

# OWEN Q. WU

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## Research Interests

### *Operations Management for Sustainability:*

- Investment and operations management of energy resources
- Electricity market competition
- Supply and demand management for energy and water
- Sustainable business models

### *Operations Management for Social Responsibility*

- Humanitarian operations
- Social equity
- Anti-corruption
- Cross-sector partnership

### *Supply Chain Management, Operations and Finance*

## 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

## Articles Published in Refereed Journals

### *Energy Research:*

- Owen Q. Wu, Roman Kapuscinski, Santhosh Suresh. 2023. On the distributed energy storage investment and operations. *Manufacturing & Service Operations Management*, forthcoming.
- 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. 2023. Resource allocation under income disparity and valuation heterogeneity: Redesigning the community solar business model.

Paola Martin, Owen Q. Wu, Larysa Yakymova. 2023. Anti-corruption and humanitarian aid management in Ukraine.

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

Xiaoshan Peng, Owen Q. Wu, Gilvan C. Souza. 2021. Renewable, flexible, and storage capacities: Friends or foes?

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*, MBA/MSIS elective, 2020 to present

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

*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:***

*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)

## **Honors and Grants**

### ***Research:***

ENRE Best Publication in Environment and Sustainability, INFORMS 2023, for the paper "Smart charging of electric vehicles: An innovative business model for utility firms."

Finalist, M&SOM Best Paper Award, INFORMS, 2023.

Honorable Mention, MSOM Society Award for Responsible Research in Operations Management, INFORMS, 2022, for the paper "Donations for refugee crises: In-kind vs. cash assistance."

Grant Thornton Scholar Award, Kelley School of Business, 2019-2023.

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

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. Eرسال). "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.

First Place, 2005 Manufacturing & Service Operations Management Society Student Paper Competition.

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

University of British Columbia Graduate Fellowship 2002-2004.

### **Teaching:**

Innovative Teaching Award, Kelley School of Business, 2023.

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:**

*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**

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**

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)**

Anti-corruption and humanitarian aid management in Ukraine

- M&SOM Conference, Montréal, Canada 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**

### ***Journals:***

Associate Editor for *Manufacturing & Service Operations Management*, 2021-present

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

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

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

Reviewer for *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

### ***Societies:***

Vice President for Meetings, MSOM Society, 2021-2022

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

Organizer for the MSOM Conference at Indiana University, 2021

Track chair for the Energy and Natural Resources track for POMS Annual Conference, 2017, 2023

Organizer for AI/Machine Learning Colloquium at Indiana University, 2020

Organizer and panel moderator for the Spring Forum of the Lugar Center for Renewable Energy, 2017

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

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

## **Service to the University**

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

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

### ***Institute for Environmental and Social Sustainability, Kelley School of Business:***

Director – Research and Outreach, 2023-present

### ***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:

Donggyu Jeon (2022-present)

Buyun Li (2021-present)

Tom Palley (2018-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)