

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

- Downing, J, **NH Johnson**, M McNicholas, D Nemtzow, 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**. Panelist, The AI Crossroads Panel, Webster University, Webster, MO. 17 Nov.
- Johnson, NH**. **2025**. "Introduction to Network Analysis", Social Impact Gathering Workshop, Grinnell College, Grinnell, IA. 14 Nov.

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.

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

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

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

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.

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.

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

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

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.

AWARDS AND FELLOWSHIPS

2026 Prairie State Protector, June awardee, Sierra Club Illinois Chapter

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- Journal Referee, Utilities Policy
- 2025- Member, Executive Committee, Sierra Club, Piasa Palisades Group
- 2024- Member, Climate Protection and Energy Efficiency Committee, Alton, IL
- 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 certification

Professional Skills: Metalworking machinist

Coaching: USA Rugby Level 200 certification

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