

## **CURRICULUM VITAE**

### **Erin D. Baker**

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Mechanical and Industrial Engineering  
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## **I. PERSONAL**

### **A. Education**

- Stanford University, Ph.D. in Engineering Economic Systems & Operations Research (August 2002)
- Stanford University, M.S. in Engineering Economic Systems & Operations Research (June 1998)
- University of California, Berkeley, B.A. in Applied Mathematics (June 1986)

### **B. Academic and Professional Positions**

- Faculty Director of the Energy Transition Institute (2020-present)
- Associate Dean for Research and Graduate Affairs, College of Engineering, University of Massachusetts Amherst (2018-2021)
- Director of Faculty Diversity, College of Engineering, University of Massachusetts Amherst (2019–2021)
- Armstrong Professional Development Professor, College of Engineering, University of Massachusetts – Amherst (2017– 2020)
- Professor, Mechanical and Industrial Engineering, University of Massachusetts Amherst (2014–present)
- Associate Professor, Mechanical and Industrial Engineering, University of Massachusetts Amherst( 2008–2014)
- Visiting Associate Professor, Precourt Institute for Energy Efficiency, Stanford University (2009-2010)
- Assistant Professor, Mechanical and Industrial Engineering, University of Massachusetts Amherst (2002–2008)
- Summer Faculty Fellow, NASA Jet Propulsion Lab (2005)
- Consultant, Stanford Global Climate and Energy Program (2003)
- Research Assistant, The Energy Modeling Forum, Stanford University (1999–2002)
- Research Assistant, The Center for International Security and Cooperation (1998)
- Peace Corps Volunteer, Mathematics Teacher, Kanton Secondary School, Tumu, Ghana (1992–1994)
- Mathematics Teacher, Los Cerros Middle School, Danville, CA (199 –1992)
- Actuarial Consultant, Coopers & Lybrand, San Francisco, CA (1987–1991)

### **C. Honors and Awards**

- Energy, Environment, and Natural Resources *Best Publication in Sustainability* (2017)
- Armstrong Professional Development Endowed Professorship (2017 – 2020)
- College of Engineering Outstanding Senior Faculty Award (2016)
- Higher Education Resource Services (HERS) Institute Participant (2015-2016)

- Finalist, C3E Award for Women in Clean Energy (2014 & 2015)
- Distinguished Graduate Mentor Award, University of Massachusetts Amherst (2014)
- The *Campbell Watkins Energy Journal Best Paper Award* (2009)
- NSF CAREER Award (2008)
- IEOR Professor of the Year (2008)
- IEOR Advisor of the Year (2005, 2006, 2009, 2015)
- Decision Analysis Student Paper Award, 2nd Place (2003)
- Food Research Institute Fellowship, Stanford, CA (1995-1998)
- Second Year Honors awarded to the most outstanding second-year mathematics student at U.C. Berkeley (1984)

**D. Membership in Academic, Professional, and Scholarly Societies**

- Institute of Operations Research and Management Sciences (INFORMS)
- Association of Environmental and Resource Economists (AERE)
- International Association for Energy Economics (IAEE)
- The Decision Analysis Society

## II. TEACHING

### A. Courses Taught

- MIE 113 Introduction to Mechanical and Industrial Engineering (2010,2011,2012,2013,2014, significantly restructured in 2015, 2016,2017)
- MIE 273 and CEE 260 Probability and Statistics (2008,2009, significantly restructured in 2017)
- MIE 353 Engineering Economy (2004, 2005, 2006)
- MIE 379 Deterministic Operations Research (2002, 2003, 2004, 2005, 2006,2007,2008)
- MIE 492 Senior Seminar (2006, 2010, 2011,2014, 2015, 2016,2017)
- MIE 478 Senior Capstone Design (2009, 2011, 2012, 2015-2017,2018)
- MIE 654 Economic Decision Making I (online summer 2020-21)
- MIE 686 Multi-Criteria Decision Making (2007,2008)
- Engin 697T Teaching Seminar (2019)
- MIE 754 Economic Decision Making II (2002-5, 2011-13, 2015-16, 2018, 2020-21)
- MIE 794 Graduate Seminar (2004, 2005)
- MIE 795A Wind Energy Fellows Seminar (2018, 2019)

### B. Special Courses

- Faculty at the ETH PhD Academy “Sustainability at the Crossroads: Integrating Technologies, Policies and Strategies for a Sustainable Economy”, outside of Zurich, Switzerland (June 17-22, 2018)

### C. Statement of contribution to curriculum development

#### *MIE 113 Introduction to Mechanical and Industrial Engineering*

- In 2015, we revised this class to ground it in a Team-Based Learning approach. All content is delivered out of class and students take part in team-based activities while in class. Additionally, it is now theme-based, having been given the name “Engineering Sustainability: Energy and the Environment”. We use technology, including iClickers, screencasts, and interactive online quizzes.

#### *MIE 754: Economic Decision Making*

- This class was completely re-tooled to provide the graduate students with the skills and knowledge they need to apply economic analysis to research topics in IEOR as well as in ME. Demanding and rigorous, it provides a solid grounding in economic analysis from an optimization point of view. We cover topics such as the theory of the firm, the theory of the market, monopoly, game theory, oligopoly, decision making under uncertainty, as

well as the traditional topic of the time value of money. The students work in teams on a project in which they apply what they learn in a term project.

*MIE 686: Multi-Criteria Decision Making*

- This class was revised to focus on applying Decision Analysis methods to decisions with multiple criteria. Topics covered include structuring decision problems; probability concepts; decision trees and value of information; utility theory; non-inferior sets and stochastic dominance; and multi-attribute value and utility functions. The central focus of the class was on applying the concepts to a real decision problem. This class was attended by a wide variety of students, both graduates and undergraduates, from IE, ME, SOM, and ECE.

## D. Graduate Students

*Ph.D. Dissertations*

- Ekundayo Shittu Ph.D. IEOR (2004 –2008) “Environmental Policy and Investment Decisions under Uncertainty.” Recipient of Isenberg Award in 2005, a 1-year fellowship awarded to students who demonstrate academic merit and a commitment to the integration of science, engineering and management. IIASA summer fellow 2007. Recipient of NSF CAREER Award in 2019. Current Position: **Assoc. Prof. GWU.**
- Rose Zdybel Ph.D. IEOR (2008 – 2013) “R&D Portfolio Analysis of Low Carbon Energy Technologies to Reduce Climate Change Mitigation Costs.”
- Robert Barron, Ph.D. IEOR (2012 - 2015). “Analysis of the Impact of Technological Change on the Cost of Achieving Climate Change Mitigation Targets.” IIASA summer fellow 2014. Current Position: **Asst. Prof. Western New England University**
- Olaitan Olaleye Ph.D. IEOR (2012 – 2015). “Role of Low Carbon Energy Technologies in Near Term Energy Policy.” Current Position: Phillips
- Alexana Cranmer Ph.D. IEOR (2013 – 2017). “Modeling the Economic and Environmental Performance of Offshore Wind Energy”. Current Position: **Asst. Prof. Bentley University**
- Mojue Kaikai, Ph.D. IEOR (2014 – 2019) “Engineering for Sustainable Energy Education within Urban Secondary Schools.”
- Destenie Nock, Ph.D. IEOR (2015 – 2019). NSF Graduate Research Fellow. “Power System Planning in Disparate Systems: Modeling Sustainability and Electricity Access.” Current Position: **Asst. Prof. Carnegie Mellon University**

- Rodrigo Fernandez Mercado, Ph.D. IEOR (2014 – 2020) “Robust and Sustainable Energy Pathways to Reach Mexico’s Climate Goals.” Post-Doc, Energy Center, Appalachian State.
- Franklyn Kanyako, Ph.D. IEOR (2016 – 2021) “Modeling Portfolios of Low Carbon Energy Generation Under Deep Uncertainty.” Post-Doc, Department of Civil & Environmental Engineering, Tufts University.
- Paola Furlanetto, Ph.D. IEOR (2019 – Expected 2023)
- Christian Negron-Hernandez, Ph.D. IEOR (2019 – Expected 2023)
- Ogechi (Vivian) Nwaridu, Ph.D. IEOR (2020 – Expected 2024)
- Yiwen Wang, Ph.D. IEOR (2021 – Expected 2025)

*M.S. Thesis*

- Kwame Adu-Bonnah, M.S. IEOR (2003-2005) “Optimal Climate Technology Research and Development Investment under Uncertainty”
- Joseph Kalowekamo M.S. Mechanical Eng. (2005 – 2007) “Module Cost Estimation for Organic Solar Cells”
- Ben Ewing M.S. IEOR (2007 – 2009) “A Decision Support System for Energy Decision Making in the Pioneer Valley”
- Georg Schorpp, M.S. IEOR (2007 – 2009) “Optimal Energy R&D Portfolio Decision Making Under Climate Change Uncertainty”
- Nathanael Miksis IEOR (2006 – 2010) “Agent-Based Modeling for Electricity Markets.”
- Sandhya Ragavan M.S. Mechanical Engineering (2007 – 2010) “Characteristics of Electricity Storage for Wind Farm Integration to Grid”
- Yiming Peng Ph.D. IEOR (2008 – 2010) “Technology, Uncertainty, and Climate Change.”
- Peter Rasmussen M.S. IEOR (2009 – 2011) “A Cost Model for CCS”
- Noubara Adoumbaye M.S. IEOR (2010 – 2012) “Impact of Grid Integration on the Value of Solar R&D”
- Karamvir Singh M.S. IEOR (2010 – 2012) “The Expected Costs and Benefits of Stopping Wind Turbines to Avoid Bird Deaths”
- Yash Sanghai M.S. Mechanical Engineering (2009 – 2012) “Characteristics of Fuel Cells for Wind Farm Integration on to the Grid”

- Olaitan Olaleye M.S. IEOR (2010 – 2013) “Effects of Different Methods of Aggregation of Probabilities on the R&D Investment Portfolio for Optimal Emissions Abatement: An Empirical Evaluation”
- Robert Barron M.S. IEOR (2010 – 2013) “Endogenous Technological Change in the DICE Integrated Assessment Model”
- Jubith S. Charthamkudath M.S. IEOR (2010 – 2012) “Comparing the Present U.S. Electricity Grid to a Smart Grid System”
- An Pham M.S. IEOR (2011 – 2013) [co-advisor with Jenna Marquard] “Climate Change and Water Planning”
- Nazanin Khatami, M.S. IEOR (2016 – 2017). Course only, co-authored paper: “The Levelized Cost of Carbon: A Practical, if Imperfect, Method to Compare CO2 Abatement Projects”
- Claire Cruikshank, MS IEOR (2016 – 2018) “Does the Elicitation Mode Matter? Comparing Different Methods for Eliciting Expert Judgment”
- Tim Costa, MS ME (2017 – 2019) “Wind Energy Experience Curve Analysis”
- Muhammad Mustafa Amjad (2018-2020) “Modeling Of Electrical Grid Systems to Evaluate Sustainable Electricity Generation In Pakistan”
- De’Andre Graham (2020-2021), Course only, funded research on patent analysis to identify the relatedness of technologies for informing learning curves.

*Graduate Students Independent Study*

- Ashwin Baikadi, Engineering Management MS student, Independent Study Spring 2018. “Sustainability Metrics for Energy Systems.”
- Suprabha Prabhakaran, ECE MS Student, Independent Study Fall 2014. “Study of Electricity Industry Structure, Ten Regional Transmission Organizations/Independent System Operators (RTOs/ISOs), and their Major Challenges in North America”
- Ryan Wicks, ECO MS Student, Independent Study Fall 2015. “Water Impacts of Energy Technology Portfolios”

**E. Undergraduate Students**

*Independent Studies and Special Projects*

- Charlie Wilen (UMass, ME), CHC Thesis 2021-2022
- Samuel Zhang (UMass, IE), independent study, fall 2021
- Lamisa Sheikh (UMass, ECE) REU summer 2021; Senior thesis 2021-22
- Sarive Kadate (UMass, ECE) REU summer 2021
- Kaitlin Fung (UMass, ChemE) REU summer 2020; Independent study Fall 2020;

## Commonwealth Honors College Thesis 2021-2022

- Isaac Fitts-Sprague, Commonwealth Honors College Thesis 2019: “A study of energy development pathways to identify robust investments in Mexico”
- Ami Khalsa (UMass, ECO) Research Assistant 2017-2018, REU summer 2018, Commonwealth College Thesis 2018-2019: “The Sustainability of Hydro Power”
- Ivan Norman (UMass, ECE) Research Assistant Spring 2018 and REU Summer 2018: “Solving Multi-Criteria Problems”
- Richard Anonyai (UMass, ECE) REU Summer 2018: “Sustainability and the New England Natural Gas Pipeline”
- Olivia Pfeiffer (UMass, MIE) Commonwealth College Thesis, 2018-2019 and Research Assistant Spring 2018: “Investigating the Variability of Hydro with Respect to Wind Power”
- Tristan Koopman (UMass, ECE) Commonwealth College Thesis, 2017-2018: “Synergy between Pumped-Hydro Energy Storage and Wind Energy in the New England Electricity System”
- Emily Pottier (UMass, MIE) Commonwealth College Thesis, 2016-2017; and Research Assistant Spring 2016: “Investigating the Sustainability of Energy Technologies in Massachusetts”
- James Abate (UMass, MIE), Independent Study, 2016: “Uncertainty Bounds on the Impacts of Offshore Wind on Terns”
- Dan Sheahan (UMass, MIE) Commonwealth College Thesis 2015-2016: “Estimating Power Loss Due to Neighboring Wind Farms”
- Michael Ameckson (North Carolina A&T) NSF REU 2015: Developed a genetic programming approach to efficiently solve the offshore wind farm siting optimization problem.
- Wayne Ferrell (UMass, MIE) STEM Ambassador’s Program, 2015: Implemented detailed power predictions into the off shore wind farm siting optimization problem.
- Sarah Mangels (UMass, MIE) NSF REU, 2014: Developed information on cumulative capacity and learning curves for wind energy to support an expert elicitation; and developed and tested a set of questions for expert elicitation experiments.
- Moijue Kaikai, (UMass, ME) NSF REU, 2013: Developed a hands-on curriculum for urban students on renewable energy; **and** B.S. Independent Study, spring 2013: “Estimating Capacity Values for Offshore Wind”
- Charlene Nalubega, (UMass, IE) LSAMP REU 2013: “Developing a Cost Estimate for Offshore Wind Turbines”
- Hadley Patten, (UMass, IE) NSF REU, 2012 & 2013: “Aggregating Expert Elicitations”
- Dana Everndon, (UMass, IE) Commonwealth College Thesis (2011-2012): “Learning by Doing in Energy Technologies”



- Sandra Jenkins, (UMass, EE) Commonwealth College Thesis (2011-2012): “Renewable Energy Integration”
- Hannah Varner, (Brown University, ME) B.S., NSF REU, 2011: “Combining Expert Elicitations across Multiple Studies”
- Tyler Loggins, (UMass, IE) B.S.: Paid research funded by ICARUS, an EU-supported project, 2011: “Expert Judgments on the Future of Carbon Capture”
- Isaac Wainstein, (UMass, IE) Commonwealth College Thesis (2010-2011): “Optimal Calendar Rebalancing Strategy: The Effects of Asset Growth and Volatility”
- Michael Berthaume, (UMass, ME) B.S. Independent Study, 2008: “Optimal Investment in Solar R&D”
- Tim Olsen, (UMass, ME) B.S. Independent Study, 2007: “Energy Consumption at the Hitchcock Center”
- Ashley Lewis, B.S. (UMass, IE) Commonwealth College Honors Thesis (2007 – 2008): “Optimal Investment in Solar R&D as a Response to Climate Change”
- Jessica Wilbarger, (Smith College, Engineering) B.S. REU (2007) : “Interactive Energy Projections: A Tool for Sustainable Decision Making in the Pioneer Valley”
- Marc Santos, (UMass, ME) B.S., REU (2006) : “Electricity Market Simulations”
- Julia Sullivan and Cristina Rivera, B.S. Capstone Project (2003): “An Optimal Driving Strategy for the Supermileage Vehicle”

### III. RESEARCH

#### A. Grants and Contracts

##### *Principal Investigator*

##### *Funded*

- “How can we forecast technological change in complex energy technologies? An empirical study using patent data.” **Sloan Foundation**, \$355,753, 7/1/2020 – 6/30/2023
- “Harnessing the Data Revolution: Institutes for Data-Intensive Research in Science and Engineering” - Ideas Labs, **National Science Foundation**, Travel Grant, 5/19/2019 – 5/24/2019
- “Earn and Learn with Springfield High School of Science and Technology”, **Massachusetts Clean Energy Center**, \$160,000, 7/1/2017 – 10/1/2018
- “Does the Elicitation Mode Matter?: Comparing Different Methods for Eliciting Expert Judgment”, **Sloan Foundation**, \$19,971, 7/1/2016 – 6/30/2017
- “Developing a Metric for the Cost of Abatement”, **Massachusetts DOT**; \$71,054, 01/01/2016 – 03/30/2017
- REU Site: “Offshore Wind Energy: Solving the Engineering, Environmental & Socio-Economic Challenges”; **National Science Foundation**, \$357,920, 02/01/2015 – 02/01/2018
  - Supplement for “Research Experience for Teachers”; NSF; \$10,000
- IGERT: “Wind Energy Engineering, Environmental Impacts, and Policy”, **National Science Foundation**, \$3,200,000, 08/15/2011 – 08/15/2018
  - Supplement for “Improving Graduate Student Preparedness: Curriculum development for science and policy”; National Science Foundation; \$34,946, 9/1/2016 – 9/1/2017
  - Supplement for “Understanding Public Priorities, Tradeoffs, and Development Goals following Acute Storms: Toward Resilient and Sustainable Energy Infrastructure”; NSF; \$42,256, 03/01/2018 – 07/31/2018
- “Choosing a Portfolio of Technology Policies in an Uncertain World”, **National Science Foundation** SciSIP, \$383,000 (Umass), 07/01/2010 – 6/30/2013
  - REU Supplement for “Choosing a Portfolio of Technology Policies in an Uncertain World”, NSF, \$8,600, 05/15/2013 – 8/15/2013
- CAREER: “Technology R&D, Climate Change, and Uncertainty”, **National Science Foundation**. \$434,000. 09/01/2008 – 09/01/2013
  - REU Supplement for CAREER: “Technology R&D, Climate Change, and Uncertainty”, NSF, \$5000, 05/15/2014 – 8/15/2014

- REU Supplement for CAREER: “Technology R&D, Climate Change, and Uncertainty”, **NSF**, \$5000, 05/15/2013 – 8/15/2013
- REU Supplement for CAREER: “Technology R&D, Climate Change, and Uncertainty”, **NSF**, \$6000, 05/15/2012 – 8/15/2012
- REU Supplement for CAREER: “Technology R&D, Climate Change, and Uncertainty”, **NSF**, \$6000, 05/15/2011 – 8/15/2011
- Decision Support for the Hitchcock Center Sustainable Building Demonstration Project, University of Massachusetts, Amherst Public Service Endowment Grant, \$14,715, 09/01/2007 – 06/01/2008
- “Energy, Land-Use, and Water: A Framework for Incorporating Scientific Information in Sustainable Planning”; with Rick Taupier, Catherine Miller, and Sarah Dorner. U.S. **Environmental Protection Agency**, \$299,265 (about \$128,000 to my lab), 1/15/2007 – 1/15/2010, PI 2008-2010.
- “Climate Change R&D Portfolio Decision-Making under Environmental, Economic, and Technological Uncertainty”. PI, with co-PIs Jeffrey Keisler, Mathias Ruth, Detlof von Winterfeldt, and John Weyant. **Department of Energy**, \$347,000 (about \$145,000 to my lab), 3/1/2006 – 3/1/2008, PI
- “Agent-Based Modeling of Electricity Markets”; **ISO-New England** and University of Massachusetts, Amherst \$27,642, 06/06/2005 – 06/01/2006, PI
- “CADETS Technology Analysis”, **NASA-JPL**, \$25,555, 09/21/2005 – 3/8/2006, PI
- “Climate Change Policy in the Face of Uncertainty”; Faculty Research Grant, University of Massachusetts, Amherst, \$10,000, 01/01/2003 – 01/01/2004, PI.

*Co- Investigator*

*Funded*

- GCR: Integrating Social and Economic Equity into the Science and Engineering of the Sustainable Energy Transition (PI Matt Lackner, co-PIs Baker, Crago, Harper, Shenoy); **NSF**, 3.600,000, 10/1/2020 – 9/31/2025
- NRT: Enhancing Resiliency and Increasing Equity in the Transition to a Sustainable Energy Future (PI Matt Lackner; co-PIs Baker, Crago, DeConto, Zakeri); **NSF**, 2,748,866, 9/1/2020 – 8/30/2025
- NSF2026: Conference Workshops to Identify Research at the Intersection of Energy and Equity to Enable a Just Energy Transition (PI DV, co-PIs Baker, Ash, Tuominen); **NSF**, \$99,999, 9/1/2020 – 8/30/2021
- Development of National Offshore Wind Research Agenda, co-PI (with UMass PI Maxwell, Lackner, Arwade) **Massachusetts Clean Energy Center**, \$50,000, 9/1/2016 – 8/30/2017

- 2016 Department of Energy Collegiate Wind Competition, co-PI (with PI Lackner; Cowden, Hamin) **US Department of Energy**, \$20,000, 02/01/2015 – 06/01/2016
- Wind Energy Expert Elicitation, Lawrence Berkeley National Laboratory, **US Department of Energy**, Travel grant (PI Ryan Wiser of LBNL), 6/1/2014 – 12/31/2015
- “Collaborative Development of Climate Information for the Connecticut River Basin Using Shared Vision Forecasting”; co-PI (with Brown, Palmer, Marquard), **NOAA**, \$299,833, 09/01/2010 – 9/01/2012
- Subcontractor on ICARUS: “Innovation for Climate Change Mitigation: A Study of Energy R&D, its Uncertain Effectiveness and Spillovers”; **European Research Council**, \$45,000, 1/1/2010 – 12/31/2012

#### *Consulting*

- Report on Future Clean Energy Technologies, **OECD**, EU20,000, 09/2014 – 05/2015
- Consultant for ADVANCE: “Advanced Model Development and Validation for Improved Analysis of Costs and Impacts of Mitigation Policies”; **European Research Council**, EU500, 4/1/2014 – 5/31/2014

#### **C. Research Infrastructure**

- Co-Organizer (with Leon Clarke): “R&D Portfolio Analysis Tools and Methodologies”, **Department of Energy**, Washington D.C. Dec. 2, 2010
- Co-Organizer (with Valentina Bosetti): First Meeting of Technology Elicitations and Modeling (TEaM) Project, September, 1-2, 2011, **ICCG**, Island of San Giorgio Maggiore, Venice, Italy
- Co-Organizer (with Valentina Bosetti and Laura Diaz Anadon): Second Meeting of TEaM, Project, April, 5-6, 2012, **EMF**, Harvard University, Boston, MA
- Co-Organizer (with Valentina Bosetti): Third Meeting of TEaM Project at Climate Change Impacts and Integrated Assessment, August 1-2, 2012, **EMF**, Snowmass CO.
- Co-coordinator (with Valentina Bosetti): EAERE European Summer School on: “Uncertainty, Innovation, and Climate Change”, June 30 – July 6 2013, **EAERE**, Venice, Italy.
- Organizing committee: “Setting the priorities for research at the intersection of energy technology and social equity,” April 2021, **NSF**, University of Massachusetts, Amherst (remote).

## **IV. PUBLICATIONS**

### **A. Submitted Papers**

1. Franklyn Kanyako, Erin Baker, and David Antoff, *Low carbon energy R&D portfolios that are robust when models and experts disagree*, Under review at **Nature Climate Change**
2. Rodrigo Mercado-Fernandez & Erin Baker, *The Sustainability of Decarbonizing the Grid: A Multi-Model Decision Analysis Applied to Mexico*. Under review at **Renewable and Sustainable Energy Transition**
3. Christian Hernandez-Negron, Erin Baker, and Anna Goldstein, *Experience curves and the relatedness of technologies: Offshore and onshore wind energy*. Under review at **Technological Forecasting and Social Change**
4. Rodrigo Mercado Fernandez, Erin Baker, Julio Alberto Hernández Galicia; *Robust Regional Power Planning to Meet Climate Goals*; under review at **Energy and Climate**
5. A.P. Ravikumar, E. Baker, A. Bates, D. Nock, D. Venkataraman, T. Johnson, et al., *Enabling an Equitable Energy Transition Through Inclusive Research*, under revision for **Science**

## B. Refereed Journal Publications

1. Erin Baker, Anna Goldstein, and Ines Azevedo, *A perspective on equity implications of net zero energy systems*, **Energy and Climate**, (Forthcoming)
2. Ekholm, Tommi; Erin Baker, *Multiple Beliefs, Dominance and Dynamic Consistency*, **Management Science**, (Forthcoming)
3. Franklyn Kanyako and Erin Baker, *Impacts of uncertainty in the future cost of wind energy on climate change mitigation*, **Climatic Change** **166**, 10 (2021)  
<https://doi.org/10.1007/s10584-021-03105-0>
4. Wisner, Ryan; Joseph T. Rand; Joachim Seel; Philipp Beiter; Erin Baker; Eric Lantz; Patrick Gilman; *Expert elicitation survey predicts 37% to 49% declines in wind energy costs by 2050*, **Nature Energy**, **6**(5), pp.555-565. (2021)
5. Pfeiffer, Olivia; Nock, Destenie; Baker, Erin, *Wind energy's bycatch: Estimating the impacts on hydropower operation from wind energy deployment*, **Renewable and Sustainable Energy Reviews** **143**, p.110885 (2021)
6. Erin Baker, Destenie Nock, Todd Levin, Samuel A. Atarah, Anthony Afful-Dadzie, David Dodoo-Arhin, Léonce Ndikumana, Ekundayo Shittu, Edwin Muchapondwa, Charles Van-Hein Sackey, *Who is marginalized in energy justice? Amplifying community leader perspectives of energy transitions in Ghana*, **Energy Research and Social Science** **73**, p.101933 (2021)
7. Goldstein, A., Doblinger, C., Baker, E., Diaz Anadon, Laura, *Patenting and business outcomes for cleantech startups funded by the Advanced Research Projects Agency-Energy*. **Nature Energy** **5**, 803–810 (2020). <https://doi.org/10.1038/s41560-020-00683-8>
8. Cranmer, Zana and Erin Baker, *The Global Climate Value of Offshore Wind Energy*, **Environmental Research Letters**, **15**(5), page 054003, 2020
9. Baker, E., Bosetti V., Salo A., *Robust Portfolio Decision Analysis: An Application to the Energy Research and Development Portfolio Problem*, **European Journal of Operations Research**, [Volume 284, Issue 3](#), Pages 1107-1120, 1 August 2020,

10. Nock, D., Baker, E., Levin, T. *Changing the Policy Paradigm: A Benefit Maximization Approach to Electricity Planning in Developing Countries*, **Applied Energy**, Volume 264, 15 April 2020
11. Baker, E. and Khatami, N. *The Levelized Cost of Carbon: A Practical, if Imperfect, Method to Compare CO2 Abatement Projects*, **Climate Policy** 19(9), pp.1132-1143 (2019)
12. Nock, D. and Baker, E. *Holistic Multi-criteria Decision Analysis Evaluation of Sustainable Electric Generation Portfolios: New England Case Study*, **Applied Energy**, 242, pp.655-673 (2019)
13. Cranmer, Zana, Erin Baker, Juuso Liesiö, Ahti Salo, *A Portfolio Model for Siting Offshore Wind Farms with Economic and Environmental Objectives*, **European Journal of Operations Research**, 267:304-314 (2018)
14. Verdolini, E., Anadon, L.D., Baker, E., Bosetti, V., Aleluia Reis, L., *Future Prospects for Energy Technologies: Insights from Expert Elicitations*, **Review of Environmental Economics and Policy**, 19(2):133-153 (2018)
15. Nock, Destenie, Erin Baker, *The Unintended Consequences of Northern Ireland's Renewable Obligation Credit Policy*, **Electricity Journal**, Volume 30, Issue 7, August–September 2017, Pages 47–54
16. Laura Diaz Anadon, Erin Baker, Valentina Bosetti, *Integrating Uncertainty into Public Energy R&D Decisions*, **Nature Energy**, 2 (2017): 17071, \* authors listed alphabetically, equal contribution
17. Cranmer, A., Smetzer, J., Welch, L., Baker, E., *A Markov Model for Planning and Permitting Offshore Wind Energy: A Case Study of Radio-Tracked Terns in the Gulf of Maine, USA*, **Journal of Environmental Management**, Volume 193, 15 May 2017, pages 400–409
18. Ryan Wisner, Karen Jenni, Joachim Seel, Erin Baker, Maureen Hand, Eric Lantz, Aaron Smith, *Expert Elicitation Survey on Future Wind Energy Costs*, **Nature Energy**, September 2016, page 16135
19. Marshall Burke, Melanie Craxton, Charles D. Kolstad, Chikara Onda, Hunt Alcott, Erin Baker, Richard Carson, Kenneth Gillingham, Joshua Graff-Zivin, W. Michael Hanemann, Geoffrey Heal, Solomon Hsiang, Benjamin Jones, David Kelly, Raymond Kopp, Matthew Kotchen, Robert Mendelsohn, Kyle Meng, Gilbert Metcalf, Juan Moreno-Cruz, Robert Pindyck, Ivan Rudik, James Stock, and Richard Tol, *Opportunities for Advances in Climate Change Economics*, **Science**, 352.6283 (2016): 292-293
20. Laura Diaz Anadon\*, Erin Baker\*, Valentina Bosetti\*, Lara Aleluia Reis, *Expert Views - and Disagreements - about the Potential of Energy Technology R&D*, **Climatic Change** (June 2016), Volume 136, [Issue 3](#), pp 677–691 \*First 3 authors listed alphabetically, equal contribution
21. Kaikai, Moijue, Erin Baker, *Engineering for Sustainable Energy Education within Suburban, Urban, and Developing Secondary Schools*, **Journal of Education for Sustainable Development**, 10.1 (2016): 88-100

22. Gregory F. Nemet, Erin Baker, Bob Barron, Samuel Harms, *Characterizing the Effects of Policy Instruments on the Future Costs of Carbon Capture for Coal Power Plants*, **Climatic Change**, (2015) 133:155–168
23. Solak, S. and Baker, E., *Convexity Analysis of the Dynamic Integrated Model of Climate and the Economy (DICE)*, **Environmental Modeling and Assessment**, April 2015, pp. 1-9
24. Erin Baker, Olaitan Olaleye, Lara Aleluia da Silva Reis, *Decision Frameworks and the Investment in R&D*, **Energy Policy**, 80 (2015): 275–285
25. Erin Baker, Valentina Bosetti, Laura Diaz Anadon, Max Henrion, Lara Aleluia Reis, *Future Costs of Key Low-Carbon Energy Technologies: Harmonization and Aggregation of Energy Technology Expert Elicitation Data*, **Energy Policy**, 80 (2015): 219–232
26. Olaitan Olaleye, Erin Baker, *Large Scale Scenario Analysis of Future Low Carbon Energy Options*, **Energy Economics**, 49 (2015): 203-216
27. Singh, K., Baker, E., Lackner, M., *Curtailing Wind Turbine Operations to Reduce Avian Mortality*, **Renewable Energy Journal**, 78 (2015): 351-356
28. Barron, B., Adoumbaye, N, and Baker, E, *Grid Integration Costs and the Optimal Climate Change R&D Portfolio*, **Sustainable Energy Technologies and Assessments**, Volume 7, Pages 22–29 (2014)
29. Baker, E. and Solak, S., *Management of Energy Technology for Sustainability: How to Fund Energy Technology R&D*, **Production and Operations Management**, Volume 23, Issue 3, pages 348–365, (March 2014)
30. Greg Nemet, Erin Baker, Karen Jenni, *Modeling the Future Costs of Carbon Capture Using Experts' Elicited Probabilities under Policy Scenarios*, **Energy**, Volume 56, 1, pages 218-228 (2013)
31. Erin Baker, Meredith Fowlie, Derek Lemoine, and Stanley S. Reynolds, *The Economics of Solar Electricity*, **Annual Review of Resource Economics**, 5:387-426 (2013)
32. Jenni, K., Baker, E., and Nemet, G, *Expert Elicitations of Energy Penalties for Carbon Capture Technologies*, **International Journal of GHG Control**, 12:136-145 (2013)
33. Baker, E. and Olaleye, O., *Combining Experts: Decomposition and Aggregation Order*, **Risk Analysis**, 33 (6), 1116-1127 (2013)
34. Sundararagavan, S. and Baker, E., *Evaluating Energy Storage Technologies for Wind Power Integration*, **Solar Energy**, Volume 86, Issue 9, pages 2707-2717 (2012)
35. Baker E., *Option Value and the Diffusion of Fuel Efficient Vehicles*, **The Energy Journal**, Vol. 33, No. 4, pp. 49-59 (2012)
36. Shrimali, G. and Baker, E., *Optimal Feed in Tariff Schedule*, **IEEE Transactions on Engineering Management**, Vol. 59, No. 2, pp. 310 – 322 (2012)
37. Baker, E. and Peng, Y., *The Value of Better Information on Technology R&D Programs in Response to Climate Change*, **Environmental Modeling & Assessment** 17 (1): 107-121 (2012)

38. Baker, E. and Solak, S., *Climate Change and Optimal Energy Technology R&D Policy*, **European Journal of Operations Research**, 213: 442 – 454 (2011)
39. Baker, E. and Keisler, J., *Cellulosic Biofuels: Expert Views on Prospects for Advancement*, **Energy** 36(1), pages 595-605 (2011)
40. Baker, E., Chon H. and Keisler, J., *Battery Technology for Electric and Hybrid vehicles: Expert Views about Prospects for Advancement*, **Technological Forecasting and Social Change**, 77: 1139-1146 (2010)
41. Shittu, E., and Baker, E., *Optimal Energy R&D Portfolio Investments in Response to a Carbon Tax*. **IEEE Transactions on Engineering Management**, 57(4), 547 – 559 (2010)
42. Shittu, E., and Baker, E., *A Control Model of Policy Uncertainty and Energy R&D Investments*, **International Journal of Global Energy Issues**, 34(2), 307-327 (2009).
43. Baker, E., Chon, H. and Keisler, J., *Carbon Capture and Storage: Combining Expert Elicitations to Inform Climate Policy*, **Climatic Change** 96 (3), page 379 (2009)
44. Baker, E., *Optimal Policy under Uncertainty and Learning in Climate Change: A Stochastic Dominance Approach*, **Journal of Public Economic Theory**, 11 (5): 721-747, (2009)
45. Ewing, B., and Baker, E. *Development of a Green Building Decision Support Tool: A Collaborative Process*, **Decision Analysis**, 6 (3): 172 – (2009)
46. Kalowekamo, J. and Baker, E., *Estimating the Cost of Manufacturing for Purely Organic Solar Cells*, **Solar Energy**, 83 (8), pp.1224-1231 (Aug 2009)
47. Nemet G., and Baker, E., *Demand Subsidies versus R&D: Comparing the Uncertain Impacts of Policy on a Pre-commercial Low-carbon Energy Technology*, **The Energy Journal**, 30(4): 49-80 (2009) (Winner of the 2009 Campbell Watkins Energy Journal Best Paper Award)
48. Baker, E., Chon, H. and Keisler, J., *Advanced Solar R&D: Applying Expert Elicitations to Inform Climate Policy*, **Energy Economics**, 31:S37-S49 (2009)
49. Baker, E., Clarke, L., and Shittu, E., *Technical Change and the Marginal Cost of Abatement*, **Energy Economics**, 30 (2008)
50. Baker, E. and Shittu, E. *Uncertainty and Endogenous Technical Change in Climate Policy Models*, **Energy Economics**, 30 (2008).
51. Baker E. and Adu-Bonnah, K., *Investment in Risky R&D Programs in the Face of Climate Uncertainty*, **Energy Economics**, 30:465-486 (2008).
52. Baker, E., *Increasing Risk and Increasing Informativeness: Equivalence Theorems*, **Operations Research**, 54:26-36 (2006)
53. Baker, E., Clarke, L., and Weyant, J., *Optimal Technology R&D in the Face of Climate Uncertainty*, **Climatic Change**, 75:157–180 (2006)
54. Baker E. and E. Shittu, *Profit Maximizing R&D Investment in Response to a Random Carbon Tax*, **Resource and Energy Economics**, 28:105-192 (2006)
55. Baker, E., *Uncertainty and Learning in a Strategic Environment: Global Climate Change*, **Resource and Energy Economics**, 27:19-40 (2005)



### C. Editorials

1. Special issue on defining robust energy R&D portfolios; *Energy Policy*, Volume 80, May 2015, pages 215-218; Erin Baker, Valentina Bosetti, Laura Diaz Anadon

### D. Refereed Conference Publications

1. Kaikai, M., Baker, E. (2014, April), *Energy for Education: Bringing Reliable Energy Where It's Needed Most: Schools*; the 2014 Northeast Conference of the American Society for Engineering Education (ASEE-NE'14), University of Bridgeport, Bridgeport, Connecticut.
2. Baker, E. Easter, R., Gray A., and Morse, E., *Architecting Space Exploration Campaigns: A Decision-Analytic Approach*, IEEE Aerospace Conference, 2006, Big Sky, Montana
3. Baker, E., *Institutional Barriers to Technology Diffusion in Rural Africa*, American Agricultural Economics Association General Meeting, Rhode Island, July 27, 2005

### E. Book Chapters and Other Papers

1. Bosetti, V., L. Diaz Anadon, E. Baker, L. Aleluia Reis and E. Verdolini (2016), "The Future of Energy Technologies: An Overview of Expert Elicitations", GGKP Research Committee on Technology and Innovation Working Paper, **OECD**, Paris ([www.greengrowthknowledge.org/sites/default/files/downloads/resource/The\\_Future\\_of\\_Energy\\_Technologies\\_An\\_Overview\\_of\\_Expert\\_Elicitations\\_1.pdf](http://www.greengrowthknowledge.org/sites/default/files/downloads/resource/The_Future_of_Energy_Technologies_An_Overview_of_Expert_Elicitations_1.pdf))
2. Baker E., Barron R., "Technological Change and the Marginal Cost of Abatement", **Encyclopedia of Energy, Natural Resource, and Environmental Economics**, Ed: Jason Shogren, pp 117- 122 (2013)
3. Baker, E., Nemet, G., and Rasmussen, P., "Modeling the Costs of Carbon Capture", **Handbook of CO2 in Power Systems**, Qipeng P. Zheng, Steffen Rebennack, Panos M. Pardalos, Niko A. Iliadis, and Mario V. F. Pereira (Eds.) ISBN 978-3-642-27430-5, Springer, April, 2012.
4. Clarke, L. & Baker, E., "Workshop Report: RD&D Portfolio Analysis Tools and Methodologies", Joint Global Change Research Institute Report (2011)
5. Kalowekamo, J. and Baker, E., "Potential of Purely Organic Solar Cells to Reduce Cost of Photovoltaics", **Modern Energy Review**, 2 (1): 78-81 (2010)

### F. Working Papers

1. Erin Baker, Jessika Trancik, Brian Bush, Gregory Nemet, Kavita Surana, Steven A. Gabriel, Steve Popper, Magdalena M. Klemun, Doug Arent, Samuel F. Baldwin, Valentina Bosetti, Rebecca J. Hanes, Max Henrion, Giacomo Marangoni, Rupert Way, *Emerging science can improve decisions on public investment in energy research*,
2. Cruikshank, Claire; Erin Baker, Karen Jenni, and Steve Davis, *Comparing In-person and Online Modes of Expert Elicitation*, under revision.

3. Baker, Erin, Chon, Haewon and Keisler, Jeffrey M., *Advanced Nuclear Power: Combining Economic Analysis with Expert Elicitations to Inform Climate Policy* (August 08, 2008); available at SSRN: <http://ssrn.com/abstract=1407048> or <http://dx.doi.org/10.2139/ssrn.1407048>
4. Baker, E., Clarke L., Keisler, J., and Shittu, E., *Uncertainty, Technical Change, and Policy Models*, Technical Report 1028, College of Management, University of Massachusetts, Boston
5. Chon, H., Baker, E. and Keisler, J., *Advanced Nuclear Power: Converting Expert Elicitations into Economic Parameters to Inform Climate Policy*; available at SSRN: <http://ssrn.com/abstract=1289823> (2008)
6. Zdybel, R. and Baker, E., *Generation of a Correlated Probability Distribution for End-User Energy Prices*
7. Ricci, E., Bosetti, V, Baker, E Jenni, K., *From Expert Elicitations to Integrated Assessment: Future Prospects of Carbon Capture Technologies*, FEEM
8. Pham, A., Baker, E., Marquard J., Brown, C., *Water Planning and Climate Change in the Northeast: A Review*,

#### **G. Invited Keynotes and Plenary Talks**

1. “Promised Technology Solutions: Where Are They?”, Plenary Panel, *USAEE/IAEE North American Virtual Conference*, November 1 & 2, 2021
2. “Robust Portfolio Decision Analysis: Finding Common Ground When Experts and Models Disagree,” *International Federation of Operational Research Societies (IFORS)* Seoul Korea (moved to online); Aug. 25 2021
3. “Offshore Wind: Where is it Going, What Can We Do about It, and Why Do We Care?”, *WINDFARMS*, Madrid, June 1, 2017
4. “Robust Energy Technology Policy: Finding Common Ground”, *International Energy Workshop*, College Park, MD, July 12, 2017

#### **H. Invited Workshop Presentations**

1. “Technology policy and planning under deep uncertainty and multiple scales,” Workshop on advancing methods for modeling systems to inform sustainability science, MIT, June 7, 2021
2. Panelist, “Frontiers of Macro-Energy Systems Research,” Macro-Energy Systems Workshop, Stanford, September 17, 2020
3. Panelist, “The role of innovation and industrial policy in a politically-constrained context: how can policy accelerate cost reductions for clean energy and climate mitigation options?”, Workshop on Carbon Pricing & Innovation In A World Of Political Constraints, NYU, March 20, 2020
4. “Robust Portfolio Decision Analysis Applied to the Energy R&D Portfolio Problem”, Workshop on Methods for R&D Portfolio Analysis and Evaluation, NREL, July 19, 2019
5. “Robust Energy Technology Policy: Finding Common Ground”, Workshop on Distributed Energy Resources, University of Auckland, New Zealand, January 12, 2018

6. "Robust Portfolio Decision Analysis", Integrated Assessment Modeling Workshop, Joint Global Change Research Institute, College Park, Maryland, Dec. 2 2015
7. "Robust Portfolio Decision Analysis", Frontiers of Climate Economics Workshop, Stanford, CA, October 9, 2015
8. "R&D Decision Frameworks: Integrating Elicitation Data, IAMs, and Decision Insights", Advance Workshop: Uncertainty in Climate Change Modeling and Policy, Milan, Italy, May 13, 2014
9. "Energy Technology R&D Portfolio", Workshop on Pathways to Climate Solutions: Assessing Energy Technology and Policy Innovation, Aspen Energy Institute, Aspen, CO, February 27, 2014
10. "Energy Technology R&D Policy", Workshop on Modeling Social, Technical and Natural Systems for Policy, MIT, Boston MA, September 27, 2013
11. "Advice on Technology Elicitations", Modeling Uncertainty Project, Yale University, New Haven, CO, February 4, 2013
12. "Decision Analysis Framework", EMF meeting on Climate Change Impacts and Integrated Assessment, Snowmass Co, Aug. 1, 2012
13. "Harmonization and Aggregation of Elicitation Data", EMF meeting on Climate Change Impacts and Integrated Assessment, Snowmass Co, July 31, 2012
14. "Aggregating Elicitation Data", 2<sup>nd</sup> Meeting of the Technology Elicitation and Modeling Project, Harvard, Cambridge, MA, April 5, 2012
15. "Climate Change and Optimal R&D Technology Policy", Workshop: R&D Portfolio Analysis Tools and Methodologies, Department of Energy, Washington D.C. Dec. 2, 2010
16. "Optimal Climate Change Policy: R&D Investments and Abatement under Uncertainty", The OR in the Public Interest Workshop, Stanford University, June 16, 2010
17. "Implementing Uncertainty and Learning in Climate Change Policy Analysis", Workshop on Uncertainty and Learning in Environmental Management, Santa Barbara, CA, November 15, 2009
18. "Climate Change Technology R&D Portfolio under Uncertainty", The Research Workshop: Climate policy and Long Term Decisions - Investment and R&D, Milan, Italy, June 16, 2009
19. "Technology, R&D, and Climate Change", EMF 22 Uncertainty Subgroup Meeting, Wesleyan, CN, October 29, 2008
20. "Decision Making Under Uncertainty: Modeling Innovation" (poster), Uncertainty Workshop, University of Chicago, Illinois, July 21, 2008
21. "Climate Change, Uncertainty, and Technological Change", Conference on the Economics of Climate Change and Sustainable Development, Sardinia, Italy, Sept. 27, 2007
22. "Uncertainties in Science-Driven Energy Innovations", Climate Change Impacts and Integrated Assessment Workshop XIII, Snowmass, Colorado, July 23 to August 3, 2007
23. "Uncertainty, Climate Change, and Advanced Solar R&D", Workshop on Technological Change and Uncertainty in Environmental Economics, Center for European Economic Research (ZEW) Mannheim, Nov. 27/28, 2006

24. “Climate Change, Representation of Technology, and Uncertainty”, Technological Change and the Environment Workshop, Dartmouth College, Hanover, NH, March 26, 2006
25. “Optimal Climate Policy under Uncertainty”, Conference on Adaptive Research on Global Climate Change, Ohio State, University Columbus, OH, October 30, 2003

## **I. Invited Lectures**

1. “Multiple beliefs, dominance, and dynamic consistency,” ENRE Online Seminar, May 20 2021
2. “Offshore Wind Energy: Where is it Going and Why Should We Care?”, RFF-CMCC European Institute for Energy Economics, Milan, Italy, June 17, 2019
3. “Energy and Environmental Policy”, UC Davis, May 15, 2019
4. “Finding Common Ground when Experts Disagree: Robust Portfolio Decision Analysis”, Society of Decision Professionals, webinar, February 21, 2018
5. “Robust Portfolio Decision Analysis”, UT Austin, March 24, 2017.
6. “Robust Portfolio Decision Analysis”, Carnegie Mellon University, February 20, 2017.
7. “Energy Technology Policy: the Investment in R&D: Applying Science to Science Policy”, North Carolina A&T, Feb. 27, 2015
8. “Decision Frameworks and the Investment in R&D: Integrating Elicitation Data, IAMs, and Decision Insights”, The Bren School of the Environment UC Santa Barbara, January 12, 2015
9. “Choosing an Energy Technology R&D Portfolio in the Face of Climate Change”, University of Wisconsin, Madison, Nov 8, 2013
10. “Management of Energy Technology for Sustainability: Funding Energy Technology R&D”, MIT, Cambridge, MA, April 11, 2013
11. “Climate Change Energy Technology R&D Policy under Uncertainty”, Northwestern University, Chicago, IL, March 20, 2013
12. “Climate Change Energy Technology R&D Policy under Uncertainty”, Carnegie Mellon University, Pittsburgh, PA, October 24, 2012
13. “Optimal Climate Change Policy: R&D Investments and Abatement under Uncertainty”, RPI, Troy, NY, February 8, 2012
14. “Optimal Climate Change Policy: R&D Investments and Abatement under Uncertainty”, Naval Postgraduate School, Monterey, CA, July 28, 2011
15. “Expert Judgments on Battery Technology”, College of Nanotechnology Science and Engineering, SUNY Albany, Oct. 15, 2010
16. “Implementing Uncertainty and Learning in Climate Change Policy Analysis”, Agricultural & Environmental Economics, U.C. Berkeley, February 3, 2010
17. “Implementing Uncertainty and Learning in Climate Change Policy Analysis”, Economics Department, University of Arizona, Tucson; January 26, 2010
18. “Implementing Uncertainty and Learning in Climate Change Policy Analysis”, Environmental Economics Roundtable, Stanford University, January 21, 2010
19. “Optimal Climate Change Energy Technology R&D Portfolios under Uncertainty”, IEOR, U.C. Berkeley, April 26, 2010

20. "Climate Change Technology R&D Portfolio Analysis under Uncertainty", The Kennedy School, Harvard University, Cambridge, MA April 9, 2009
21. "Climate Change Technology R&D Portfolio Analysis under Uncertainty", Tulane Univ. New Orleans, March 21, 2009
22. "Uncertainty, Climate Change, and Technology R&D", Department of Mechanical Engineering, University of Texas at Austin, Austin, TX, April 15, 2008
23. "Uncertainty, Climate Change, and Technology R&D", Department of Industrial Engineering, Pittsburgh University, Pittsburgh, PA, March 4, 2008
24. "Uncertainty, Climate Change, and Technology R&D", Department of Industrial, Welding, and Systems Engineering, The Ohio State University, Columbus, OH, Jan. 17, 2008
25. "Applying Expert Elicitations to Inform Climate Policy", Energy Resources Group Seminar, U.C. Berkeley, CA, Aug. 13, 2007
26. "Uncertainty, Climate Change, and Advanced Solar R&D", Davis Environmental Economics Seminar, U. C. Davis, CA, April 24, 2007
27. "Technology, Uncertainty, and Climate Change", Yale Environmental Economics Seminar, New Haven, CN, March 29, 2006
28. "Optimal Technology R&D in the Face of Climate Uncertainty", Seminar, Agricultural and Resource Economics, University of Connecticut, Storrs, CN, Oct. 7, 2004
29. "Energy Technology R&D As Greenhouse Insurance", Seminar, Mechanical Engineering, Tufts University, Boston, MA, September 30, 2004
30. "R&D as Greenhouse Insurance", Seminar, Resource Economics Department, University of Massachusetts, Amherst, MA, Nov.14 2003

## **I. Conference Presentations**

1. "Are Experts Systematically Pessimistic about Technological Change?", INFORMS, Seattle, WA, Oct. 21 2019
2. "Does the Elicitation Mode Matter?", Advances in Decision Analysis, Milan, Italy, June 13, 2019
3. "Sustainable Electric Generation Portfolios:A Multi-Criteria Decision Analysis Framework Applied to the New England Power System", New England Conference of Public Utilities Commissioners Symposium, Hartford, CN, June 4, 2019
4. "Finding Common Ground when Experts Disagree", World Congress of Environmental and Resource Economists, Gothenburg, Sweden, June 28, 2018
5. "Robust Portfolio Decision Analysis", INFORMS Houston, October 23, 2017
6. "Robust Portfolio Decision Analysis", Advances in Decision Analysis, June 21, 2017
7. "Finding Common Ground when Experts Disagree: An Application to Climate Change R&D Policy", INFORMS, Nashville, Nov 13 2016
8. Finding Common Ground when Experts and Models Disagree Belief Dominance and Climate Change R&D Policy", EAERE, Zurich, June 21, 2016

9. "Ambiguity Aversion as a Policy Hazard", INFORMS, Philadelphia, Nov. 2 2015
10. "Robust Portfolio Decision Analysis", INFORMS, Philadelphia, Nov. 1 2015
11. "Introduction to the Elicitation and Modeling Project", INFORMS, San Francisco, CA, Nov. 10 2014
12. "Decision Frameworks and the investment in R&D: Integrating Elicitation Data, IAMs, and Decision Insights", INFORMS, San Francisco, CA, Nov. 10 2014
13. "Decision Frameworks and the Investment in R&D: Integrating Elicitation Data, IAMs, and Decision Insights", World Congress of Environmental and Resource Economists, Istanbul, Turkey, June 29, 2014
14. "Grid Integration and R&D Policy", INFORMS General Meeting, Phoenix, Oct 14, 2012
15. "Harmonization and Aggregation of Energy Technology Elicitations", INFORMS General Meeting, Phoenix, Oct 14, 2012
16. "R&D Portfolio Analysis of Low Carbon Energy Technologies for Climate Change Mitigation", Presented by Rose Zdybel, INFORMS General Meeting, Phoenix, Oct 14, 2012
17. "Combining Probabilities: Decomposition and Aggregation Order", INFORMS General Meeting, Charlotte, NC, Nov. 14, 2011
18. "Modeling Economic Interactions in Decision Analysis with Function-Valued Variables", Presented by Jeffrey Keisler, INFORMS General Meeting, Charlotte, NC, Nov. 14, 2011
19. "Optimal Climate Change Policy: R&D Investments and Abatement under Uncertainty", INFORMS General Meeting, Charlotte, NC, Nov. 15, 2011
20. "Modeling Returns to Scale in an IAM", Presented by Robert Barron, INFORMS General Meeting, Charlotte, NC, Nov. 15, 2011
21. "Generating Correlated Probability Distributions for Future Energy Prices", Presented by Rose Zdybel, INFORMS General Meeting, Charlotte, NC, Nov. 15, 2011
22. "Optimal Climate Change Policy: R&D Investments and Abatement under Uncertainty", International Energy Workshop, Stanford, CA, July 7, 2011
23. "Optimal Climate Change Policy: R&D Investments and Abatement under Uncertainty", AERE Summer Conference, Seattle, WA, June 9, 2011
24. "Generation of Correlated Probability Distributions for Future Energy Prices", Presented by Rose Zdybel, INFORMS North East, Amherst, MA May 6, 2011
25. "The Value of Better Information on Technology R&D Projects in Response to Climate Change", INFORMS General Meeting, Austin, TX, Oct. 8, 2010
26. "Optimal Climate Change Policy: R&D Investments and Abatement under Uncertainty", INFORMS General Meeting, Austin, TX, Oct. 9, 2010
27. "Biofuels and Batteries: Technology, Transportation, and Climate Change", INFORMS General Meeting, Austin, TX, Oct. 8, 2010
28. "Climate Change and Optimal Technology R&D Policy", World Congress of Environmental Economists, Montreal, June 27, 2010

29. "Climate Change Technology R&D Portfolio under Uncertainty", INFORMS General Meeting, San Diego, CA, Oct. 13, 2009
30. "Expert Elicitations for Climate Change Technology Policy Analysis", INFORMS General Meeting, San Diego, CA, Oct. 14, 2009
31. "Demand Subsidies versus R&D: Comparing the Uncertain Impacts of Policy on a Pre-commercial Low-carbon Energy Technology", INFORMS General Meeting, San Diego, CA, Oct. 12, 2009
32. "Climate Change Technology R&D Portfolio under Uncertainty", The International Energy Workshop, Venice, Italy, June 18, 2009
33. "Combining Expert Elicitation with Economic Analysis: Carbon Capture and Storage", INFORMS General Meeting, Washington D.C. Oct 17, 2008
34. "Applying Expert Information to Inform Climate Policy: Advanced Solar R&D", ASSA General Meeting, IAEE Track, New Orleans, LA, Jan. 5, 2008
35. "Technical Change and the Marginal Cost of Abatement", ASSA General Meeting, AERE Track, New Orleans, LA, Jan. 5, 2008
36. "Applying Expert Information to Inform Climate Policy: Advanced Solar R&D", INFORMS General Meeting, Seattle, WA, Nov. 17, 2007
37. "The Value of Technology for Climate Change Mitigation", INFORMS General Meeting, Seattle, WA, Nov. 19, 2007
38. "Advanced Solar R&D: Using Expert Elicitations to Inform Climate Policy", International Energy Workshop, Stanford, CA June 26, 2007
39. "Assessing Potential Electricity R&D Projects in the Context of Climate Change", INFORMS General Meeting, Pittsburg, PA, Nov. 6, 2006
40. "The Value of Non-definitive Information in Pure Science", INFORMS General Meeting, Pittsburg, PA, Nov. 5, 2006
41. "Profit Maximizing R&D in Response to a Random Carbon Tax", ASSA General Meeting, Boston, MA, January 8, 2006
42. "An Approach to Climate Change R&D Portfolio Decision Analysis", INFORMS General Meeting, San Francisco, CA, Nov. 15, 2005
43. "Investment in Risky R&D Programs in the Face of Climate Uncertainty", INFORMS General Meeting, San Francisco, CA, Nov. 14, 2005
44. "Investment in Risky R&D Programs in the Face of Climate Uncertainty", Southern Economics Association General Meeting, Washington D.C., Nov. 19, 2005
45. "Profit Maximizing R&D in the Face of Climate Uncertainty", American Agricultural Economics Association General Meeting, Rhode Island, July 25, 2005
46. "Optimal Technology R&D in the Face of Multiple Uncertainties", presented by Kwame-Adu Bonnah, INFORMS General Meeting, Denver, CA, October 26, 2004.
47. "The Value of Modeling Uncertainty in Climate Change", INFORMS General Meeting, Denver, CO, October 26, 2004.
48. "Optimal Technology R&D in the Face of Climate Uncertainty", American Agricultural Economics Association, Denver, CO, August 2004.

49. “R&D as Greenhouse Insurance”, International Energy Workshop, Paris, France, June 2004.
50. “R&D as Climate Insurance”, INFORMS General Meeting, Atlanta, GA October 21, 2003
51. “R&D as Climate Insurance”, NAREA General Meeting, Portsmouth, NH, June 7, 2003
52. “Global Climate Change: Uncertainty and Learning in a Strategic Environment”, INFORMS General Meeting, San Jose, CA, November 12, 2002
53. “Increasing Risk and Increasing Informativeness”, Microeconomics Theory Seminar, Graduate School of Business, Stanford University, October 2001.
54. “Risk, Institutions, and Technology Adoption in Africa”, Berkeley-Stanford Joint Center on Africa Spring Conference, April 24, 1999.
55. “Controlling Particulate Matter in the Bay Area”, Transportation, Energy, and Environmental Research Roundtable, Stanford University, May 1997.

## **J. Public Service Presentations**

1. Moderator: Panel on “Offshore Energy: Favorable Winds for Renewables?”, The Global Europe Program at the Woodrow Wilson Center and European Embassies in Washington D.C., April 21, 2021
2. “Clean Energy and the Climate Change Challenge”, Mass PIRG Clean Energy Action day, November 16, 2016
3. “Finding Common Ground”, STEM Ambassadors Program, UMass, Feb. 2 2016.
4. “Climate Change and Personal Action”, Spirituality and Ecology Class, Newman Center, UMass, March 11, 2015
5. “Negotiation”, Path of Professorship, MIT, November 15, 2014
6. “Climate Change Energy Technology R&D Policy under Uncertainty”, UMass Retired Faculty, UMass, February 13, 2013
7. “Which Institution is Right for You?”, Path of Professorship, MIT, November 2013
8. “Funding”, Path of Professorship, MIT, November 2010
9. “Climate Change, Technology, and Decision Making under Uncertainty”, Climate Change Forum, State House, Boston, MA, April 3, 2006
10. “Uncertainty, Climate Change, and Technology”, MassPIRG Professor Panel, UMass, Amherst, MA, April 23, 2008

## **VII. SERVICE**

### **A. Department**

- Section coordinator for Industrial Engineering (2015-2016)
- Member Department Personnel Committee (2003-4, 2006-7, 2010-11, 2012-2013)
- Member Search Committee (IE 2006-7, 2007-8 [chair], 2013-2014 [chair] Energy 2006-7, 2007-8, 2008-9, 2014-2015, 2015-2016, 2016-2017 [chair])
- Member Undergraduate Committee (2005-6, 2007-8)
- Member Graduate Committee (2008-9, 2010-12, 2014-2015, fall 2017)



- Organizer, Department Graduate Graduation (2009, 2011)
- Faculty Advisor Alpha Pi Mu (2004-6)
- Editor of MIE Faculty Newsletter (2002-2004)
- Member Public Relations committee (2003-4, 2006-7)

## **B. College**

- Assistant Dean for Research and Graduate Affairs (2018 - 2021)
- Director, Faculty Diversity (2019 – 2021)
- Member, College Personnel Committee (2014-2017)
- New Student Program Advisor (2003-9,11, 14, 15, 16)
- Professional Education for Engineering and Applied Science, Advisory Board (2003-5)
- Faculty Advisor for Engineering Management Minor (2003–present)
- College of Engineering Committee on Diversity and Social Justice (2005-6)
- Presenter, SWE Conference (2007)
- Member Search Committee, Civil & Environmental Engineering (2007-2008; 2010-2011)
- Member Search Committee, Electrical and Computer Engineering (2012-2013)
- Open House (2010, 2011, 2012, 2013,2014,2015)

## **C. University**

- Member, Steering Committee, The Public Engagement Project, (2019 – present)
- Member, Internal Advisory Board for the UMass ADVANCE program (2019-2021)
- Member, Internal Advisory Board for School of Public Policy (2014-present)
- Active Member of North East Alliance (2006-8, 2011-2013)
- Steering Committee for the Water Resources Research Conference (2006-7)
- Steering Committee for the Climate Change Working Group at UMass (2005–6)
- Faculty Senate Council on the Status of Women (2002–5)
- Member Search Committee for Resource Economics (2005-6)

## **D. Professional Organizations**

- *Associate Editor*, IISE Transactions (2019–present)
- *Associate Editor*, Decision Analysis (2019–present)
  - *Member Editorial Board*, Decision Analysis (2009–2019)

- **Member Editorial Board**, Energy Economics (2009–present)
- **Review Editor**, IPCC (2010-2011)
- **Macro Energy Systems, Steering Committee member (2021- present)**
  - **Chair**, 2022 Workshop Planning committee
- **INFORMS positions:**
  - **Subdivision Council Member**, INFORMS (2016-17)
  - **President**, Energy, Natural Resources, and Environment (ENRE) subdivision of INFORMS (2012–2014)
  - **President-Elect**, Energy, Natural Resources, and Environment (ENRE) subdivision of INFORMS (2010–2012)
  - **Secretary-Treasurer** of the Energy, Natural Resources, and Environment (ENRE) subdivision of INFORMS (2004–2010)
  - **Council Member:** Decision Analysis Society (2007–2010)
  - **Cluster Chair:** Decision Analysis Society Cluster at the 2007 INFORMS general meeting in Seattle; and at 2008 INFORMS general meeting in Washington, D.C.
  - **Co-Chair:** Decision Analysis Society Student Paper Contest (2006, 2009, 2010)
  - **Chair:** Decision Analysis Best Publication Award (2018)
  - **Member:** Decision Analysis Best Publication Award (2017)
  - **Co-Chair:** ENRE Student paper contest (2006, 2007, 2008)
  - **Member**, ENRE steering committee to design lifetime achievement award (2019)
- **Board Member**, ASEE Engineering Research Council, Executive Board (2020 – present)
- **Member**, ASEE McGraw Award Committee (2017-2021)
- **Advisory Board Member**, Consortium on Atlantic Regional Assessment (2002–2004)
- **External Advisory Board Member**, NRT LandscapeU, Penn State (2019–present)
- **Session Chair:** INFORMS 2003 - 2020; NAREA (2003);, AAEA (2005); WCERE (2010)
- **Reviewer**, *Operations Research* 8<sup>th</sup> ed. by Hillier and Lieberman
- **Reviewer**, National Science Foundation (2003, 2006, 2015; ad-hoc site visits 2012, 2017)
- **Presenter**, Panel on Women in Engineering, Smith College (2007); Pathway to the Professorate, MIT (2010, 2012)