

NICHOLAS H. JOHNSON

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AREAS OF EXPERTISE: *Sustainability, economics, energy engineering, Regional Transmission Organizations, electric reliability, environmental policy, energy policy, electricity policy, electricity markets, optimization, network analysis, renewable energy (wind, solar, biofuels)*

EDUCATION

- 2021 **Doctor of Philosophy, Energy & Mineral Engineering**
Focus: Energy Management & Policy
Pennsylvania State University
Dissertation: "Studies in the Governance of Regional Transmission Organizations"
- 2009 **Master of Science, Environmental Policy**
Michigan Technological University
Thesis: "A Cost-Benefit Analysis for a Proposed Wind Turbine at Principia College"
- 2004 **Bachelor of Science, Majors: Physics, Religion; Minor: Mathematics**
Principia College, Illinois
Senior Physics Capstone: "Rare Gas Moderators for the PIASA Beam"
Senior Religion Capstone: "The Christian Science Liturgy"

PUBLICATIONS

- Solomon, B and **NH Johnson**. *In review*. Electrification to maximize positive climate impacts: a close look at the U.S. Inflation Reduction Act.
- Downing, J, **NH Johnson**, M McNicholas, D Nemtsov, R Oueid, J Paladino, and EB Wolfe. Pathway to Commercial Liftoff: Virtual Power Plants. U.S. Department of Energy, September, **2023**.
- Johnson, NH**, *Demand and Greenhouse gas neutral and Demand management*. In: B Haddad and BD Solomon (Editors), *Dictionary of Ecological Economics*. Edward Elgar Press, **2023**.
- Cocks, M and **NH Johnson**. "Smart City Technologies in the USA: Smart Grid and Transportation Initiatives in Columbus, OH." In: HM Kim, S Sabri, and A Kent (Editors), *Smart Cities for Technological and Social Innovation*, Elsevier, **2020**.
- Solomon, B and **NH Johnson**. **2012**. Public policies, economics, public perceptions, and the future of bioenergy crops, p.285-299. In: C Kole, CP Joshi, and DR Shonnard (Editors), *Handbook of Bioenergy Crop Plants*. Boca Raton, FL: Taylor & Francis Group.
- Johnson, NH** and B Solomon. **2010**. A net-present value analysis for a wind turbine purchase at a small U.S. college. *Energies* 3(5):943-959.
- Johnson, NH**. **2010**. Biofuels, p.201-204. In: Warf, B (Editor), *Encyclopedia of Geography, Volume I*. Thousand Oaks, CA: Sage Publications.
- Solomon, B and **NH Johnson**. **2009**. Valuing climate protection through willingness to pay for biomass ethanol in the Upper Midwest. *Ecological Economics* 68(7):2127-2144.
- Solomon, B and **NH Johnson**. **2008**. Introduction, p.3-27. In: BD Solomon and VA Luzadis (Editors), *Renewable Energy from Forest Resources in the United States*. Oxfordshire, UK: Routledge.

PRESENTATIONS

- Johnson, NH**. **2025**. "The Clean and Reliable Grid Affordability Act (CRGA) and the Challenges Facing the Illinois Electric Grid", Sierra Club Piasa Palisades Group speaker series, Alton, IL. 13 May 2025.

Johnson, NH. 2025. "U.S. Renewable Energy Policy", IS 318 Sustainability and Renewable Energy, Southern Illinois University Edwardsville. 1 April 2025.

Johnson, NH. 2024. "An Introduction to Environmental Cost Benefit Analysis", SPARK program, Washington University in St. Louis. 20 August 2024.

Johnson, NH. 2019. "The Power Grid", American Association of University Women branch meeting, Minneapolis, MN. 21 January 2019.

Blumsack S, **NH Johnson**, and K Yoo. **2017.** "Can Capacity Markets be Designed by Democracy?", The Hawaii International Conference on System Sciences: Meeting the Productivity Challenge, Hilton Waikoloa Village, HI. 4-7 January 2017.

Johnson, NH. 2016. "Voting networks in Regional Transmission Organizations: The benefits and burdens of participation", Industry Studies Association Conference: Meeting the Productivity Challenge, Minneapolis, MN. 24-25 May 2016.

Johnson, NH. 2015. "Of social structures and infrastructure: Voting networks in Regional Transmission Organizations", Energy Policy Research Conference, Denver, CO. 10-11 September 2015.

Johnson, NH and S Blumsack. 2014. "Comparing innovation in Regional Transmission Organizations", Energy Policy Research Conference, San Francisco, CA. 4-5 September 2014.

Johnson, NH and S Blumsack. 2014. "Transmission planning in regional transmission organizations", Industry Studies Association Conference: Sustaining Sustainability in the Face of Increasing Risk, Portland, OR. 27-30 May 2014.

AWARDS AND FELLOWSHIPS

2023 The Secretary of Energy's Achievement Award, U.S. Department of Energy
 1. *Inflation Reduction Act Energy Tax Credit Tiger Team*
 2. *Pathways to Commercial Liftoff Report Team*

2022- American Association for the Advancement of Science (AAAS) Science and Technology Policy Fellow (STPF),
 2023 Office of Policy, U.S. Department of Energy

TEACHING EXPERIENCE

2025- Associate Professor, Sustainability Department, Principia College

2023- Department Chair, Sustainability Department, Principia College

2020- Assistant Professor, Sustainability Department, Principia College
 2025

2021- Department Chair, Sustainability Department, Principia College
 2022

2017- Instructor, Sustainability Department, Principia College
 2020

2015- Visiting Faculty, Sustainability Department, Principia College
 2016 SUS 280 *Topics in Sustainability: Modern Climate Change* (Fall 2015, Fall 2016)
 SUS 250 *Energy & Living Systems* (Fall 2016)
 SUS 401 *Independent Sustainability Project* (Spring 2017)

2015- Visiting Faculty, Department of Economics, Principia College
 2016 ECON 203 *Principles of Microeconomics* (Fall 2016, Spring 2017)
 ECON 271 *Environmental Economics* (Spring 2015, Spring 2016)

2013- Guest Lecturer [energy, climate change, adaptation/mitigation], Center for Sustainability, Principia College

2016 SUS 151 *Introduction to Sustainability* (Spring 2013, Spring 2014, Spring 2015, Spring 2016)

2011- Teaching Assistant, Department of Energy and Mineral Engineering, Pennsylvania State University
 2012 EBF 304W *Global Management for the Earth, Energy, and Materials Industries*
 EME 460 *Geo-resource Evaluation and Investment Analysis*

2011 Visiting Faculty, Department of Biology and Natural Resources, Principia College
 BNR 381 *Advanced Natural Resources Seminar: Energy & the Environment* (Spring 2011)

2009 Instructor, Michigan Technological University, Future Fuels Teacher Institute

2007- Teaching Assistant, Department of Social Sciences, Michigan Technological University
 2008 SS 2100 *Introduction to Cultural Anthropology*
 SS 2801 *Science Technology and Society: Interactions and Interrelationships*

2007 Lab Instructor, Department of Physics, Principia College

2006- Positron Beam Project Manager, Principia College Physics Department
 2007

2005- Technician, Principia College Physics Department
 2007

OTHER EMPLOYMENT

2023- Consultant (5 CFR 304.102(b)), Office of Policy, U.S. Department of Energy
 2024

2018- Solar Farm Project Manager, Principia College
 2022

2012- Research Assistant (Dr. Seth Blumsack), Pennsylvania State University
 2015

2009- Wind Turbine Project Manager, Principia College
 2011

2009- Head Rugby Coach, Athletic Department, Principia College
 2011

2008- Research Assistant (Dr. Barry Solomon), Michigan Technological University
 2009

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science

ACTIVITIES & OTHER WORK EXPERIENCE

2025- Member, Executive Committee, Sierra Club, Piasa Palisades Group

- 2018- Member, Climate Protection and Energy Efficiency Committee, Alton, IL
2022
- 2015- Assistant Rugby Coach, Principia College
2022 2015 10th Place USA Rugby Men's DII College 7s National Championship
2016 5th Place USA Rugby Men's DII College 7s National Championship
2017 Round of 32 USA Rugby Men's DII College 15s National Championship
2017 10th Place USA Rugby Men's DII College 7s National Championship
2018 5th Place USA Rugby Men's DII College 7s National Championship
2019 7th Place USA Rugby Men's DII College 7s National Championship
2021 Round of 16 NCR Rugby Men's DII College 15s National Championship
2022 5th Place DII 7s Collegiate Ruby Championship
- 2014- Journal Referee, Power & Energy Society (*IEEE Transactions on Smart Grid*) and International Association for
2020 Energy Economics (*The Energy Journal*)
- 2014- Member, Advisory Board, Institute for Energy, St. Francis University
2016
- 2012- Head Rugby Coach, Happy Valley Barbarians, State College, Pennsylvania
2014 2014 Round of 32 USA Rugby Men's DIII Club 15s National Championship
- 2009- Volunteer Firefighter, Quarry-Elsah-Mississippi Townships Fire Department, Illinois
2011
- 2006 Participant, M.I.T. Vehicle Design Summit, Dean of Undergraduate Education, Office of Experiential Learning
- 2005- Head Rugby Coach, Principia College
2007
- 2004- Volunteer Firefighter, Quarry-Elsah-Mississippi Townships Fire Department, Illinois
2007
- 2004 NASA Summer Institute Program, Atmospheric Sciences Division, Goddard Space Flight Center, Maryland
Independent Project: "Correlation between groundwater fluctuations in the Mississippi River Basin and
fluctuations in the Earth's gravitational field"
- 2000- Member of Principia Solar Car Team
2005

SKILLS AND CERTIFICATIONS

Computer Applications: Modeling software and programming: NVivo, SPSS, GAMS, PowerWorld, Mathematica, AutoCAD, Matlab

Sustainability: Home Energy Audit License

Professional Skills: Metalworking machinist

Coaching: USA Rugby Level 200 certification

Driving: Valid Illinois Driver's License; Illinois Class-B License