

Curriculum Vitae

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VARUN RAI

LBJ School of Public Affairs
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Education

- Doctorate in Mechanical Engineering, Stanford University, 2008
- Master of Science in Mechanical Engineering, Stanford University, 2004
- Bachelor of Technology in Mechanical Engineering, Indian Institute of Technology (IIT) Kharagpur, India, 2002

Areas of Specialization

Diffusion of Energy Technologies; Energy and Development; Energy Systems

Appointments

- Associate Professor of Public Affairs, LBJ School of Public Affairs, The University of Texas at Austin, September 2016 –
- Associate Professor (by Courtesy), Department of Mechanical Engineering, The University of Texas at Austin, September 2016 –
- Assistant Professor of Public Affairs, LBJ School of Public Affairs, The University of Texas at Austin, July 2010 – August 2016
- Assistant Professor (by Courtesy), Department of Mechanical Engineering, The University of Texas at Austin, September 2011 – August 2016
- Faculty Affiliate, Energy Institute, The University of Texas at Austin, September 2011 –
- Faculty Fellow, Center for International Energy and Environment Policy, Jackson School of Geosciences, The University of Texas at Austin, July 2010 – December 2012
- Post-Doctoral Research Fellow, Program on Energy and Sustainable Development, Stanford University, April 2008 – June 2010

Honors and Awards

1. David N. Kershaw Award and Prize, 2016

2. The Eyes of Texas Excellence Award, 2016
3. Fellow, Sid Richardson Chair, 2016
4. Nominated for *Hamilton Best Paper Award*, UT Austin, 2016
5. LBJ Educator of the Year Award, Central Texas Chapter of the American Society for Public Administration (ASPA), 2015
6. Nominated for White House *Champions of Change* for Solar Deployment, 2014
7. Runner Up (in Energy), *Startup America Policy Challenge* (White House), 2012
8. Elspeth Rostow Centennial Fellow, UT Austin, 2010 –
9. Global Economic Fellow at the Global Economic Symposium, 2009
10. Fellow, Salzburg Global Seminar, 2008
11. Franklin P. and Caroline M. Johnson Graduate Student Fellowship, 2003
12. Stanford University GSPB Service Award for Excellence in Graduate Teaching, 2003
13. Nurture Program Scholarship, National Board of Higher Mathematics, India, 1999
14. Indian National Mathematical Olympiad, Senior Batch, 1997
15. Indian National Mathematical Olympiad Awardee (National Rank 12th), 1995

Publications¹

Peer-Reviewed Archival Journal Articles (27)

1. Beck, A.[#], Lakkaraju, K., and **Rai, V.** Small is Big: Interactive Trumps Passive Information in Breaking Information Barriers and Impacting Behavioral Antecedents. *PLOS ONE*, DOI:10.1371/journal.pone.0169326, **2017**.
2. **Rai, V.**, Tongia, R., Shrimali, G., and Abhyankar, N. Data for Development: The Case for an Indian Energy Information Administration. *Energy Research & Social Science*, 25: 105-109, **2017**. [Editor-invited expert *Perspectives* article.]
3. Nemet, G. *et al.* Characteristics of Low-Priced Solar PV Systems in the U.S. *Applied Energy*, 187: 501-513, **2017**.
4. **Rai, V.** and Henry, A. D. Agent-Based Modeling of Consumer Energy Choices. *Nature Climate Change*, 6: 556-562, **2016**.
5. **Rai, V.**, Reeves, D. C.[†], and Margolis, R. Overcoming Barriers and Uncertainties in the Adoption of Residential Solar PV. *Renewable Energy*, 89: 498-505, **2016**.
6. Verma, R.^{*}, Hernandez, D.[‡], Sivaram, V., and **Rai, V.**, . A National Certification Scheme to Enhance Trust and Quality in the Indian Residential Solar PV Market. *The Electricity Journal*, 29: 11-14, **2016**.
7. Gillingham, K., Deng, H., Wiser, R. H., Darghouth, N., Nemet, G. F., Barbose, G., **Rai, V.** and Dong, C.[†] Deconstructing Solar Photovoltaic Pricing: The Role of Market Structure, Technology, and Policy. *The Energy Journal*, 37(3): 231-250, **2016**.

¹ ‡ denotes an Undergraduate student co-author, * denotes Masters student co-author, † denotes Ph.D. student co-author, and # denotes Postdoc/Research Fellow co-author.

8. Funkhouser, E.*, Blackburn, G.*, and Magee, C.*, and **Rai, V.** Business Model Innovations for Deploying Distributed Generation: The Emerging Landscape of Community Solar in the U.S. *Energy Research & Social Science*, 10: 90-101, **2015**.
9. **Rai, V.** and Beck, A.# Public Perceptions and Information Gaps in Solar Energy in Texas, *Environmental Research Letters*, 10: 074011(1-9), **2015**.
10. **Rai, V.** and Funkhouser, E.* Emerging Insights on the Dynamic Drivers of International Low-Carbon Technology Transfer. *Renewable & Sustainable Energy Reviews*, 49: 350-364, **2015**.
11. Robinson, S. A.* and **Rai, V.** Determinants of Spatio-Temporal Patterns of Energy Technology Adoption: An Agent-Based Modeling Approach, *Applied Energy*, 151: 273-284, **2015**.
12. **Rai, V.** and Robinson, S. A.* Agent-Based Modeling of Energy Technology Adoption: Empirical Integration of Social, Behavioral, Economic, and Environmental Factors. *Environmental Modelling & Software*, 70: 163-177, **2015**.
13. Venugopalan, S.† and **Rai, V.** Topic Based Classification and Pattern Identification in Patents, *Technological Forecasting & Social Change*, 94: 236-250, **2015**.
14. Heguy, D. and **Rai, V.** Technology Development and Learning: Coal Gasification in China and the United States, *The Electricity Journal*, 27(6): 69-85, **2014**.
15. Noll, D.*, Dawes, C.*, and **Rai, V.** Solar Community Organizations and Active Peer Effects in the Adoption of Residential Solar PV, *Energy Policy*, 67: 330-343, **2014**.
16. **Rai, V.**, Schultz, K.* and Funkhouser, E.* International Low Carbon Technology Transfer: Do Intellectual Property Regimes Matter? *Global Environmental Change*, 24: 60-74, **2014**.
17. Blackburn, G.*, Magee, C.*, and **Rai, V.** Solar Valuation and the Modern Utility's Expansion into Distributed Generation, *The Electricity Journal*, 26(11): 18-32, **2014**.
18. **Rai, V.** Expert Elicitation Methods for Studying Technological Change Under Uncertainty, *Environmental Research Letters*, 8(4): 041003 (1-3), **2013**. [Editor-invited expert *Perspective* article.]
19. **Rai, V.** and Robinson, S. A.* Effective Information Channels for Reducing Costs of Environmentally-Friendly Technologies: Evidence from Residential PV Markets, *Environmental Research Letters*, 8(1): 014044 (1-8), **2013**.
20. **Rai, V.** and Sigrin, B.* Diffusion of Environmentally-friendly Energy Technologies: Buy vs. Lease Differences in Residential PV Markets, *Environmental Research Letters*, 8(1): 014022 (1-8), **2013**.
21. **Rai, V.**, Victor, D. G., and Thurber, M. C. Carbon Capture and Storage at Scale: Lessons from the Growth of Analogous Energy Technologies, *Energy Policy*, 38(8): 4089-4098, **2010**.
22. Bistline, J. E. and **Rai, V.** The Role of Carbon Capture and Storage in Greenhouse Gas Emissions Reduction Models: A Parametric Study for the U.S. Power Sector, *Energy Policy*, 38(2): 1177-1191, **2010**.
23. **Rai, V.** and Victor, D. G. Climate Change and the Energy Challenge: A Pragmatic Approach for India, *Economic and Political Weekly*, 44(31): 78-85, **2009**.
24. **Rai, V.**, Aryanpour, M., and Pitsch, H. First-Principles Analysis of Oxygen-Containing Adsorbates Formed from the Electrochemical Discharge of Water on Pt(111), *Journal of Physical Chemistry C*, 112(26): 9760-9768, **2008**.
25. **Rai, V.**, Pitsch, H., and Novikov, A. Efficient Dynamic Monte Carlo Algorithm for Time-Dependent Catalytic Chemistry, *Physical Review E*, 74: 046707 (1-9), **2006**.

26. Aryanpour, M., **Rai, V.**, and Pitsch, H. Convergent Iterative Constrained Variation Algorithm for Calculation of Electron-Transfer Transition States, *Journal of the Electrochemical Society*, 153(3): E52-E57, **2006**.
27. Rai, R., **Rai, V.**, Tiwari, M. K., and Allada, V. Disassembly Sequence Generation: A Petri Net Based Heuristic Approach, *International Journal of Production Research*, 40(13): 3183-3198, **2002**.

Peer-Reviewed Book Chapters (4)

1. **Rai, V.** and Zarnikau, J. “Retail Competition, Advanced Metering Investments, and Product Differentiation: Evidence From Texas,” Chapter 8 (pp. 153-173) in Sioshansi, F. P. eds. *Future of Utilities – Utilities of the Future*, Elsevier, **2016**.
2. Morse, R., **Rai, V.**, and He, G. “The Real Drivers of Carbon Capture and Storage in China,” Chapter 12 (pp. 557-582) in Morse, R. and Thurber, M. C. eds. *Asia and the Global Coal Market*, Cambridge University Press, **2015**.
3. **Rai, V.** “Fading Star: Explaining the Evolution of India’s Oil & Natural Gas Corporation (ONGC),” Chapter 17 (pp. 753-808) in Victor, D. G., Thurber, M. C., and Hults, D. eds. *Oil and Governance: State-Owned Enterprises and the World Energy Supply*, Cambridge University Press, **2012**.
4. **Rai, V.** and Victor, D. G. “Awakening Giant: Strategy and Performance of the Abu Dhabi National Oil Company (ADNOC),” Chapter 11 (pp. 478-514) in Victor, D. G., Thurber, M. C., and Hults, D. eds. *Oil and Governance: State-Owned Enterprises and the World Energy Supply*, Cambridge University Press, **2012**.

Journal Papers Under Review (4)

1. Dong, C.[†], **Rai, V.**, and Wiser, R. H. Incentive Pass-through in the California Solar Initiative: A Natural Experiment Design.
2. **Rai, V.** and Beck, A.[#] Serious Games in Breaking Informational Barriers in Solar Energy.
3. Nemet, G. *et al.* Factors Affecting Prices of Low-Priced U.S. Solar PV Systems.
4. Reeves, D. C.[†], **Rai, V.**, and Margolis, R. Disaggregating Market Maturity and Information Preferences in Solar PV Adoption.

Working Papers (6) [drafts available upon request]

1. **Rai, V.**, Funkhouser, E.*, Udwin, T. C.*, and Livingston, D. Real and Imagined Barriers to Venture Capital in Clean Energy Innovation Finance.
2. Nath, V.*, Beck, A. L.[#], Reeves, D.C.[†], and **Rai, V.**. Social, Behavioral, and Contextual Drivers Technology Adoption: Comparative Analysis of Electric Vehicle and Residential Solar Adoption in California.
3. Gao, X.[†] and **Rai, V.** Exploring the Linkage Between Demand-Pull and Localization of Innovation: Evidence from Distributed Solar in China.
4. **Rai, V.**, Maureen, M.*, Dong, C. G.[†], and Querejazu, D.* Demand Pull and Innovation in the U.S. Solar Market.

5. Sebastian, S.[†], **Rai, V.**, Duan, J., and Balakrishnan, A. Diffusion of Residential Solar: A Dynamic Discrete Choice Approach.
6. Wu, T.* and **Rai, V.** Quantifying the Evolution of Diversity in the U.S. Electricity System.

Other Work in Progress (3)

1. **Rai, V.** and Reeves, D. C.[†]. Contagion in Dual-Threshold Adoption Systems.
2. Reeves, D. C.[†] and **Rai, V.**. Behavioral Drivers of Solar PV Consumer “pull-forward” at Changes in Rebate Levels.
3. Beltran, M.* and **Rai, V.** Electricity Consumption Patterns in Low-Income Households.

Peer-Reviewed Conference Papers and Presentations (23)

1. Gao, X.[†] and Rai, V. Local Demand-pull Policy and Energy Innovation. *APPAM Fall Research Conference*, Washington D.C., USA, November 2016.
2. Reeves, D. C.[†] and Rai, V. Behavioral Drivers of Solar PV Consumer Pull-forward at Changes in Rebate Levels. *34rd USAEE/IAEE North American Conference*, Tulsa, OK, USA, October 2016.
3. Gao, X.[†] and Rai, V. Local Demand-pull Policy and the Locus of Innovation: Evidence from Solar PV in China. *34rd USAEE/IAEE North American Conference*, Tulsa, OK, USA, October 2016.
4. Beck, A.[#], Lakkaraju, K., and Rai, V. Information Salience and Behavior Change in Solar: Three Experiments Comparing Passive and Active Information Delivery. *Behavior, Energy and Climate Change Conference*, Baltimore, MD, October 2016.
5. Reeves, D. C.[†], Rai, V., and Margolis, R. Information Channel Preferences for Solar PV Adoption: A Comparative Tale of Two Markets. *Behavior, Energy and Climate Change Conference*, Baltimore, MD, October 2016.
6. Reeves, D. C.[†] and Rai, V. Effective Information Seeding Strategies to Accelerate Solar Adoption. *Behavior, Energy and Climate Change Conference*, Sacramento, CA, October 2015.
7. Funkhouser, E.*, Blackburn, G.*, and Magee, C.*, and Rai, V. Middle Ground in Customer-Utility Relationship? Analyzing the Drivers of Variations in Deployment Models for Community Solar. *33rd USAEE North American Conference*, Pittsburgh, PA, USA, October 2015.
8. Rai, V., Reeves, D. C.[†], and Margolis, R. Buy, Lease, Or PPA? Drivers of the Mode of Consumer Energy Technology Adoption. *33rd USAEE North American Conference*, Pittsburgh, PA, USA, October 2015.
9. Robinson, S. A.* and Rai, V. Role of Information and Incentives in Technology Adoption: Household-level Predictive Modeling. *Behavior, Energy and Climate Change Conference*, Washington D.C., December 2014.
10. Rai, V. and Beck, A.[#] Adoption of Energy Efficiency Measures and Rooftop Solar: An Online Gamification Study. *Behavior, Energy and Climate Change Conference*, Washington D.C., December 2014.
11. Stringer, M.* and Rai, V. Diffusion of Distributed Energy Technologies: Explaining Market Concentration and Growth Through Twitter Text Analysis. *American Marketing Association*, San Francisco, USA, August 2014.

12. Dong, C.[†] and Rai, V. Optimal Subsidy Design: Is California Solar Initiative Over-subsidizing or Under-subsidizing? *37th IAEE International Conference*, New York City, USA, June 2014.
13. Nath, V.* and Rai, V. How the Interaction of Supply and Demand Shapes Patterns of New Technology Adoption: Plug-In Electric Vehicles in California. *37th IAEE International Conference*, New York City, USA, June 2014.
14. Dong, C.[†], Rai, V., and Wiser, R. Market Structure and Subsidy Pass-through for Distributed Solar: Lessons from California. *37th IAEE International Conference*, New York City, USA, June 2014.
15. Stringer, M.* and Rai, V. Geography and Growth: Clustering in the Diffusion of Innovations. *37th IAEE International Conference*, New York City, USA, June 2014.
16. Souyris, S.[†] and Rai, V. Diffusion Networks of Residential Solar Panels. *Manufacturing & Service Operations Management (MSOM) 2014 Conference*, Seattle, Washington, USA, June 2014.
17. Robinson, S. A.*, Stringer, M.*, Rai, V., and Tondon, A.* GIS-Integrated Agent-Based Modeling of Residential Solar PV Diffusion. *Proceedings of the 32nd IAEE/USAEE Conference*, Anchorage, Alaska, USA, July 2013.
18. Rai, V. and Robinson, S. A.* Information Search and Peer Effects in Adopters of Residential Solar PV. *Behavior, Energy and Climate Change Conference*, Sacramento, CA, November 2012.
19. Rai, V. and Sigrin, B.* Economics of Decision-Making in the Adoption of Residential Solar PV. *Proceedings of the 31st IAEE/USAEE North American Conference*, Austin, Texas, November 2012.
20. Rai, V. and McAndrews, K.* Decision-Making and Behavior Change in Residential Adopters of PV. *Proceedings of the World Renewable Energy Forum*, American Solar Energy Society, May 2012.
21. Rai, V. Solar PV Adoption in the U.S. Residential Sector: Decision-making and Behavior Change. *Behavior, Energy and Climate Change Conference*, Washington D.C., December 2011.
22. Vishwanathan, V., Rai, V. and Pitsch, H. First-principles-based Reaction-Kinetics Model for Oxygen Reduction Reaction on Pt₃Ni(111). *Electrochemical Society (ECS) Transactions*, 25(1):1353-1361, 2009.
23. Rai, V., Aryanpour, M., Dhanda, A., Walch, S. and Pitsch, H. PEMFC Electrochemistry: Simulation of Non-equilibrium Surface Chemistry on 3-Dimensional Geometries. *Proceedings of the Joint International Meeting of the Electrochemical Society*, 2005-11: 264, 2005.

Other (Not Peer-Reviewed) Articles, Op-Eds, Essays, and Reprints

1. Tongia, R., Rai, V., and Shrimali, G. "Data Management: India Needs Agency for Energy Data," *Nature*, January 2017.
2. Rai, V. "Vicious to Virtuous: Unlocking the Potential of Residential Solar in India," *InfraCircle*, September 2016.
3. Rai, V. in "Great Ideas on Energy: Automated Drilling, Government Support, Cooling Down Supercomputers," *The Alcalde*, November 2012.

4. Rai, V. "Under the Roof: A New UT Study Reveals How Households Decide to Install PV," *Solar Power World*, July 2012.
5. Rai, V. "India's Energy Policy—Truths and Myths," *Modern Energy Review*, 2(2): 13-15, 2010.
6. Rai, V. "Climate Change Mitigation in India," *Seminar Journal*, 606: 35-40, 2010.
7. Morse, R., Rai, V., and He, G. "Digging in Deep," *BusinessForum China*, 30-32, 2010.
8. Rai, V. and Victor, D. G. "Identifying Viable Options in Developing Countries for Climate Change Mitigation: The Case of India," *International Association for Energy Economics (IAEE) Energy Forum*, First Quarter: 9-13, 2010.
9. Rai, V. "Promoting Clean Development Competing Market Mechanisms Post-2012," *Harvard International Review*, 31(3): 70-75, 2009.
10. Rai, V., Chung, N., Thurber, M. C., and Victor, D. G. "PESD Carbon Storage Database," Stanford University PESD Working Paper #76, 2008.
11. Victor, D. G. and Rai, V. "Dirty Coal is Winning," *Newsweek International*, 2009.
12. Rai, V. "Changing Face of Indian Energy System: A March towards Normalcy," *India in Transition*, University of Pennsylvania, 2008.

Sponsored Research²

EXTRAMURAL: \$2,023,500

- U.S. Department of Energy. *Knowledge Spillovers and Cost Reductions in Solar Soft Costs*. Project duration: January 2017 - December 2019. Funding amount: \$1,250,000.
- U.S. Department of Energy. *Towards an Emergent Model of Technology Adoption for Accelerating the Diffusion of Residential Solar PV*. Project duration: April 2013 - March 2016. Funding amount: \$500,500.
- National Renewable Energy Laboratory. *Understanding and Modeling Customer Behavior in Distributed Photovoltaic Rooftop Markets*. Project duration: January 2013 - September 2016. Funding amount: \$145,000.
- Lawrence Berkeley National Laboratory. *Deep Dive Solar Cost Analysis*. Project duration: January 2013 - September 2017. Funding amount: \$128,010.

INTRAMURAL: \$134,384

- Energy Institute (UT Austin). *Full Cost of Electricity Project: Perspectives on Valuing Distributed Generation*. Project duration: June 2016 - December 2016. Funding amount: \$31,000.
- Policy Research Institute (UT Austin). *Do Subsidies for Renewable Energy Create Localized Innovation Effects? A China-U.S. Comparative Study*. Project duration: June 2016 - August 2017. Funding amount: \$15,000.
- Summer Research Assignment (UT Austin). *Empirical Characterization of Social Networks in Energy-related Decision Making*. Project duration: Summer 2015. Funding amount: \$16,493.
- Policy Research Institute (UT Austin). *Identifying and Addressing Information Gaps in Energy*. Project duration: June 2015 - August 2016. Funding amount: \$15,000.

²Unless otherwise noted, Rai is the sole PI.

- Policy Research Institute (UT Austin). *Market Creation Policies, Knowledge Spillovers, and the Locus of Innovation: A Multi-Country Patent Analysis Study*. Project duration: June 2014 - August 2015. Funding amount: \$17,080.
- Policy Research Institute (UT Austin). *Accelerating the Diffusion of Solar PV Technologies: A Demand-Side Analysis of Japan*. Project duration: June 2012 - August 2013. Funding amount: \$14,820.
- IC² Institute (UT Austin). *International Flow of Low-Carbon Technologies: The US, China, India Triad*. Project duration: September 2012 - May 2013. Funding amount: \$10,000
- Policy Research Institute (UT Austin). *Comparative Low-Carbon Technology Policy in China and India*. Project duration: June 2011 - August 2012. Funding amount: \$14,991.

Invited Talks and Panel Discussions (Total: 41)

Invited Talks (27)

1. “Bridging Boundaries: Opportunities and Challenges in Interdisciplinary Research,” **David N. Kershaw Award and Prize Lecture**, Association for Public Policy Analysis & Management, Washington D.C., 11/16.
2. “Global Energy Transitions: The Ongoing Transition in Electricity,” **Global Intelligent Utility Network Coalition**, IBM GIUNC Conference, Gurgaon (India), 10/16.
3. “Information Salience and Energy Behavior,” School of Public and Environmental Affairs (SPEA), **Indiana University**, Bloomington, 9/16.
4. “Towards an Emergent Model of Technology Adoption for Accelerating the Diffusion of Residential Solar PV,” **Department of Energy**, DOE Decision Science and Market Transformation Pathways Workshop, Washington D.C., 12/15.
5. “Predictive Modeling of Consumer Energy Technology Adoption,” **Georgia Tech**, 11/15.
6. “Drivers of Residential PV Adoption: Toward Predictive Modeling and Understanding Infrastructure Implications,” **Electric Reliability Council Of Texas (ERCOT)**, Workshop on *Scenario Development for Long Term System Assessment*, Austin, Texas, 07/15.
7. “Connecting the Dots Between Theory, Simulations, and Experiments,” **NY-SERDA/American Academy of Sciences**, Workshop on *Applying Behavioral Strategies to Energy Decisions and Behaviors*, White Plains, New York, 06/14.
8. “The New Science of Soft Costs: Towards an Emergent Model of Technology Adoption for Accelerating the Diffusion of Residential Solar PV,” **Department of Energy** Solar Summit, Anaheim, CA, 05/14.
9. “Predicting Patterns of Energy Technology Adoption: An Agent-based Approach,” **University of Wisconsin-Madison**, 04/14.
10. “Solar Program Design: Insights from Texas Solar Programs,” **CPS Energy**, San Antonio, Texas, 02/14.
11. “Something Old Something New: Maladies of India’s Energy System and Possible Remedies,” South Asia Institute and Center for the Environment, **Harvard University**, 10/13.

12. “An Emergent Model of Technology Adoption for Accelerating the Diffusion of Residential Solar PV, **Department of Energy**, Washington DC, 07/13.
13. “Customer Acceptance and Interest in Behind-the-Meter Generation,” Center for Energy Studies, **Louisiana State University**, 12/12.
14. “Intellectual Property Rights and the Innovation-Diffusion of Green Energy Technologies,” (with Gary Hamilton) HICEC Summer Course, **Beijing Normal University**, China, 08/11.
15. “Energy Efficiency in India,” Atlantic Energy Efficiency Conference, **University of California Berkeley**, 02/11.
16. “Aligning Domestic Progress on Energy and Climate Issues in India,” **University of California Los Angeles**, 04/10.
17. “Managing Volatility and Growth: Issues with the Governance and Performance of National Oil Companies,” 8th PetroIndia, **India Energy Forum**, New Delhi, India, 11/09.
18. “Carbon Capture and Storage: Policies, Deployment, and the North-South Divide,” **CSTEP-Carnegie Mellon University** Indo-US Workshop on Climate and Energy Futures, Chennai, India, 10/09.
19. “Allocating Risks Effectively for Technological Growth,” **Calera Corporation** Carbon Symposium, Santa Clara, California, 07/09.
20. “Policies and Incentives for Carbon Capture and Storage Investments,” **Calera Corporation**, Santa Clara, California, 06/09.
21. “Political Economy of India’s Energy Challenge,” Kennedy School of Government, **Harvard University**, 04/09.
22. “Climate Change and the Energy Challenge: A Pragmatic Approach for India,” **Center for Policy Research**, New Delhi, India, 03/09.
23. “Technological Innovation and the Future of the Oil and Gas Industry,” (with David G. Victor) **Energy 2030 Conference**, Abu Dhabi, UAE, 11/08.
24. “Carbon Capture and Storage (CCS): Technologies, Opportunities, and Risks,” **Energy 2030 Conference**, Abu Dhabi, UAE, 11/08.
25. “The Indian Energy Landscape,” **Los Alamos National Laboratory**, New Mexico, 09/08.
26. “Renewable Energy Cheaper Than Coal?,” (with David G. Victor, Richard Morse, and Jeremy Carl), **Google**, Mountain View, California, 08/08.
27. “Energy and India’s Foreign Policy,” (with David G. Victor and Jeremy Carl) Center for the Advanced Study of India, **University of Pennsylvania**, 04/08.

Invited Panel Discussions (14)

1. “Revisiting the Energy Innovation Agenda,” **Carnegie Endowment for International Piece**, Washington D.C., 06/16.
2. “Shark Tank: Securing Cash for Kilowatts,” **TREIA GridNext**, Houston, Texas, 11/15.
3. “Venture Capital and Clean Energy Startups: Unexamined Progress,” **SXSW-Eco**, Austin, Texas, 10/15.
4. “Drivers of Energy Technology Innovation,” **APPAM Fall Research Conference**, Albuquerque, New Mexico, 11/14.

5. “The Local Implications of Hydraulic Fracturing,” **APPAM Fall Research Conference**, Albuquerque, New Mexico, 11/14.
6. “Innovation and Access to Technologies for Sustainable Development,” Weatherhead Center for International Affairs, **Harvard University**, 04/14.
7. “Shifting Control to the Customer: Consumer Engagement in a Smart-Grid Era,” **CPS Energy EmpowerU Conference**, San Antonio, Texas, 02/13.
8. “The Cost of Energy,” Renewable Energy Institute, **UT Continuing Legal Education (UTCLE)**, Austin, Texas, 01/13.
9. “Incentive Policies and Strategies for Engaging Developing Countries in Global Climate Change Policy,” **U.S. Foreign Services Institute**, Washington D.C., 02/11.
10. “Low Carbon Technology Transfer and the Major Emerging Economies,” **Council on Foreign Relations**, Washington D.C., 09/10.
11. “Solving the Climate Change Problem: Technology, California, and the Emerging Markets,” **University of California San Diego**, 10/09.
12. “The Energy-Emissions Scenarios and Climate Change Mitigation in India,” ORF-RLS Summit on Climate Change, **Observer Research Foundation**, New Delhi, India, 09/09.
13. “Intergenerational Dialogue: Resolutions for the Major Global Challenges,” Closing Plenary Session at the **Global Economic Symposium** 2009, Pleon, Germany, 09/09.
14. “CCS Projects and Investments: Update on the International Landscape,” The Senate Energy and Natural Resources Committee, **U.S. Senate Briefing**, Washington DC, 04/09.

Teaching Experience

- The University of Texas at Austin
 - Statistical Analysis and Learning (Spring 2016; Spring 2017)
 - Social and Information Networks (Fall 2015; Spring 2017)
 - Innovation and Diffusion of Energy Technologies (Spring 2012; Spring 2013; Spring 2015)
 - UT Energy Symposium: International Energy Issues (Fall 2011; Spring 2012; Fall 2012; Spring 2013; Fall 2013; Spring 2014; Fall 2014; Spring 2015; Fall 2015; Spring 2016)
 - Political Economy of Global Energy (Fall 2010; Fall 2011; Fall 2012; Fall 2014)
 - Innovation, Growth, and Conflicting National Interests: Analyzing the Evolution of the Global Solar Industry (Fall 2012 and Spring 2013)
 - Technological Change, Energy, and Environment (Spring 2011)
- Stanford University
 - Engineering Thermodynamics (Winter 2006-07; head teaching assistant)
 - Numerical Methods (Spring 2002-03; teaching assistant)
 - Partial Differential Equations (Winter 2002-03; teaching assistant)
 - Linear Algebra (Fall 2002-03; teaching assistant)

Student Advising (Total: 35)

Ph.D. Supervisions Completed (4)

Adviser

1. Yumin Li, Economics Department (co-advised with Prof. Haiqing Xu and Prof. David Sibley). Title: *Subsidies, Ownership Structure, and Technology Diffusion*. May 2016.
2. Changgui Dong, LBJ School of Public Affairs. Title: *Technology Diffusion Policy Design: Cost-Effectiveness and Redistribution in California Solar Subsidy Programs*. December 2014.

Committee Member

1. Ana Ramirez, LBJ School of Public Affairs (Adviser: Prof. David Eaton). *Statistical Evaluation of Investments in Conservation Technology in Agriculture and Validation of Analytical Procedures*. May 2013.
2. Ian Partridge, LBJ School of Public Affairs (Adviser: Prof. Shama Gamkhar). *Potential Contribution of a Carbon Offset Scheme to the Costs of Greenhouse Gas Emissions Reductions in Developing Countries*. December 2012.

Ph.D. Supervisions In Progress (5)

Adviser

1. Mark C. Hand, Ph.D. student in Public Affairs (2016 –). Title: *TBD*
2. Xue Gao, Ph.D. candidate in Public Affairs (2014 –). Title: *TBD*
3. D. Cale Reeves. Ph.D. candidate in Public Affairs (2014 –). Title: *TBD*. [**NSF UT IGERT Trainee: Sustainable Grid Integration of Distributed and Renewable Resources**]

Committee Member

1. Julia O'Rourke, Doctoral candidate in Mechanical Engineering (Adviser: Prof. Carolyn Seepersad, 2009 –). Title: *Design of Solar PV Systems for Reduced GHG Emissions: Understanding the Environmental Implications of Contextual Factors*, Expected graduation: May 2017.
2. Sebastian Souyris, Doctoral candidate in Operations Management (McCombs School of Business, (Adviser: Prof. Jason Duan, 2010 –). Title: *Three Essays in Optimization and Analytics*, Expected graduation: August 2017.

M.S./M.A./M.P.Aff./M.G.P.S. Supervisions Completed (22)

Adviser

1. Sindhu Maiyya, Master's Thesis for M.S. in Energy and Earth Resources (EER). Title: *Emerging Ecosystem of Solar Photovoltaic Technology in the United States*, May 2016.

2. Vivek Nath, Master's Thesis for M.S. in Energy and Earth Resources (EER). Title: *Drivers of Environmentally-friendly Technology Adoption: Electric Vehicle and Residential Solar PV Adoption in California*, May 2016.
3. Tiffany Wu, Master's Thesis for M.S. in Energy and Earth Resources (EER). Title: *Diversity and Resilience in the Texas Electricity Market*, May 2016.
4. Trevor C. Udwin, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Emerging Models for Funding Clean Energy Innovation: The Alberta Case Study*, May 2015.
5. Scott A. Robinson, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *GIS-Integrated Agent-Based Modeling of Residential Solar Diffusion*, May 2014. [**Winner of the 2014 Emmette S. Redford Award for outstanding research; UT Energy Forum Poster Competition winner (2nd) 2014; UT Energy Forum Poster Competition winner (3rd) 2013**]
6. Griselda Blackburn, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Electricity Consumption Behavior Change in Adopters of Residential Solar*, May 2014.
7. Yu Xia, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *The Role and Incentives of Chinese Local Governments in Solar PV Overinvestment*, May 2013.
8. Yue Dai, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Coal Gasification in China: Policies, Innovation, and Technology Transfer*, May 2013.
9. Benjamin Sigrin, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Financial Modeling of Consumer Discount Rate in Residential Solar Photovoltaic Purchasing Decisions*, May 2013. [**Winner of the 2013 Emmette S. Redford Award for outstanding research**]
10. Kaye Schultz, Professional Report for M.P.Aff. Degree. Title: *Measuring China's Success in Developing a Framework for Domestic Innovation*, May 2013.
11. Maureen Metteauer, Professional Report for M.P.Aff. Degree. Title: *Innovation in the U.S. Solar Industry: A Review of Patent Activity in Solar Photovoltaic Inverters and Mounting Systems*, December 2012. [**Nominated for the 2013 Emmette S. Redford Award for outstanding research**]
12. Pimjai Hoontrakul, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Econometric Modeling to Study the Impact of Contextual and Socio-Demographic Factors on the Diffusion of Solar PV*, May 2012.
13. Marco Beltran, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Behavioral Aspects of Energy Consumption in Low-Income Households*, May 2012.
14. Kristine McAndrews, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *To Conserve or Consume: Behavior Change in Residential Owners of Solar PV*, December 2011. [**2nd place, Student paper presentation, SPE Americas E&P Health, Security and Environmental Conference in Houston, TX, 2011.**]
15. Joanna Marie Schenke, Professional Report for M.P.Aff. Degree. Title: *Oil Politics in the New Iraq* (Co-Supervisor: Prof. Clement Henry), May 2011.
16. Siva Kiran Josulya, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Role of Incentives in the Diffusion of Solar PV Technologies: Analysis of Austin Energy's Solar Rebate Program*, May 2011.

Committee Member

1. Reed Ahti Malin, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Geoscience and Decision Making for Geothermal Energy: A Case Study* (Supervisor: Prof. Suzanne A. Pierce), May 2013.
2. Carlos A. Puerta Ortega, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *A Value of Information Analysis of Permeability Data in a Carbon, Capture and Storage Project* (Supervisor: Prof. Eric Bickel), May 2012.
3. Anirudh Krishnan, Master's Thesis for M.S. in Community and Regional Planning. Title: *The Role of the Smart Grid in Renewable Energy Progress: Abu Dhabi* (Supervisor: Prof. Michael Oden), May 2012.
4. Bilal Ogunlu, Master's Thesis for M.A. in Energy and Earth Resources (EER). Title: *Competitive Renewable Energy Zones in Texas: Suggestions for the Case of Turkey* (Supervisor: Prof. Ross Baldick), May 2012.
5. Darshan Jitendra Sachde, M.S. and M.P.Aff. Title: *Uranium Extraction from Seawater: An Assessment of Cost, Uncertainty, and Policy Implications* (Supervisor: Prof. Howard Liljestrand), May 2011.
6. Kevin Thundiyl, Master's Report for M.S. in Electrical Engineering. Title: *Building Electricity Generation Capacity in Electricity Markets: A Comparative Analysis* (Supervisor: Prof. Ross Baldick), May 2011.

M.S./M.A./M.P.Aff./M.G.P.S. Supervisions In Progress (1)

Adviser

1. Matthew Stringer, Master's Thesis for MA in Energy and Earth Resources (EER). Title: *Reducing Soft Costs of Solar Installations: Social Media and Customer Acquisition*, Expected completion: August 2017.

Undergraduate Supervisions Completed (2)

Committee Member

1. William Gorman. Plan II Honors Thesis. Title: *Re-evaluating the Energy Efficiency Gap in Austin: How the Principal-Agent Problem Affects the Adoption of Efficient Technologies* (Supervisor: Prof. Michael Webber), May 2014. [**Winner of the Exceptional Plan II Thesis Award**]
2. Supriya Misra. Plan II Honors Thesis. Title: *Water Everywhere: The Evolution of Water Management in India and the Disparity Between Policies and Reality* (Supervisor: Prof. Gail Minault), May 2014.

Undergraduate Supervisions in Progress (1)

Adviser

1. Drake D. Hernandez. Mechanical Engineering major. Title: *TBD*. Expected graduation: May 2017. [McNair Scholars Program]

Other Student Services

- Adviser, Energy Resources Group (ERG) of Graduate Students, Energy and Earth Resources Graduate Program (2010 – 2016)
- Adviser, LBJ School Alliance for Energy Policy (2014 – 2016)
- Adviser, UT Energy Forum (2011 – 2014)
- Adviser, LBJ School Green Society (2011 – 2013)

Professional Memberships

- United States Association for Energy Economics (USAEE)
- Association for Public Policy Analysis & Management (APPAM)

Professional Services

Editorial Activities

- Associate Editor, *Energy Research & Social Science* (Elsevier), March 2015 –
- Editorial Advisory Board, *The Electricity Journal* (Elsevier), June 2014 –

External Services

- Commissioner, Electric Utility Commission, Austin Energy, City of Austin (Texas), July 2013 – June 2015
- Technical Advisory Committee, California Center for Sustainable Energy (CCSE)'s project under the Electric Program Investment Charge (EPIC) Program, June 2015 –
- Research Advisory Council, Power Across Texas, April 2014 – December 2015
- Co-organizer, Austin Electricity Conference 2012, 2013, 2014, 2015, and 2016 (with David Adelman, Ross Baldick, David Spence, and Michael Webber) 2012 –
- Open Meeting on Resource Adequacy in Texas with Prof. William Hogan (Harvard University) (in collaboration with the Public Utilities Commission of Texas and IPR GDF-Suez), January 2013
- Executive Committee, 31st USAEE/IAEE North American Conference, 2012

- Co-Coordinator, Student Poster Session, 31st USAEE/IAEE North American Conference, 2012
- Local Solar Advisory Committee, City of Austin, Texas, June - November 2012

The University of Texas at Austin

- Graduate Studies Committee, Energy and Earth Resources Program, Jackson School of Geosciences, since August 2010
- Faculty coordinator for specialization in Energy, Environment and Technology for the Master of Global Policy Studies, LBJ School of Public Affairs, since August 2010
- Faculty coordinator of Dual Master's Degree between the Energy and Earth Resources Program (Jackson School of Geosciences) and the Master in Public Affairs Program (LBJ School of Public Affairs), since August 2010
- Redford Award Committee, LBJ School of Public Affairs, 2013 – 2014
- Research Advisory Committee, LBJ School of Public Affairs, 2012 – 2013
- Graduate Admissions Committee, LBJ School of Public Affairs, 2010 – 2012, 2015 – 2016

Reviewing of Scientific Manuscripts and Research Proposals (Total: 19 venues)

Applied Energy, Cambridge University Press, Climate Policy, Climatic Change, Energy Policy, Energy Research & Social Science, Environmental Research Letters, Global Environmental Change, International Journal of Electrical Power and Energy Systems, International Journal of Oil, Gas and Coal Technology, Journal of Cleaner Production, Mitigation and Adaptation Strategies for Global Change, National Science Foundation (NSF), Nature Energy, Proceedings of the National Academy of Sciences (PNAS), Renewable & Sustainable Energy Reviews, Technological Forecasting & Social Change, The Electricity Journal, U.S. Department of Energy.

In News and Popular Media

- *InfraCircle*; on creating institutions for standardized training and certification in the distributed energy industry, September 2016
- *Washington Post*; on net metering and growth of distributed generation in the U.S. power sector, March 2016
- *Nature Energy, research highlights*; on business models for community solar, January 2016
- *Washington Post*; on community-based distributed generation in the U.S. power sector, August 2015
- *Houston Chronicle*; on implications of oil price volatility on U.S. oil & gas companies, December 2014
- *UtilityDive*; on effective renewable energy rebate programs, November 2014
- *GreentechMedia*; on market structure and cost-effectiveness of the California Solar Initiative, November 2014

- *Vox*; on peer effects and contagion in residential solar, October 2014
- *The Hook*, Texas Exes; on institutional power in the energy industry, September 2014
- *StateImpact Texas*, KUT Austin/KUHF Houston/NPR; on renewables in Texas, July 2014
- *Austin American Statesman*; on disruptive business models for solar, July 2013
- *EnvironmentalResearchWeb*, Institute of Physics; on the role of information channels in the diffusion of renewable energy technologies, June 2013
- *EnvironmentalResearchWeb*, Institute of Physics; on the economics of residential solar, April 2013
- *Energy Exchange*, EDF Blogs; on peer effects in residential solar, April 2013
- *Texas Green Report*, Sierra Club Blogs; on diffusion of solar Photovoltaics, March 2013
- *Alcalde*; on the role of policy in energy innovation, November 2012
- *Climate One*, Commonwealth Club Radio; on energy in India, October 2009
- *NewX National News* TV Channel; on climate change mitigation efforts in India, September 2009
- *The New York Times*, *The Wall Street Journal*, *Bloomberg News*, *Point Carbon Research*, and *McClatchys News*; on carbon capture and storage (CCS) in China, September 2009
- *Washington Post*; on technological learning curves for carbon capture and storage (CCS), August 2009
- *FactCheck.Org*; on costs of building CCS-equipped power plants, January 2009
- *Newsweek International*; on CO₂-emissions from coal-based power generation, January 2009
- *Businessworld*; on the status of technologies for carbon capture and storage, December 2008
- *CleanTech News*; on India's renewable-energy policies, October 2008
- *The Hindustan Times*; on the CO₂-emissions reductions benefits of the U.S.-India nuclear deal, July 2008