> <i>Associate Professor of Operations and Decision Technologies</i>	2014 - present
<b>Ross School of Business, University of Michigan</b> <i>Assistant Professor of Operations and Management Science</i>	2006 - 2014
<b>Sauder School of Business, University of British Columbia</b> <i>Instructor</i>	2005

## Education

<b>University of British Columbia</b> Ph.D. in Management Science, with minor in Finance	2006
<b>Hong Kong University of Science and Technology</b> M.Eng. in Industrial Engineering and Engineering Management	2001
<b>Shanghai Jiao Tong University</b> B.Eng. in Mechanical Engineering	1999

## Editorial Roles

Guest Department Editor, *Manufacturing & Service Operations Management*, 2024-present  
Associate Editor, *Manufacturing & Service Operations Management*, 2021-present

Senior Editor, *Production & Operations Management*, 2020-present

Guest Associate Editor, *Management Science*, 2017 and 2020 (Special Issue on Climate Change)

Guest Associate Editor, *Manufacturing & Service Operations Management*, 2016-2020

### **Leadership Positions**

Director of Research and Outreach, Institute for Environmental and Social Sustainability, Kelley School of Business, 2023-present

Chair, Sustainable Operations Special Interest Group, MSOM Society of INFORMS, 2024-present

Track Chair, Energy and Natural Resources, POMS Annual Conference, 2017 and 2023

Vice President for Meetings, MSOM Society of INFORMS, 2021-2022

Vice President for Meetings, POMS College of Sustainable Operations, 2018-2020

### **Articles Published in Refereed Journals**

#### ***Energy Research:***

Xiaoshan Peng, Owen Q. Wu, Gilvan C. Souza. 2024. Renewable, flexible, and storage capacities: Friends or foes? *Manufacturing & Service Operations Management*, **26**(5) 1730-1749.

Owen Q. Wu, Roman Kapuscinski, Santhosh Suresh. 2023. On the distributed energy storage investment and operations. *Manufacturing & Service Operations Management*, **25**(6) 2277-2297.

Owen Q. Wu, Şafak Yücel, Yangfang (Helen) Zhou. 2022. Smart charging of electric vehicles: An innovative business model for utility firms. *Manufacturing & Service Operations Management*, **24**(5) 2481-2499.

Majid Al-Gwaiz, Xiuli Chao, Owen Q. Wu. 2017. Understanding how generation flexibility and renewable energy affect power market competition. *Manufacturing & Service Operations Management*, **19**(1) 114-131.

Owen Q. Wu, Roman Kapuscinski. 2013. Curtailing intermittent generation in electrical systems. *Manufacturing & Service Operations Management*, **15**(4) 578-595.

Owen Q. Wu, Derek D. Wang, Zhenwei Qin. 2012. Seasonal energy storage operations with limited flexibility: the price-adjusted rolling intrinsic policy. *Manufacturing & Service Operations Management*, **14**(3) 455-471.

Owen Q. Wu, Volodymyr Babich. 2012. Unit-contingent power purchase agreement and asymmetric information about plant outage. *Manufacturing & Service Operations Management*, **14**(2) 245-261.

David I. Shuman, Mingyan Liu, Owen Q. Wu. 2011. Energy-efficient transmission scheduling with strict underflow constraints. *IEEE Transactions on Information Theory*, **57**(3) 1344-1367.

Owen Q. Wu, Hong Chen. 2010. Optimal control and equilibrium behavior of production-inventory systems. *Management Science*, **56**(8) 1362-1379.

#### ***Humanitarian Operations:***

Telesilla O. Kotsi, Owen Q. Wu, Alfonso J. Pedraza-Martinez. 2022. Donations for refugee crises: In-kind vs. cash assistance. *Manufacturing & Service Operations Management*, **24**(6) 3001-3018.

### ***Operations and Finance:***

Hyun-Soo Ahn, Derek D. Wang, Owen Q. Wu. 2021. Asset selling under debt obligations. *Operations Research*, **69**(4) 1305-1323.

Hong Chen, Murray Z. Frank, Owen Q. Wu. 2007. U.S. retail and wholesale inventory performance from 1981 to 2004. *Manufacturing & Service Operations Management*, **9**(4) 430-456.

Hong Chen, Murray Z. Frank, Owen Q. Wu. 2005. What actually happened to the inventories of American companies between 1981 and 2000? *Management Science*, **51**(7) 1015-1031.

### ***Supply Chain Management:***

Owen Q. Wu, Hong Chen. 2016. Chain-to-chain competition under demand uncertainty. *Journal of the Operations Research Society of China*, **4**(1) 49-75.

Hong Chen, Owen Q. Wu, David D. Yao. 2010. On the benefit of inventory-based dynamic pricing strategies. *Production and Operations Management*, **19**(3) 249-260.

### ***Other Research:***

Julian Douglass, Owen Q. Wu, William T. Ziemba. 2004. Stock ownership decisions in defined-contribution pension plans. *Journal of Portfolio Management*, **30**(4) 92-100.

Benjamin P. C. Yen, Owen Q. Wu. 2004. Internet scheduling environment with market-driven agents. *IEEE Transactions on Systems, Man, and Cybernetics, Part A*, **34**(2) 281-289.

### **Book Chapters**

Owen Q. Wu, Yanfeng Ouyang. 2017. Supply chain design and optimization with applications in the energy industry. In *Advances and Trends in Optimization with Engineering Applications*, T. Terlaky, M. F. Anjos, S. Ahmed (eds.), Society for Industrial and Applied Mathematics (SIAM), Philadelphia.

Adam A. Wadecki, Volodymyr Babich, Owen Q. Wu. 2012. Manufacturer competition and subsidies to suppliers. In *Supply Chain Disruptions: Theory and Practice of Managing Risk*, H. Gurnani, A. Mehrotra, S. Ray (eds.), Springer-Verlag, London.

### **Completed Working Papers**

Siddharth Prakash Singh, Owen Q. Wu. 2024. Incorporating income disparity and utility heterogeneity in resource allocation.

Paola Martin, Owen Q. Wu, Larysa Yakymova. 2024. Anti-corruption and humanitarian aid management in Ukraine.

Amrou Awaysheh, Christopher J. Chen, Owen Q. Wu. 2023. Does renewable energy renew energy efficiency?

Ali Shantia, Owen Q. Wu, Roman Kapuscinski. 2020. Wind power generation strategic bidding in competitive electricity market.

Wenbin Wang, Owen Q. Wu, Gilvan C. Souza. 2020. Does energy efficiency imply cost efficiency? Revisiting design and operations of combined heat and power systems.

Eric M. Webb, Owen Q. Wu, Kyle D. Cattani. 2019. Coordinating energy efficiency and incentive-based demand response.

Eric M. Webb, Gilvan C. Souza, Owen Q. Wu. 2019. Utility-owned combined heat and power: Improving reliability and lessening environmental impact.

Harish Krishnan, Owen Q. Wu. 2017. On the impact of decision speed in strategic supply chain decentralization.

### **Case Study, Review and Tutorial**

Owen Q. Wu, Xiuli Chao. 2017. Can renewable energy be too much of a good thing? *M&SOM Review*, May 8, 2017.

Owen Q. Wu. 2011. Applying production and inventory management theory to sustainable energy systems. INFORMS Tutorial, INFORMS Annual Meeting, Charlotte, NC. <http://pages.iu.edu/~owenwu/academic/Tutorial-OM-Energy.pdf>

Owen Q. Wu, Nathan D. Bennett. 2010. Sustainability at Detroit Edison: using natural gas as a transition fuel. *Tauber Institute for Global Operations and William Davidson Institute*, case 1-429-143.

### **Courses Taught**

#### ***Master:***

*Business Applications of Machine Learning*, Kelley Direct Online, 2019 to present

*Business Applications of Machine Learning*, MBA/MSIS elective, 2020 to 2022

*Operations Management*, MBA core, 2012 to 2019

*Introduction to Operations Management*, Kelley Connect Week, 2016-2017

*Applications of Business Analytics: Energy Management*, Kelley Direct Online, 2018-2019

*Multidisciplinary Action Projects*, 2007-2008

#### ***PhD:***

*Data-Driven Operations Management*, 2024 to present

*Inventory Management*, 2024 to present

*Bootcamp for Analytical Models and Methods In Business*, 2023 to present

*Dynamic Programming*, 2018 to present

*Topics in Operations Research and Energy Management*, 2015

*Interface of Operations and Finance*, 2007

#### ***Undergraduate:***

*Supply Chain Management*, 2011-2014

*Operations Management*, Core (2007-2011), Business Minor (2012-2013)

## Research Awards

*Finalist, Best Diversity, Equity, Inclusion, and Justice Paper Award* by the Service Science Section of INFORMS for the paper "Incorporating income disparity and utility heterogeneity in resource allocation," 2024.

*Best Publication in Environment and Sustainability* by the Energy, Natural Resources, and the Environment (ENRE) Section of INFORMS for the paper "Smart charging of electric vehicles: An innovative business model for utility firms," 2023.

*Finalist, M&SOM Journal's Best Paper Award* by the Manufacturing and Service Operations Management Society of INFORMS for the paper "Smart charging of electric vehicles: An innovative business model for utility firms," 2023.

*Honorable Mention, Award for Responsible Research in Operations Management* by the Manufacturing and Service Operations Management Society of INFORMS for the paper "Donations for refugee crises: In-kind vs. cash assistance," 2022.

*Paul Kleindorfer Award in Sustainability*, Production and Operations Management Society (POMS), 2017.

*First Place, MSOM Student Paper Competition*, Manufacturing and Service Operations Management Society of INFORMS, 2005.

## Grants and Fellowships

*Grant Thornton Scholar Award*, Kelley School of Business, 2019-present.

*University of Michigan's Global Challenges for a Third Century Grant* (with J. Stein, I. Hiskens, S. Parthasarathy, J. Kelly, J. Levine, G. Keoleian, T. Ersal): "Sustainable transportation for a third century: An interdisciplinary approach to addressing the last mile problem for enhanced accessibility," \$299,878, 2013-2014.

*University of Michigan's M-Cubed Grant* (with A. Atreya, A. Violi): "Development of an autonomous biomass reactor to create carbon neutral transportation fuels and prevent forest fires," \$60,000, 2013-2014.

*University of Michigan's Center for International Business Education Grant* (with X. Chao): "Identification, classification, and analysis of risks of Chinese suppliers," \$8,500, 2009-2010.

*E. D. MacPhee Memorial Fellowship*, University of British Columbia, 2001 and 2005.

*Graduate Fellowship*, University of British Columbia, 2002-2004.

## Teaching Awards

*Innovative Teaching Award*, Kelley School of Business, 2023, for teaching the course "Business Applications of Machine Learning."

*Nominee, Innovative Teaching Award*, Kelley School of Business, 2022.

*Excellence in Teaching Award*, MBA Program, Kelley School of Business, twice in 2021 and 2020.

*Distinguished Teaching Award*, Doctoral Program, Kelley School of Business, 2019.

Trustee Teaching Award, Indiana University, 2018.

Professor with the Best PowerPoint Presentations, 2017.

Finalist, Trustee Teaching Award, Indiana University, 2017, 2016.

Advisor for the student paper "Mind the gap: Coordinating energy efficiency and demand response," Finalist for the 2017 POMS College of Sustainable Operations Best Student Paper Competition.

BBA Teaching Excellence Award, Ross School of Business, University of Michigan, twice in 2011 and 2009.

Faculty advisor for the student project "Landfill gas utilization as a sustainable energy source," First Place at the 2008 Spotlight! Competition at Tauber Institute for Global Operations.

### **Service Awards**

*Manufacturing & Service Operations Management Meritorious Service Award*, 2020, 2019, 2017, 2016, 2014, 2012, 2010, and 2008.

*Operations Research Meritorious Service Award*, 2012.

### **Sustainability-Focused Industry Projects Advised**

PepsiCo: Achieving 100 Percent Renewable Energy, 2019

Cummins: Remanufacturing process improvement, 2017

BorgWarner: Reducing industrial wastes and improving waste treatment, 2016

Detroit Edison: Operational and financial analysis of using petroleum coke and natural gas at Monroe power plant, 2015

Detroit Edison: Optimizing redesign of boiler makeup water feed system, 2014

Graham Partners: Portfolio-wide energy management, 2013

Dow Chemical: Improving supply chain sustainability, 2011

Meritor: Life cycle assessment for tandem axles, 2011

Detroit Edison: Shaping the future of fossil-fuel power generation, 2010

Boeing: Embedding design for environment in the Boeing design process, 2009

UPS: Landfill gas utilization as a sustainable energy source, 2008

Velocys: Biomass-to-liquid and waste-to-liquid markets, 2007

### **Other Industry Projects Advised**

Target Corporation: Improving problem freight disposition time, 2021

Target Corporation: Improving trailer load accuracy, 2020

Pacific Gas & Electric: Streamlining gas leak detection and repair, 2018

3M: Protective eyewear portfolio and supply chain optimization, 2015

Boeing 777: Lean logistics plan for material delivery, 2014

Delphi: Creating value through global copper supply chain improvements, 2012

Domino's Pizza: Operational improvements at corporate stores, 2007

### **Invited Presentations to Industry Participants**

Designing resource allocation mechanisms, Grant Thornton webinar, 2024

Smart charging of electric vehicles, Grant Thornton webinar, 2021

Energy supply economics and energy market analysis (panel moderator), Spring Forum of the Lugar Center for Renewable Energy, Indianapolis, 2017

Achieving energy sustainability through energy demand management, Kelley Forum on Supply Chain Analytics (with focus on sustainability), 2015

Seasonal energy storage operations with limited flexibility, DTE Energy, 2009

### **Invited Research Seminars**

O'Neill School of Public and Environmental Affairs, Indiana University, 2024

Rotterdam School of Management, Erasmus University, 2024

Paul Merage School of Business, University of California, Irvine, 2023

Whitman School of Management, Syracuse University, 2022

Weatherhead School of Management, Case Western Reserve University, 2022

Department of Industrial Engineering, Tsinghua University, 2021

Department of Industrial Engineering, Bilkent University, 2021

Johnson College of Business, Cornell University, 2020

College of Business Administration, University of Illinois at Chicago, 2020

School of Business, University of California, Riverside, 2020

Antai College of Economics and Management, Shanghai Jiao Tong University, 2019

School of Public and Environmental Affairs, Indiana University, 2019

Kelley School of Business, Indiana University, 2019

Shanghai University of Finance and Economics, 2018

Krannert School of Management, Purdue University, 2014

Foster School of Business, University of Washington, 2014

Odette School of Business, University of Windsor, 2013

Olin Business School at Washington University in St. Louis, 2012

Hosmer-Hall Luncheon, Ross School of Business, University of Michigan, 2012

Kenan-Flagler Business School, University of North Carolina, 2012

Fuqua School of Business, Duke University, 2012

Tepper School of Business, Carnegie Mellon University, 2012

College of Management, Georgia Institute of Technology, 2011

Kellogg School of Management, Northwestern University, 2009  
Hosmer Luncheon, Ross School of Business, University of Michigan, 2009  
Sauder School of Business, University of British Columbia, 2009  
Harvard Business School, Harvard University, 2006  
Stanford Graduate School of Business, Stanford University, 2006  
Columbia Business School, Columbia University, 2006  
Wharton School, University of Pennsylvania, 2006  
Stern School of Business, New York University, 2006  
Marshall School of Business, University of Southern California, 2006  
Ross School of Business, University of Michigan, 2005

### **Academic Conference Presentations** (Presenting Author)

Renewable, flexible, and storage capacities: Friends or foes?

- Purdue Operations Conference, Purdue University, 2024
- INFORMS Meeting, Seattle, WA 2024

Resource allocation under utility heterogeneity and income disparity

- Supply Chain Management Conference, University of Illinois Urbana-Champaign, 2024

Anti-corruption and humanitarian aid management in Ukraine

- M&SOM Conference, Montréal, Canada, 2023
- Purdue Operations Conference, Purdue University, 2023
- International Scientific Conference: Mathematical Methods, Models and Information Technologies In Economics, Chernivtsi, Ukraine, 2023

Smart charging of electric vehicles

- INFORMS Meeting, 2020
- M&SOM Conference, Singapore, 2019
- INFORMS Meeting, Seattle, WA 2019

Mind the gap: Coordinating energy efficiency and demand response

- POMS Conference, Seattle, WA 2017
- INFORMS International Meeting, 2016
- M&SOM Conference, University of Auckland, 2016

Understanding how generation flexibility and renewable energy affect power market competition

- INFORMS Meeting, Philadelphia, PA 2015
- INFORMS Meeting, San Francisco, CA 2014
- M&SOM Conference, University of Washington, 2014

Operations and investment of energy storage in a tree network



- INFORMS Meeting, Phoenix, AZ 2018
- INFORMS Meeting, San Francisco, CA 2014

Curtailling intermittent generation in electrical systems

- INFORMS Meeting, Minneapolis, MN 2013

Applying production and inventory management theory to sustainable energy systems, INFORMS Tutorial, INFORMS Meeting, Charlotte, NC 2011

Managing intermittent and flexible generation resources in an electricity system

- Sustainable Operations Special Interest Group Conference, University of Michigan, 2011
- INFORMS Meeting, Austin, TX 2010

Seasonal energy storage operations with limited flexibility

- INFORMS Meeting, Austin, TX 2010
- INFORMS Meeting, San Diego, CA 2009

Unit-contingent power purchase agreement and asymmetric information about plant outage

- INFORMS Meeting, San Diego, CA 2009
- Interface of Finance, Operations, and Risk Management SIG Conference, M.I.T., 2009
- INFORMS Meeting, Washington DC, 2008

Inventory control and risk management of natural gas storage assets

- INFORMS Meeting, Seattle, WA 2007

Optimal control and competitive equilibrium of production-inventory systems

- INFORMS Meeting, San Francisco, CA 2005
- M&SOM Conference, Northwestern University, 2005
- Applied Probability Conference, Ottawa, Canada, 2005

Inventory performance of U.S. retail, wholesale and manufacturing companies from 1981 to 2003

- INFORMS Meeting, San Francisco, CA 2005

What actually happened to the inventories of American companies between 1981 and 2000?

- Multi-Echelon Inventory Conference, Northwestern University, 2005
- CORS/INFOMRS Joint International Meeting, Banff, Canada, 2004
- M&SOM Conference, Cornell University, 2002

Optimal pricing and production in a production-inventory system

- M&SOM Conference, Eindhoven, Netherlands, 2004

Optimal pricing and replenishment in an inventory system

- Applied Probability Conference, Beijing, China, 2004
- Revenue Management Conference, M.I.T., 2004
- CORS/INFOMRS Joint International Meeting, Banff, Canada, 2004

Chain-to-chain competition under demand uncertainty

- INFORMS Meeting, Atlanta, 2003

### **Service to the Profession** (in addition to Editorial Roles and Leadership Positions)

#### ***Conference Chair or Organizer:***

Focused-Field Workshops on Sustainability, 2023-present

Annual Symposium on Environmental and Social Sustainability in Supply Chains, 2022-present

MSOM Conference, Indiana University, 2021

AI/Machine Learning Colloquium, Indiana University, 2020

#### ***Contributors:***

Panelist for Leveraging Research Centers for Sustainable Operations at INFORMS Meeting, 2024

Panelist for Doctoral Consortium at the POMS Conference, 2022

Discussant for Early-Career Sustainable Operations Workshop, 2019, 2020, 2023

Discussant for Sustainable Operations Special Interest Group Conference, 2017, 2018, 2022, 2023

Session organizer and chair at INFORMS Annual Meetings, 2014-2016, 2018-2020

Panel moderator for the Spring Forum of the Lugar Center for Renewable Energy, 2017

Invited energy industry speaker for the Inaugural Conference of the Sustainable Operations Special Interest Group, 2011

Judge for the POMS Student Paper Competition, 2017

Judge for MSOM Student Paper Competition 2006-2009, 2012, 2014-2017

#### ***Reviewer:***

*Management Science, Operations Research, Manufacturing & Service Operations Management, Naval Research Logistics, Production & Operations Management, IIE Transactions, Mathematical Methods of Operations Research, Energy Economics, Energy Journal, and others*

### **Service to the University and School**

#### ***General Education Committee of Indiana University:***

Member of the Natural and Mathematical Sciences Subcommittee, 2019-2023

#### ***Academic Council of Kelley School of Business:***

Tenure-track representative, 2018-2020

#### ***MBA program:***

Developed MBA course on Business Applications of Machine Learning, 2019-2020

Member of Kelley MBA policy committee, 2014-2020

Designed major improvements to MBA Core course, 2014-2015

***Undergraduate program (Michigan):***

Core course coordinator for Operations Management, 2007-2011

Supply Chain Management course development, 2011

***PhD program:***

PhD Program Coordinator in Operations Management and Decision Science, 2020-2022

Course development: Topics in Operations Research and Energy Management (Indiana), 2015

Course development: Interface of Operations and Finance (Michigan), 2007

PhD program committee member (Michigan), 2009-2011

PhD students teaching mentor (Michigan), 2007-2013

Doctoral students advised:

Angshuman Pal (2024-present)

Ling Li (2023-present)

Donggyu Jeon (2022-present)

Buyun Li (2021-present)

Tom Palley (2020-present)

Telesilla Kotsi (2018-2020), position on graduation: Assistant Professor at Fisher College of Business, Ohio State University

Eric Webb (2015-2018), position on graduation: Assistant Professor at Lindner College of Business, University of Cincinnati

Santhosh Suresh (2008-2014), position on graduation: McKinsey&Company

Derek (Dadi) Wang (2006-2012), position on graduation: Assistant Professor at Desautels Faculty of Management, McGill University

Dissertation committee member of other doctoral students:

Shanshan Guo (2015), Majid Al-Gwaiz (2013), Jie Ning (2013), David Shuman (2010), Shanshan Hu (2009)