

# Ian A. Lange

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**Affiliations**

- Assistant Professor, Division of Economics and Business, Colorado School of Mines, January 2014-
- Director, Mineral and Energy Economics Graduate Program, Colorado School of Mines, January 2016-
- CESifo Research Network Fellow, 2019- (Affiliate 2012-2019)
- PERC Lone Mountain Fellow, June-July 2018
- ORISE Fellow, Department of Energy, Office of Energy Policy and Systems Analysis, June-August 2017
- Senior Lecturer (Associate Professor), Division of Economics, University of Stirling, Aug 2012- December 2013
- Director, MSc Energy Management, University of Stirling, 2011-2013
- Lecturer (Assistant Professor), Division of Economics, University of Stirling, Aug 2008-July 2012
- Economist, Office of Air and Radiation, Climate Economics Branch, Environmental Protection Agency, February 2008-August 2008
- Economist, Office of Solid Waste and Emergency Response, Center for Program Analysis, Environmental Protection Agency, November 2007-February 2008
- Post-Doctoral Fellow, National Center for Environmental Economics, Environmental Protection Agency; September 2005-August 2008
- Visiting Lecturer, Department of Economics, University of Washington, October 2006-June 2007

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**Education**

- Ph.D., Department of Economics, University of Washington, May 2005  
Dissertation Title: "Investigating the Impacts of the 1990 Clean Air Act Amendments on Inputs to Coal-fired Power Plants"
- Completed the Environmental Management Certification Program, December 2001
- M.A., Economics, University of Illinois at Chicago, July 1999
- B.A., Economics, University of Illinois at Chicago, May 1998

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**Research Areas**

- Environmental Economics
- Energy Economics
- Economics of Regulation
- Behavioral Economics

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**Publications**

- Interfirm Learning in Environmental Safety: Evidence from the Bakken, *Applied Economics Letters*, forthcoming (with Pete Maniloff and Michael Redlinger)
- Cleaner Nudges? Policy Labels and Investment Decision-making, *The Energy Journal*, 2018 39(6), 27-51 (w/ Mirko Moro and Mohammad Rahman)

- Changes in Institutional Design and Extraction Path, *Environment and Development Economics*, 2018, 23 (4), 478-494 (with Mohammad Kemal)
- A Look Upstream: Electricity Market Restructuring, Procurement Contracts and Efficiency, *International Journal of Industrial Organization*, 2018, 57, 35-83 (w/Corrado Di Maria and Emiliya Lazarova)
- Proof of Concept that Requiring Energy Labels for Dwellings Can Induce Retrofitting, *Energy Economics*, 2018, 69, 204-212 (with David Comerford, and Mirko Moro)
- Efficiency and Environmental Impacts of Electricity Restructuring on Coal-fired Power Plants *Journal of Environmental Economics and Management*, 2017 81, 1-18 (w/ Ron Chan, Harrison Fell, and Shanjun Li)
- Determining the Success of Carbon Capture and Storage Projects, *The Electricity Journal*, 2016: 29(7), 1-4. (w/Dominique Thronicker and Jacquelyn Pless)
- Mandate a Man to Fish?: Technological Advance in Cooling Systems at U.S. Thermal Electric Plants, *Water Resources Research*, 2016: 52(2), 1418-1426 (w/ Victor Peredo-Alvarez, Whitney Trainor-Guitton, and Allen Bellas)
- Estimating the Price of ROCs, *The Electricity Journal*, 2015:28(1), 49-57 (w/Jeff Bryan\* and Alex MacDonald\*)
- Green Hypocrisy?: Environmental Attitudes and Residential Space Heating Expenditure, *Ecological Economics*, 2014: 107, 76-83 (w/ Laura Traynor\* and Mirko Moro)
- Should we be worried about the Green Paradox? Announcement Effects of Title IV of the Acid Rain Program, *European Economic Review*, 2014: 69(C), 143-162 (w/ Corrado Di Maria and Edwin van der Werf)
- Voluntary Programs to Encourage Diffusion: The Case of the Combined Heat-and-Power Partnership, *The Energy Journal*, 2014: 35(1), 161-173 (w/ Andreas Ferrara\*)
- Technological Advance in Cooling Systems at U.S. Power Plants, *Economics of Energy & Environmental Policy*, 2013: 2(2), (w/Allen Bellas and Duane Finney\*)
- Determinants of the Green Electricity Tariff Uptake in the UK, *Energy Policy*, November 2013: 62(1), 920-933 (w/ Ronnie MacPherson\*)
- Hedging in Coal Contracts under the Acid Rain Program, *Land Economics*, August 2012: 88(3), 561-570
- Contract Renegotiation and Rent Re-Distribution: Who Gets Raked Over the Coals?, *Journal of Environmental Economics and Management*, September 2011: 62(2), 155-165 (w/Lea Kosnik)
- Evidence of Innovation and Diffusion Under Tradable Permit Programs, *International Review of Environmental and Resource Economics*, May 2011: 5(1) 1-22 (w/ Allen Bellas)
- Effects of Spatial Pattern and Economic Uncertainties on Freshwater Habitat Restoration Planning: a Simulation Exercise, *Restoration Ecology*, November 2010: 18(S2), 354-369 (w/ Aimee Fullerton, Ashley Steel, and Yuko Caras)
- Technological Progress in Particulate Removal Equipment at U.S. Coal Burning Power Plants, *Journal of Regulatory Economics*, October 2010: 38(2) 180-192(w/ Allen Bellas)
- Steam versus Coking Coal and the Acid Rain Program, *Energy Policy*, March 2010: 38(3) 1251-1254
- Evaluating Voluntary Measures with Treatment Spillovers: The Case of Coal Combustion Products Partnership, *The B.E. Journal of Economic Analysis and Policy(Topics)* Vol. 9 : Issue 1, Article 36
- Determinants of Contract Duration: Further Evidence from Coal-Fired Power Plants, *Review of Industrial Organization*, May 2009: 34(3) 217-229 (w/ Maria Kozhevnikova)
- Impacts of Market-based Environmental and Generation Policy on Scrubber Electricity Usage, *The Energy Journal*, April 2008: 29(2) 151-164 (w/Allen Bellas)

- Bush v. Gore and the Effect of New Source Review on Power Plant Emissions, *Environmental and Resource Economics*, August 2008: 40(4) 571-591 (w/ Josh Linn)
- Did State Regulation of Power Plants Cause an Increase in Pollution Exportation? , *Economics Letters*, February 2008: 98(2) 213-219 (w/ Allen Bellas)
- The 1990 Clean Air Act and the Implicit Price of Sulfur in Coal, *The B.E. Journal of Economic Analysis and Policy (Topics)*, Vol 7 Issue 1, Article 41 (w/Allen Bellas)
- Using Wavelet Analysis to Detect Changes in Water Temperature Regimes at Multiple Scales: Effects of Multi-Purpose Dams in the Willamette River Basin, *River Research & Applications*, May 2007: 351-359 (w/ Ashley Steel)
- Technological Change for Sulfur Dioxide Scrubbers Under Market-Based Regulation, *Land Economics*, November 2005: 81(4) 546-556 (w/ Allen Bellas)
- Are Tradable Permits for Mercury Worthwhile?, *The Electricity Journal*, March 2005: 85-90 (w/Allen Bellas)

### **Working Papers**

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- Coal Demand, Market Forces, and US Coal Mine Closures (with Brett Jordan and Josh Linn)
- Inter-Regional Coal Mine Competition in the US: Evidence from Rail Restrictions (with Kanishka Kacker) *revisions request*
- Updating Allowance Allocations in Cap-and-Trade: Evidence from the NOx Budget Program (with Peter Maniloff) *revisions request*
- Effects of Stricter Environmental Regulations on Resource Development (with Michael Redlinger) *revisions requested*
- Electoral Incentives and Firm Behavior: Evidence from U.S. Power Plant Pollution Abatement (with Matt Doyle, Emiliya Lazarova, and Corrado Di Maria)
- Who (Else) Benefits from Electricity Deregulation? Coal Prices, Natural Gas and Price Discrimination (with Jon Hughes) *submitted*

\*-denotes authors who were Masters or undergraduate students at time of writing

### **Research Funding**

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- Sloan Foundation (\$277,000, 150,000 mine), 2018
- MBR Space Settlement Challenge (\$16,000), 2018
- National Aeronautics and Space Administration (\$96,000), 2017
- Bureau of Indian Affairs (\$201,000, 45,000 mine), 2017
- Sloan Foundation (\$277,00, 152,000 mine), 2017
- Department of Energy (\$ 116,000 total, \$70,000 mine), 2016
- Colorado Energy Office (\$48,000), 2016
- Xcel Energy (\$24,000), 2015
- Earth Resources Institute Mini-Grant (\$25,000), 2015
- Douglas County, CO (\$54,000), 2014
- Nuffield Foundation (£42,000), 2013
- Scottish Institute for Research in Economics Research Grant (£300), 2009
- Nuffield Foundation Social Science Small Grant Scheme (£986), 2009
- Scottish Institute for Research in Economics Environmental and Energy Workshop (£3500), 2008-2012
- Scottish Institute for Research in Economics Travel Grant (£700), 2008
- National Marine Fisheries Service (\$13,000), 2005

### **Awards**

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- Winner, Mineral and Energy Economics Teacher of the Year, 2018
- Winner, Excellence in Teaching in the University of Stirling, 2013
- Nominated, Excellence in Teaching in the Stirling Management School, 2011, 2012, 2013
- Nominated, Class of 2007 Favorite Teacher, University of Washington Alumni Assoc.
- Top Paper Presentation, Heartland Env. & Resource Economics Workshop, 2006
- Best Working Paper, National Center for Environmental Economics, 2006

## **Seminars & Conferences**

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- **Invited Seminars**  
University of Nevada-Reno (2018); University of Wisconsin-Madison (2017); Texas Tech University (2017); University of Georgia (2016); Georgia Tech (2016); University of Wyoming (2016); University of Bristol (2016); Oxford Centre for the Analysis of Resource Rich Economies (2015); University of East Anglia (2015); University of Stirling (2015); Resources for the Future (2015); Environmental Protection Agency (2014); Colorado State University (2014 and 2015); University of Central Florida (2014); University of Edinburgh (2013); University of Durham (2013); Duke University (2013); University of California at San Diego (2012); University of Bath (2012); University of Manchester(2012); University of Sussex (2012); University of Lancaster (2011); University of Dundee (2011 and 2013); University of Illinois-Urbana-Champaign (2011 and 2013); Copenhagen Business School (2011); Queen's University Belfast (2010); Heriot-Watt University (2010); University of Birmingham (2010 and 2012); University of Warsaw (2009); University of Wisconsin-Milwaukee (2009); Eastern Illinois University (2009); University of Strathclyde (2009); Economic & Social Research Institute (2009); University of Michigan (2008); University of Maine (2008); George Washington University (2007); University of British Columbia (2006); Bogazici University (2006); University of Alberta (2005); University of Illinois-Chicago(2004);
- **Academic Conferences**  
RFF/Sloan Foundation Energy Research Insights for Decisionmaking (2018); Political and Environment Research Center: Innovation, Property Rights, and the Structures of Energy (2017); Strata Workshop on Environmental and Energy Policy (2017); Economics of Water and Energy (2017); American Economic Association (2017); Association of Environmental and Resource Economists Summer Conference (2016); CESifo Energy and Climate Economics Research Network Conference (2012, 2014, 2017); Midwestern Economic Association (2005, 2014; 2015, 2016, Organize Session 2006, 2007, 2008); Empirical Methods in Energy Economics (2012); Environmental Protection and Sustainability Forum-Exeter (2011); British Institute of Energy Economics (2010); European Association of Environmental and Resource Economists (2009); UK Network of Environmental Economists (2009); International Industrial Organization Society (2008); Camp Resources (2006); California Workshop on Environmental & Resource Economics (2005, 2006); Southern Economic Association (2004); 12th Summer School in Economic Theory on "Environmental and Natural Resource Economics", Institute for Advanced Studies at the Hebrew University of Jerusalem (2001, with scholarship)
- **Professional Workshops**  
UN Development Programme Forest Smart Mining (2018); DoE Resilience Week (2018); Asia Pacific Energy Research Center Workshop on Coal Supply Security (2015); King Abdullah Petroleum Studies and Research Center Coal Modelling Workshop (2014); Colorado Energy Office Research Brownbag (2014, 2015, 2016, 2017)
- **Media Events**  
Quoted by New York Times (2017); Colorado Public Radio (2015, 2016); West Virginia Public Radio (2018); Argus Media (2018); S&P Global (2018); Center for the American West (2017); On air interview for China Global Television Network (2018); On air interview for Knowledge @Wharton (2016); Speaker at the National Coal Transportation Association

Annual Conference (2018); Panelist for Wyoming Safety and Workforce Summit (2016);  
Panelist for Rocky Mountain Public Broadcasting Service (2016)

### **Referee Activity**

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- Journal of the Association of Environmental and Resource Economists; Journal of Environmental Economics and Management, Journal of Law, Economics, & Organization; Economic Inquiry; The Energy Journal, Resource and Energy Economics, Journal of Regulatory Economics, Energy Policy, Ecological Economics, Energy Economics; Applied Economics, Scottish Journal of Political Economy, Journal of Economic Surveys, Journal of Environmental Management
- Outstanding Reviewer 2015 (Top 10% for number of reviews), Journal of Environmental Economics and Management
- Grant Reviews: Nuffield Foundation; NSF CRISP; Dutch Science Foundation

### **Supervision**

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- PhD External Examiner: University of Dundee Center for Energy, Petroleum, Mineral Law and Policy (2015)
- PhD Economics (Primary Supervisor): Jude Dike (completed 2013); Nurcan Kilinc Ata (2015); Matt Doyle (2016); Michael Redlinger (2016); Mohammad Kemal (2016); Tisi Igogo (2019 expected)
- PhD Economics (Committee Member): Michael Rice (completed 2014); Sul-Ki Lee (completed 2018); Jacquelyn Pless (completed 2016); Braeton Smith (completed 2018); Steve Dahlke (2019 expected); Ensieh Shojaeddini (2019 expected)
- MSc in Energy Management: ~30 students
- MSc in Economics: ~5 students

### **Other Activities**

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- Named to the Denver Business Journal's Who's Who in Energy, 2018
- Member of the Socio-Economic Panel, Hague International Space Resource Governance Working Group, 2018-
- Member of the Colorado Energy Coalition
- Assistant Coach, University of Stirling Clansmen American Football Team, 2009-2013
- External Examiner, University of Dundee Graduate School of Natural Resources Law, Policy, and Management, 2009-2013
- Research Post Graduate Tutor, Division of Economics, 2010-2013