**BENJAMIN F. HOBBS**

Department of Environmental Health & Engineering, Whiting School of Engineering

Ralph O’Connor Sustainable Energy Institute

The Johns Hopkins University

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## EDUCATION

**Cornell University**, School of Civil and Environmental Engineering, Ithaca, NY. Ph.D., Environmental Systems Engineering, Jan. 1983. Minors: Operations Research and Resource Economics.

**State University of New York**, College of Environmental Science and Forestry, Syracuse, NY. M.S., Resources Management and Policy, May 1978.

**South Dakota State University**, Brookings, SD. B.S. with Highest Honor, May 1976. Major: Non-Major (self-designed program integrating environmental science, mathematics, economics).

**Prescott College**, Prescott, AZ. Sept. 1972 - May 1974.

**EMPLOYMENT**

**The Johns Hopkins University**, Whiting School of Engineering, Baltimore, MD.

* Inaugural Theodore M. and Kay W. Schad Professor of Environmental Management, 2008 to present.
* Deputy Chair of Dept. Environmental Health & Engineering, August 2024-present.
* Inaugural Director, Environment, Energy, Sustainability & Health Institute, 2010 to 2018.
* Co-Director, Yale-JHU SEARCH (Solutions for Energy, Air, Climate, and Health) Center, 2016 to 2022
* Professor of Environmental Health & Engineering (Formerly Geography & Environmental Engineering), 1995 to present
* Chairman of Geography & Environmental Engineering, July 2002-June 2003; Acting Chair July-August 2004
* Professor of Applied Mathematics and Statistics (secondary appointment), 1999 to present.

Teaching, research in optimization, decision analysis, simulation, and economics, and their application to environmental, power, and water systems. Courses taught: environmental systems simulation and decision analysis; energy planning and policy modeling; introductory optimization; engineering microeconomics; advanced environmental engineering applications of optimization; ecosystem management models.

**Case Western Reserve University**, Case School of Engineering, Cleveland, OH.

* Assistant Professor of Systems Engineering, Jan. 1984 to Feb. 1988.
* Assistant Professor of Civil Engineering, Sept. 1986 to Feb. 1988.
* Associate Professor of Systems Engineering and Civil Engineering, Feb. 1988 to June 1994.
* Professor of Systems, Control, and Industrial and Civil Engineering, July 1994 to July 1995.
* Adjunct Professor of Electrical Engineering and Computer Science, Aug. 1995 – June 2000.

Courses taught: reliability and risk analysis; water and energy systems engineering; decision analysis; mathematical modeling; engineering economics and financial accounting; introduction to systems engineering; legal, economic and social aspects of resources management.

**Oak Ridge National Laboratory**, Energy Division, Oak Ridge, TN. Wigner Fellow, Jan. 1982 to Jan. 1984. Research on water supply for electric power, energy planning in developing countries, power markets, spatial market economics. Sponsors: Electric Power Research Institute, US Agency for Intl. Development, Wigner Fellowship program.

**Brookhaven National Laboratory**, Division of Regional Studies, Upton, NY. Economics Associate III. Sept. 1977 to Aug. 1978, Summer 1979. Research on power plant siting, water supply for power, northeastern coal markets. Sponsors: US Department of Energy, US Nuclear Regulatory Commission.

Summer positions with the **Maryland Power Plant Siting Program**, Annapolis, MD (1977), **Oak Ridge National Laboratory**, Energy Division, Regional & Urban Studies Section, Oak Ridge, TN (1975, 1976), **Northeast Utilities**, Dept. Regional & Environmental Planning, Berlin, CT (1974). Internships with the **Salt River Project**, Phoenix, AZ (March - April, 1974), **The President's Council on Environmental Quality**, Washington, DC (April - May, 1973).

**VISITING APPOINTMENTS**

Visiting Scholar, Florence School of Regulation, Robert Schuman Centre for Advanced Studies, European University Institute, Fiesole, Italy, Sept.-Dec. 2023.

Visiting Researcher, Energieonderzoek Centrum Nederland (ECN, Netherlands Energy Research Foundation), Policy Studies Unit, Amsterdam, The Netherlands, Sept. 2001–July 2002; March-July 2017.

Visiting Scholar, Institute for Research in Technology, ICAI School of Engineering, Comillas Pontifical University, Madrid, Spain, Jan.-March, 2017.

Visiting Associate, Computing & Mathematical Sciences, California Institute of Technology, Pasadena, CA, Nov.-Dec. 2016.

Visiting Scholar, Department of Electrical Engineering, University of Washington, Seattle, WA, July-October 2016.

Overseas Fellow, Churchill College, Cambridge, Aug. 2009-July 2010.

Senior Research Associate, Electricity Policy Research Group, Department of Economics and Judge Business School, University of Cambridge, Aug. 2009-July 2010.

Visiting Professor, Systems Analysis Laboratory, Helsinki University of Technology, Espoo, Finland, Aug. 2000.

Visiting Professor, Dept. of Geography & Environmental Engineering, The Johns Hopkins University, Baltimore, MD, Aug. 1995 – June 1996.

Visiting Scientist, Department of Civil Engineering, University of Washington, Seattle, WA, Sept. 1991 – Nov. 1992.

**CONSULTING**

Lawrence Berkeley National Laboratory/USDOE Transmission R&D 2021

E-Three/Tennet (Netherlands Grid Operator) 2019

PJM, LLC, 2013

Booz & Company, Long Term Transmission Rights Workshop, 2011

UK Office of Gas & Electricity Markets, TransmiT Project, 2010-2011

Maryland Dept. of the Environment and University of Maryland, 2010-2011

Lawrence Berkeley Laboratory, City of Auburn Technical Advisory Group, 2010-2011

FinGrid (Finnish Network Operator), 2010

Brattle Group, 2008

U.S. Army Corps of Engineers, Baltimore District, 2006, 2007

U.S. Dept. of Energy, Energy Information Agency, 2000, 2006

Maryland Power Plant Research Program, 2003

Planit Management, Ltd., 2001

Federal Energy Regulatory Commission, 1996-2001

Analysis Group/Economics, 1999

Gas Research Institute, Chicago, IL, 1991, 1994, 1997-1999

U.S. Army Corps of Engineers, Institute of Water Resources, Ft. Belvoir, VA, 1984-1998

Commonwealth Energy, 1998

Electric Power Research Institute, 1997

Edison Source and Resource Management Intl., 1996

Northeast Ohio Sewer District, Cleveland, OH, 1995

BC Gas, Ltd., Vancouver, BC, 1994-95

Ontario Hydro, Toronto, ONT, 1995

BC Hydro, Vancouver, BC, 1995-96

Decision Systems International, Atlanta, GA, 1994-95

Oak Ridge National Laboratory, Oak Ridge, TN, 1994

Energy & Environmental Economics, Inc., San Francisco, CA, 1994

IDEA, Inc., Washington, DC, 1992-1994

U.S. Army Corps of Engineers, Detroit District, 1994

National Regulatory Research Institute, Columbus, OH, 1989-1994

Seattle City Light, Resource Planning and Analysis Group, Seattle, WA, 1991-1992

Utility Air Regulatory Group, Washington, DC, 1991

South Florida Water Management District, West Palm Beach, FL, 1989

Hamilton, Rabinovitz, and Szanton, Los Angeles, CA, 1980-1981

New York Department of Law, New York, NY, 1981

Brookhaven National Laboratory, Upton, NY, 1980

Argonne National Laboratory, Argonne, IL, 1980

**HONORS**

Presidential Young Investigator Award, National Science Foundation, 1986-1991.

2024 Lifetime Excellence Award, Energy Systems Integration Group, March 2024

2021 Harold Hotelling Medal for Lifetime Contribution to Energy, Natural Resources, and the Environment, Institute for Operations Research and Management Science. Citation: “*for contributions to the understanding of the theoretical properties of complementarity-based multi-level models and for enthusiastic support of young researchers*.”

2021 Energy Excellence Award for "*for contributions to market design for a renewable energy future*,” Energy Systems Integration Group (ESIG), March 2021.

Sustaining Champion Award, 2020 Green Blue Jay Awards, Johns Hopkins University, April 20, 2020 (“*in recognition of a long-time partner and supporter of sustainability projects, programming, education, advocacy and/or research at Johns Hopkins University*”)

***Fellow and Fellowship Appointments:***

* Fellow, Institute for Operations Research & Management Science (INFORMS), 2010
* Life Fellow, Institute of Electrical and Electronics Engineers (IEEE), 2008, “*for integration of economic and environmental concerns into power systems design and operation*”; Life Fellow, 2022
* Guest Professor, School of Electrical Engineering, Southeast University, Nanjing, 2013-2014
* Overseas Fellow, Churchill College, Cambridge, UK 2009-2010
* Economic & Social Research Council/Social Science Research Council (UK) Collaborative Visiting Fellowship 2010
* Wigner Fellow, Oak Ridge National Laboratory, 1982-84.
* Sage Fellow (1979-80) and McMullen Fellow (1978-79), Cornell University.

***Paper Awards:***

* Best Paper Sessions (Top 10% of presented papers) IEEE Power & Energy Society General Meeting, July 2023 (for L. He, J. Zhang, B.F. Hobbs, ”Estimation of Regulation Reserve Requirements in California ISO: A Data-driven Method”, 23PESGM1374)
* Honorable Mention, 2022 Best Publication Award in Energy, INFORMS Section on Energy, Natural Resources, & Environment (for Spyrou, Hobbs, Bazilian, Chattophadhyay, “Planning power systems in fragile and conflict-affected states”, Nature Energy)
* Best Paper Award, 2022 IEEE Texas Power and Energy Conference (for M. Mehrash, B. Hobbs and Yankai Cao, “A Large-Scale Test System for Transmission Expansion Planning with AC Networks Model”)
* 2016 Runner-Up, Best student paper, Decision Analysis Society (INFORMS), and 2016 Runner-Up for the *Decision Analysis* Journal Special Recognition Award (for Venkat, Clemen, Hobbs, and Kenney, Decision Analysis, 2016).
* 2014 Best Publication Award in Energy, INFORMS Section on Energy, Natural Resources, & Environment for the period 2010-2012 (for Zhao, Hobbs, and Pang, Operations Research, 2010)
* 2014 Best Publication Award Environment-Sustainability, INFORMS Section on Energy, Natural Resources, & Environment (for Chen, Liu, and Hobbs, Operations Research, 2011)
* 2013 Editor’s Choice Award, Water Resources Research (for Kenney, Hobbs et al., WRR, 2013).
* 2007 Best Publication Award (Energy), INFORMS Energy, Natural Resources, & Environment Area (for Harrington, Hobbs, et al., Mathematical Programming Series B, 2005)
* 2006 Bright Idea Award, New Jersey Policy Research Organization and Stillman School of Business at Seton Hall University (for R.P. O’Neill, P.M. Sotkiewicz, B.F. Hobbs et al., European J. Operational Research, 2005)
* 2004 Decision Analysis Publication Award (for the best Decision Analysis publication in 2002), Decision Analysis Society of INFORMS (for Anderson and Hobbs, “Using a Bayesian Approach to Quantify Scale Compatibility Bias,” Management Science, 2002)
* First Place, INFORMS Energy, Natural Resources, and Environment Section, Student Paper Competition, November 2004 (Second author and advisor to Yihsu Chen for Chen and Hobbs, “An Oligopolistic Power Market Model with Tradable NOx Permits,” IEEE Transactions on Power Systems, 2005)
* Second Place, INFORMS Decision Analysis Section, Student Paper Competition, November 2001 (Second author and advisor to R. Anderson)
* 1990 Outstanding Research Oriented Paper, American Society of Civil Engineers (ASCE) Water Resources Planning and Management Division (for “Risk Analysis of Aquifer Contamination by Brine”, ASCE JWRPM, 1988)

***Invited Plenary Speaker:***

* Climate Change Preparedness Conference, Washington, DC, 18 May 2023 (plenary and Day 1 chair)
* ISO/RTO Council, Markets Committee, Spring 2023 Meeting, New Orleans, LA, 4 May 2023
* ESIG/EPRI/DOE Workshop on Electricity Markets under Deep Decarbonization, Washington, DC, 28 Feb. 2023
* North America Wind Energy Academy /WINDTECH2022, University of Delaware, 20 September 2022
* PowerTech, Madrid, Spain, 29 June 2021
* SynErgie Workshop on Electricity Market Design, Designing Markets for Large Shares of Renewables, TU Munich, 29 June 2021, Munich Germany
* Energy Systems Integration Group, Denver, June 2019
* International Association of Energy Economists, Houston, Nov. 2017
* 2013 Asia-Pacific Economic Coordination (APEC)-China State Grid-China Electric Power Research Institute Symposium on Demand Response, June 6, 2013, Nanjing China.
* 48th Allerton Conference on Communication, Control, and Computing, UIUC, Oct. 1, 2010
* Stochastics and Risk Modelling for Energy and Commodity Markets, Innovative Approaches in Economics, Finance and Engineering, International Ruhr Energy Conference, 4 – 6 Oct. 2009, Duisburg-Essen University, Germany
* International Association of Energy Economists, 10th European Conference, Vienna, 7-10 Sept. 2009
* Trans-Atlantic INFRADAY, Conference on Applied Infrastructure Modeling and Policy Analysis, Critical Infrastructures in Energy and Other Networked Industries, College Park, Maryland, Nov. 2007
* International Association of Energy Economics European Meeting, Prague, June 2003
* International Conference on Complementarity Problems, Cambridge, July 2002

Certificate for Outstanding Service, The National Academies, Board on Environmental Studies and Toxicology, 2006.

2005 “Significant Reviewer” Award, IEEE Transactions on Power Systems

Mortar Board, 1991 Outstanding Professor Award, Case Western Reserve University, April 1991.

Nominated for John S. Diekhoff Award for Outstanding Graduate Teaching, Case Western Reserve University, March 1988 and March 1991.

ASCE Energy Division Nominee for the ASCE Walter L. Huber Civil Engineering Research Prize, May 1985.

Rhodes Scholarship Nominee from South Dakota State University, 1975.

**PROFESSIONAL ACTIVITIES**

### **Research Institute Affiliations**

Associate Researcher, Energy Policy Research Group, University of Cambridge, UK, 2005-Present

Scientific Advisor, Energieonderzoek Centrum Nederland (ECN, now ECN.TNO Energy Transition Studies), Amsterdam, The Netherlands, 2003-2008, 2011-Present; and PBL Netherlands Environmental Assessment Agency, The Hague (2019-2020).

Principal Investigator, National Center for Earthsurface Dynamics, University of Minnesota (NSF Science and Technology Center), 2005-2012

Institute Associate, National Regulatory Research Institute, Columbus, OH, 1989-1995.

Ameritech Fellow, Center for Regional Issues, Case Western Reserve University, Cleveland, OH, 1987, 1988, 1989.

# Advisory Boards

Chair, Market Surveillance Committee, California Independent System Operator, Folsom, CA, 2010-Present; Member, 2002-2010.

Member, Advisory Council, Energy Systems Integration Group, 2019-Present.

Member, State of Maryland Air Quality Control Advisory Council, 2017-Present; Vice-Chair, 2024-Present

Member, Mitigation Working Group, State of Maryland Commission on Climate Change, 2015-Present.

Member, Electric Vehicle Integration and Market Design Testing project advisory groups, National Renewable Energy Lab and Pacific Northwest National Lab, 2022-present

Technical Advisory Committee, GridLab Accelerated Clean Energy Futures Study, 2019-2020

Member, Stakeholder Advisory Group, Grid Modernization Laboratory Consortium, 2016-2018.

Advisory Board, Maryland Clean Energy Center, 2014-2015.

Private Universities Representative appointed by Governor O’Malley, Maryland Offshore Wind Business Development Fund Advisory Committee, 2013-2014.

Member, Public Interest Advisory Committee, Gas Technology Institute, Chicago, 2003-2013.

Member, Technical Advisory Committee, Planning Tool Development for Prioritization of Louisiana Coastal Protection and Restoration Alternatives, Rand Corporation and State of Louisiana Coastal Protection and Restoration Authority, 2010-2012.

Member, Energy Master Plan Advisory Panel, State of New Jersey, September 2007

Member, Expert Advisory Board, New Jersey Sustainable State Institute, New Brunswick, NJ, 2006.

Member, National Research Council Committee on Changes in New Source Review Programs for Stationary Sources of Air Pollutants, 2004—2006.

Affiliate, Energy and Environmental Economics, Inc., San Francisco, CA

# Editorial Service

The Electricity Journal, Editorial Board, 1995-Present

Energy Economics, Associate Editor, 2007-Present

EURO Journal on Decision Processes, Editor, 2012-Present

Journal of Energy Markets, Associate Editor, 2007-Present

Economics of Energy & Environmental Policy, IAEE, Editorial Board, 2011-2020

Competition and Regulation in Network Industries, Editorial Board, 2009-2018

Energy, The International Journal, Associate Editor, 1996-2013

Energy Services Journal, The Journal of the Association of Energy Services Professionals, 1995-1996

IEEE Transactions on Power Systems, Editorial Board, 2005-2015.

Journal of Energy Engineering (ASCE), Editorial Board, 2007-Present

Journal of Infrastructure Systems (ASCE), Associate Editor, 2003-2009

Power Engineering Letters (IEEE), Editorial Board, 2005-2015.

Water Resources Research, Associate Editor, 1988-1995

Area Editor, Environment and Natural Resources, Operations Research, 1996-2005

Deputy Editor, Systems Analysis and Economics, Water Resources Research, 1997-2000.

**Professional Organizations and Service**

Co-Founder and Organizer, Columbia University-JHU Future Power Markets Forum (34 industrial sponsors), 2020-Present, <https://powermarkets.org/>

Member and Chair, Hotelling Medal Committee, INFORMS, 2022-2023

Steering Committee, Macro-Energy Systems Workshop, Stanford University, 9/17-18/2020; Co-chair Panel on “Educating Future Macro-Energy Systems Researchers”

Co-organizer, KAPSARC Economics Workshop and Career Paths Workshop, George Washington University, Oct. 3-4, 2013

Co-organizer and Co-Founder, Atlantic Energy Group (formerly the East Coast Energy Group), 2003-2021

Past Chairman, Executive Committee, Energy Division, American Society of Civil Engineers (ASCE), 1999-2000 (Chair, 1998-1999; Vice Chair, 1997-1998; Secretary 1996-1997)

Chairman, Sessions Committee, ASCE Energy Division, 1992-2000; Organizer of ASCE sessions for American Power Conference

Organizer, 8th YEEES (Young Energy Economists & Engineers Seminar), University of Cambridge, April 8-9, 2010

Co-Organizer, Workshop on "Policy-Making Benefits and Limitations from using Financial Methods and Modelling in Electricity Markets," UK Energy Research Centre, July 2008, London, UK.

Co-organizer and Co-chairman, "European Science Foundation Exploratory Workshop on Mathematical Models for Electricity Markets," Castilla-La Mancha University, Ciudad Real, Spain, July 13-14, 2006.

Invited Papers Co-Chair, INFORMS National Meeting, Washington, DC, 2008

INFORMS Subdivisions Council, Sections Representative, 2004-2005

Contributed Papers Chair, INFORMS National Meeting, Philadelphia, Nov. 1999

Member, Systems Economics Committee and Working Group, IEEE Power Engineering Society

Member, Emissions Task Force, IEEE Power Engineering Society, 1992-96

Member, Northeast Ohio Areawide Coordination Agency Task Force on Hazardous Material Transportation, 1990-95

Member, Northeast Ohio Environmental Priorities Project, Quality of Life Committee, 1994-95.

Chairman, Awards Committee, ASCE Energy Division, 1995-1997

Chairman and Control Member, Energy Resources Management Committee, ASCE Energy Division, 1985-91

Member, Task Committee on Groundwater Monitoring Network Design, ASCE Hydraulics Division, 1988-90

Member, Task Committee, Risk and Reliability Analysis of Water Distribution Systems, ASCE Hydraulics Div., 1986-1988

Member of Institute for Operations Research and Management Science, International Association for Energy Economics, IEEE

#### Recent University Service

Present Departmental Service: Member of Executive Committee, Faculty Affairs Committee, and Sustainability PhD Committee, Search Committee Member

JHU Ralph O’Connor Energy Institute (ROSEI): Member of Grid Pillar; Leadership Council (2021-2023); Chair, Faculty Search Committee (2021-2023)

Energy Minor Committee (2020-Present)

Advisor for Environment and Energy technical concentrations in WSE Master of Science of Engineering Management (2018-Present) (created new Energy concentration in 2022)

Chair or Member of Ad Hoc Promotion Committees for Homewood Academic Council 2022 and 2023

JHU Sustainability Leadership Council, Research Committee Co-Chair, and Member, Executive Committee, 2019-Present

Workgroup Bloomberg Distinguished Professor Cluster Proposals (for Energy and Climate Change), 2020-Present.

Dept. Environmental Health & Engineering, Undergraduate Coordinator (2003-2019).

SPH-WSE Environment Health Sciences-DoGEE Restructuring Committee, Co-Chair, Nov. 2014-February 2015.

Founding Director, E2SHI (Environment, Energy, Sustainability & Health Institute), 2010-2018

Public Interest Investment Advisory Committee (Advisory Committee to JHU Board of Trustees), 2015-Present

Member, Sustainability Hopkins Investment Evaluation Committee, 2011-2015

JHU Whiting School of Engineering, Graduate Curriculum Committee, 2006-2009, 2011-2016

Undergraduate Program Coordinator, DOGEE, 2003-Present

Chair, JHU President’s Climate Change Task Force, 2008-2009

Program Committee for the Technical Management and Systems Engineering Programs, Engineering and Applied Science Programs for Professionals, JHU, 2007-2009, 2011-Present

Homewood Tenure and Promotion Policies Committee, 2012-2013

Chair, DOGEE Systems and Economics Search Committees, 2004-2007

Homewood Academic Council, JHU (Responsible for Homewood Campus Promotion & Tenure Recommendations and Academic Regulations) 2000-2005.

Ad Hoc Committee on Academic Council Composition, JHU, 2007.

# SPONSORED RESEARCH

* “How Can Energy Markets Best Enable and Assist the Transition to a Decarbonized Power Sector? Using 555 Pennsylvania Avenue to Magnify the Activities and Policy Influence of the JHU-Columbia Future Powers Markets Forum,” Convening Award, NEXUS Program, JHU Provost office, Benjamin Hobbs (WSE, PI), Mahdi Mehrtash (WSE, CoPI), Jonas Nahm (SAIS, CoPI), 2023-2024.
* EPICS (Electric Power Innovation for a Carbon-Free Society) NSF Global Climate Center, PI/Director, Nov. 2023- Oct. 2028, $5M (for US Center; also $7M for UK-EPICS and $3M for Australia-EPICS).
* CoPI, Academic Center for Reliability & Resilience of Offshore Wind, Addressing Barriers in Todays and Tomorrows OSW Power Deployment by Enhancing U.S. Workforce and Education (ARROW), Offshore Wind Center of Excellence, US Department of Energy, CoPI, 0.12 p-m/year, 2024-2029 (Lead University; UMass, S. Arwade, PI).
* Maryland Environmental Service, “A Transparent Tool to Evaluate Electric Sector Transition Paths” (M. Mehrtash PI; B. Hobbs CoPI), $ 121,574, Jan 1, 2023-Dec. 31, 2023 (Contract in final stages)
* Electric Power Research Institute, “Impacts of Long-Duration Energy Storage Coordinated Expansion Planning –A Julia-based JHSMINE Study”, $36,500, 11/28/2022-09/30/2023 (M. Mehrtash, PI; B. Hobbs CoPI)
* “Baltimore Social-Environmental Collaborative Urban Integrated Field Laboratory”, USEPA, JHU (Lead) with Subcontractors $24.5M, (B. Zaitchik, PI; B. Hobbs, Co-PI), 2022-2027 (Hobbs share approximately $8K/yr direct costs)
* The National Offshore Wind Research and Development Consortium, "Ensuring Long-Term Availability and Bankability of Offshore Wind Through Hurricane Risk Assessment and Mitigation" (B. Hobbs and B. Schafer CoPIs, under subcontract to Northeastern University), 03/01/2022 - 02/29/2024, $135,000.
* “An Integrated Paradigm for the Management of Delivery Risk in Electricity Markets: From Batteries to Insurance and Beyond”, USDOE Advanced Research Projects Agency-Energy (ARPA-E) PERFORM, B. Hobbs JHU PI, E. Spyrou NREL Project Director, Aug. 2020-July 2023, $2.385M (JHU Portion)
* “Grid Modernization Laboratory Consortium” and “Grid Technical Assistance for Wholesale Markets”, US Department of Energy, Argonne National Laboratory, B. Hobbs, PI, March 2020- March 2025, $150K + $200K
* “Improved Spatiotemporal Energy Systems Data for the US: Land Requirements of U.S. Energy System Transitions”, Sloan Foundation, Nov. 2019- June. 2022 (S. Jordaan PI; B. Hobbs, V. Patel CoPIs), $507K
* “Improving the Temporal Granularity of CEP Models: JHSMINE Enhancement and Economic Value”, Electric Power Research Institute, Nov. 2019-June 2020, $38K
* Contract 1721402 (Scalability of Generation/Transmission Planning Models and Linearization of Optimal Power Flow Models), Sandia National Laboratory, 2017 – June 2020, $74K
* "Support to the Power Systems Planning Support Program, The World Bank", The World Bank, B. Hobbs, PI, Jan. – Dec. 2019, $49K.
* “Grid Planning Methods and Applications, Support to the Power Systems Planning Support Program, The World Bank”, The World Bank, Dec. 2017-Dec. 2018, $90K.
* “Contribution to White Paper on the New Generation of Coordinated Generation and Transmission Planning Problems,” Electric Power Research Institute, Nov. 2018-March 2019, $34K
* “An Optimization Decomposition Framework for Principled Multi-Timescale Market Design and Co-Optimization”, National Science Foundation (E. Mallada, PI; B. Hobbs, D. Gayme, CoPI), $351K
* “AMPS: Financial Mathematics to Identify Optimal Electricity Distribution Pricing under Risk, High Photovoltaics Penetration, and Consumer Aggregation”, National Science Foundation, Sept. 2017-Aug. 2020 (M. Bichuch, PI; B. Hobbs, CoPI), $240K
* “Coordinated Ramping Product and Regulation Reserve Procurements in CAISO and MISO using Multi-Scale Probabilistic Solar Power Forecasts (Pro2R)” (B. Hobbs, PI; JHU Prime Contractor; IBM, NREL, and University of Texas-Dallas subcontractors), $2.173M ($507K, JHU Portion), 7/2018-6/2021.
* “Interactions of Energy Storage and Transmission Expansion”, Western Electricity Coordinating Council and LBNL, $40K, B. Hobbs, PI, 2017-2018.
* “Grid Planning Methods and Applications Support to the Power Systems Planning Support Program,” The World Bank; B. Hobbs PI, 2016-2018.
* “Mid-Atlantic Regional Integrated Sciences and Assessments (MARISA) program” (NOAA, 5 years starting 9/2016, JHU share $425K; D. Knopman (RAND) Director; B. Hobbs JHU Co-Director).
* “Yale-JHU SEARCH (Solutions for Energy, Air, Climate, and Health) Center” (USEPA, $3M, JHU Portion; M. Bell (Yale) Director; B. Hobbs JHU Co-Director), 1/16-1/21
* "Collaborative Research: Commitment, Expansion, and Pricing in Uncertain Power Markets: Discrete Hierarchical Models and Scalable Algorithms,” ($160K, JHU portion; U. Shambhag (NSF, Penn State), PI; B. Hobbs, JHU CoPI), 7/14-6/17
* “Coastal SEES Collaborative Research: Morphologic, Socioeconomic and Engineering Sustainability of Massively Anthropic Coastal Deltas: the Compelling Case of the Huanghe,” (NSF, $298K JHU portion; B. Hobbs JHU CoPI; J. Nittrouer, Rice U, PI; M. Lamb, CalTech, CoPI; G. Parker, UIUC, Co-PI; G. Kineke, Boston C., CoPI), 9/14-6/18.
* “IBSS-Ex: Integrating social science and systems methodologies for sustainability: Promoting appropriate waste disposal practices in low-income neighborhoods disposal practices in low-income neighborhoods” (NSF, $250K; P. Winch, PI; C. Parker and B. Hobbs, CoPIs), 8/14 – 6/16.
* “WECC Demonstration of Long-Term Transmission Planning Considering Long Run Uncertainty, Resource-Transmission Co-optimization, and Variability,” Western Electricity Coordinating Council and LBNL, $160K, 5/14-6/15
* "Study - Co-Optimization of Transmission with other Resources - Demonstration," National Association of Regulatory Utility Commissioners, ($45K JHU portion; R. Johnson, Energy Exemplar, PI; J. McCalley, ISU CoPI; B. Hobbs JHU CoPI), 8/14-1/15.
* "Co-Optimization and Anticipative Planning Methods for Bulk Transmission and Resource Planning Under Long-Run Uncertainties", Bonneville Power Administration, 9/14-9/18 ($234K, JHU Portion; J. McCalley, ISU, PI; S. Guikema, JHU PI; B. Hobbs, CoPI)
* “Performance and Effectiveness of Green Infrastructure Stormwater Management Approaches in the Urban Context: A Philadelphia Case Study.” 2013-2016 ($1M, A. McGarity, Swarthmore College, PI; B. Hobbs CoPI)
* “PIRE: USA/Europe Partnership for Integrated Research and Education in Wind Energy Intermittency: From Wind Farm Turbulence to Economic Management,” (WINDINSPIRE). 2012-2017 ($4.3M, C. Meneveau, JHU, Director; B. Hobbs, D. Gayme, S. Guikema, J. Cardell, et al., PIs).
* “Sustainable Energy Pathways: Integrating Heterogeneous Energy Resources for Sustainable Power Networks - A Systems Approach.” 2012-2016 ($1.6M, D. Gayme, JHU, Director; B. Hobbs, C. Meneveau, JHU, CoPIs; A. Chakkraborty, NCSU, CoPI).
* “Collaborative Implementation Strategy for Sediment Reduction for the Greater Blue Earth River Basin” (CISSR-Blue Earth). 2012-2015, Funded by Minnesota Pollution Control Agency. ($770K, PIs: P. Belmont (USU), J. Marr (UMinnesota), K. Gran (UMinn Duluth), P. Wilcock, B. Hobbs (JHU)), 2012-2015
* “Transmission Investment Assessment Under Uncertainty Using a Multi-Stage Stochastic Model Approach with Recourse”, US Department of Energy, Consortium for Electricity Reliability Technology Solutions, 3/2011-12/2015.
* “System Dynamics Analysis of Obesity”, NIH, 12/2010 (PI: Y. Wang, JHU School of Public Health/U Buffalo).
* “Model-based Methods for Debiasing Individual Probability Assessments: Theory and Experiments”, National Science Foundation (NSF), 3/2010-3/2013 (R. Clemen, Duke University, and B.F. Hobbs, PIs).
* Graduate Research Supplement to EFRI RESIN, NSF, 9/2010-8/2013.
* “EFRI-RESIN: Development of Complex Systems Theories and Methods for Resilient and Sustainable Electric Power and Communications Infrastructures,” NSF, 9/2008-8/2013 (B. Hobbs, PI of JHU Subcontract; Overall PI: L. Mili, Virginia Tech).
* “Analysis of Tradeoffs Implicit in a Set of IPM Runs”, USEPA, 12/2007-7/2009.
* “Power System Responses to Complex Environmental Policy and Incentives Under Restructuring: Models and Analyses of Policy Interactions, Effectiveness, and Efficiency,” NSF, 9/2006-8/2010 (B. Hobbs, PI; C. Norman, co-PI)
* “Study of Economic and Energy Impacts of Maryland Participation in the Northeastern Regional Greenhouse Gas Initiative,” Maryland Department of the Environment, 6/2006-6/2008.
* “Economic and Multicriteria Analysis of River Restoration Decisions,” National Center for Earth Surface Dynamics (funded by NSF), University of Minnesota, 2005-2013 (C. Paola and E. Foufoula-Georgiou, Directors; B.F. Hobbs, PI).
* “Methodology for Assessing the Effects of Technological and Economic Changes on the Location, Timing and Ambient Air Quality Impacts of Power Sector Emissions,” USEPA STAR Grant, 2005-2008 (H. Ellis, PI; B. Hobbs, D. Burtraw, K. Palmer, Co-PIs).
* “Analysis of Equilibrium Long-Run Prices in Multidimensional Capacity Markets,” PJM, 6/04-9/06.
* “Development of A Regional-Scale Model For the Management of Multiple-Stressors In The Lake Erie Ecosystem,” USEPA STAR grant, Subcontract to CWRU (J.F. Koonce, CWRU PI; B.F. Hobbs, coPI), 2003-2006.
* “Active Load Management Under Retail Access,” Maryland Power Plant Research Program, 12/03-11/04.
* “Dynamic Game-Theoretic Models of Electric Power Markets and Their Vulnerability”, National Science Foundation (B.F. Hobbs PI; J.-S. Pang, J. Harrington, and T. Friesz, CoPIs), 7/1/02-6/30/05.
* “Analysis of Multipollutant Policies for the Electric Power Sector under Multiple Objectives: The Value of Policy Coordination Under Technological and Economic Uncertainties,” USEPA, Office of Atmospheric Programs, 8/02-8/03.
* “Implications of Climate Change for Regional Air Pollution, Health Effects and Energy Consumption Behavior,” USEPA STAR Grant, 2/01 – 2/04 (H. Ellis, PI; B. Hobbs, F. Joutz, J. Patz, Co-PIs).
* “Comprehensive Access to Off-Site Library Print Materials,” Sponsored by Mellon Foundation, 1/99-12/01 (S. Choudhury, PI; B. Hobbs, Co-PI).

- “Simulating Strategic Behavior in Multiple Power Markets by Complementarity and MPEC Methods; Energy, Capacity, Ancillary Services, Green Power and Emissions Allowance Markets,” NSF, 9/00 – 8/02 (J.-S. Pang, Co-PI).

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