

**PUBLIC SERVICE COMMISSION
OF UTAH**

Docket No. 12-035-92

SIERRA CLUB EXHIBIT 1

Jeremy Fisher Curriculum Vitae

Jeremy I. Fisher, PhD

Curriculum Vitae

Synapse Energy Economics	(617) 453-7045 (Direct)
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EMPLOYMENT

Scientist **2007 - present**

Synapse Energy Economics

Postdoctoral Research Scientist **2006 - 2007**

Tulane University, Department of Ecology and Evolutionary Biology

University of New Hampshire, Institute for the Study of Earth, Oceans, and Space

Visiting Fellow **2007 - 2008**

Brown University, Watson Institute for International Studies

Research Assistant **2001 - 2006**

Brown University, Department of Geological Sciences

EDUCATION

Ph.D. Geological Sciences	2006	Brown University, Providence, Rhode Island
M.Sc. Geological Sciences	2003	Brown University, Providence Rhode Island
B.S. Geology	2001	University of Maryland, College Park, Maryland
B.S. Geography	2001	University of Maryland, College Park, Maryland

TESTIMONY

Oregon Public Utility Commission. *In the Matter of PacifiCorp's Filing of Revised Tariff Schedules for Electric Service in Oregon*. Direct Testimony of Jeremy Fisher, PhD. On Behalf of Sierra Club. June 20, 2012. Docket UE 246

Kentucky Public Service Commission. *Application of Kentucky Power Company for Approval of its 2011 Environmental Compliance Plan, for Approval of its Amended Environmental Cost Recovery Surcharge Tariff, and for the Granting of a Certificate of Public Convenience And Necessity for the Construction and Acquisition of Related Facilities* Direct Testimony of Jeremy Fisher, PhD. On Behalf of Sierra Club. March 12, 2012. Docket 2011-00401

Kentucky Public Service Commission. *The Application of Kentucky Utilities / Louisville Gas and Electric Company for Certificates of Public Convenience and Necessity and Approval of its 2011 Compliance Plan for Recovery by Environmental Surcharge*. Direct Testimony of Jeremy Fisher, PhD. On Behalf of Sierra Club and Natural Resources Defense Council. September 16, 2011. Dockets 2011-00161 / 2011-00162

Kansas Corporation Commission. *In the Matter of the Petition of Kansas City Power & Light Company ("KCP&L") for Determination of the Ratemaking Principles and Treatment that will Apply to the Recovery in Rates of the Cost to be Incurred by KCP&L for Certain Electric Generating Facilities Under K.S.A. 66-1239*. Direct Testimony of Jeremy Fisher, PhD. On Behalf of Sierra Club. June 3, 2011. Docket 11-KCPE-581-PRE.

Utah Public Service Commission. *In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and Approval of its Proposed Electric Service Schedules and Electric Service Regulations*. Direct Testimony of Jeremy Fisher, PhD. On Behalf of Sierra Club. May 26, 2011. Docket 10-035-124.

Wyoming Public Service Commission. *In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Rates in Wyoming Approximately \$97.9 Million per Year or an Average Overall Increase of 17.3 Percent*. Direct Testimony of Jeremy Fisher, PhD. On Behalf of Powder River Basin Resource Council. April 11, 2011. Docket 20000-384-ER-10.

WHITE PAPERS

- Fisher, J.I.** *In Review*. The Statistical Displaced Emissions (SDE) Model : Estimating displaced emissions from renewable energy and energy efficiency. Prepared for US EPA.
- Fisher, J.I.** *In Review*. User Manual for Statistical Displaced Emissions (SDE) Model Viewer Tool and Fundamental Model Version 2.3. Prepared for US EPA.
- Fisher, J.I.** K. Takahashi. 2012. TVA Coal in Crisis: Using Energy Efficiency to Replace TVA's Highly Non-Economic Coal Units. Prepared for Sierra Club.
- Fisher, J.I.,** S. Jackson, B. Biewald. 2012. The Carbon Footprint of Electricity from Biomass: A Review of the Current State of Science and Policy. Whitepaper. Synapse Energy Economics.
- Fisher, J.I.** C. James, N. Hughes, D. White, R. Wilson, and B. Biewald. 2011. Emissions Reductions from Renewable Energy and Energy Efficiency in California Air Quality Management Districts. Prepared for the California Energy Commission Public Interest Research (PIER) Program.
- Fisher, J.I.,** Ackerman, F. 2011. The Water-Energy Nexus in the Western States: Projections to 2100. Prepared for the Stockholm Environment Institute. Synapse Energy Economics.
- Averyt, K., **J. Fisher**, A. Huber-Lee, A. Lewis, J. Macknick, N. Madden, J. Rogers, and S. Tellinghuisen. 2011. *Freshwater use by U.S. power plants: Electricity's thirst for a precious resource*. A report of the Energy and Water in a Warming World initiative. Cambridge, MA: Union of Concerned Scientists. November.
- White, D., D. Hurley, **J.I. Fisher**. 2011. Economic Analysis of Schiller Station Coal Units. Prepared for Conservation Law Foundation. Synapse Energy Economics.
- Fisher, J.I.,** R. Wilson, N. Hughes, M. Wittenstein, B.E. Biewald. 2011. Benefits of Beyond BAU: Human, Social, and Environmental Damages Avoided through the Retirement of the U.S. Coal Fleet. Prepared for Civil Society Institute. Synapse Energy Economics.
- Fisher, J.I.** and B. Biewald. 2011. Environmental Controls and the WECC Coal Fleet: Estimating the forward-going economic merit of coal-fired power plants in the West with new environmental controls.
- Hausman, E.D, V Sabodash, N. Hughes, and **J.I. Fisher**. 2011. Economic Impact Analysis of New Mexico's Greenhouse Gas Emissions Rule. Prepared for New Energy Economy.
- Fisher, J.I.** and F. Ackerman. 2011. The Water-Energy Nexus in the Western States: Projections to 2100. Prepared for Stockholm Environment Institute.
- Fisher, J.** 2011. *A Green Future for Los Angeles Department of Water and Power: Phasing out Coal in LA by 2020*. Prepared for Sierra Club.
- Fisher, J.I.,** J. Levy, Y. Nishioka, P. Kirshen, R. Wilson, M. Chang, J. Kallay, and C. James. 2010. Co-Benefits of Energy Efficiency and Renewable Energy in Utah: Air Quality, Health and Water Benefits. Prepared for State of Utah Energy Office. Synapse Energy Economics, Harvard School of Public Health, Tufts University.
- Hausman, E.D., **Fisher, J.I.,** L.A. Mancinelli, B.E. Biewald. 2009. Productive and Unproductive Costs of CO₂ Cap-and-Trade: Impacts on Electricity Consumers and Producers. Prepared for the National Association of Regulatory Utility Commissioners, The National Association of State Utility Consumer Advocates

(NASUCA), The National Rural Electric Cooperative Association (NRECA), The American Public Power Association (APPA). Synapse Energy Economics.

- B. Biewald, **Fisher, J.I.** C James. L. Johnston, D. Schlissel. R. Wilson. 2009. Energy Future: A Green Energy Alternative for Michigan. Prepared for Sierra Club. Synapse Energy Economics.
- James, C. **J.I. Fisher.** K Takahashi. 2009. Alaska Climate Change Strategy's Mitigation Advisory Group Final Report: Greenhouse Gas Inventory and Forecast and Policy Recommendations Addressing Greenhouse Gas Reduction in Alaska. Energy Supply and Demand Sectors. Submitted to the Alaska Climate Change Sub-Cabinet.
- James, C. **J.I. Fisher.** K. Takahashi, B. Warfield. 2009. No Need to Wait: Using Energy Efficiency and Offsets to Meet Early Electric Sector Greenhouse Gas Targets. Prepared for Environmental Defense Fund. Synapse Energy Economics
- James, C., **J.I. Fisher.** 2008 Reducing Emissions in Connecticut on High Electric Demand Days (HEDD). Prepared for the CT Department of Environmental Protection and the US Environmental Protection Agency. Synapse Energy Economics.
- Hausman, E.D., **J.I. Fisher,** B. Biewald. 2008 Analysis of Indirect Emissions Benefits of Wind, Landfill Gas, and Municipal Solid Waste Generation. Prepared for US. Environmental Protection Agency. Synapse Energy Economics.
- Schlissel, D., **J.I. Fisher.** 2008 A preliminary analysis of the relationship between CO₂ emission allowance prices and the price of natural gas. Prepared for the Energy Foundation. Synapse Energy Economics.
- Fisher, J.I.,** B. Biewald. 2008 Costly Changes to the Energy Sector. in F. Ackerman and E.A. Stanton. *The Cost of Climate Change.* National Resources Defense Council.
- Fisher, J.I.,** B. Biewald. 2007 Electricity Sector. in E.A. Stanton and F. Ackerman. *Florida and Climate Change: The Costs of Inaction.* Tufts University.

PEER-REVIEWED PUBLICATIONS

- Averyt, K, J Macknick, J Rogers, N Madden, **J Fisher,** JR Meldrum, and R Newmark. *In press* (accepted Nov. 2012). Water use for electricity in the United States: An analysis of reported and calculated water use information for 2008. *Environmental Research Letters.*
- J. T. Morissette, A. D. Richardson, A. K. Knapp, **J.I. Fisher** , E. Graham, J. Abatzoglou, B.E. Wilson, D. D. Breshears , G. M. Henebry, J. M. Hanes and L. Liang. 2009. Tracking the rhythm of the seasons in the face of global change: Challenges and opportunities for phenological research in the 21st Century. *Frontiers in Ecology.* 7(5): 253–260
- Fisher, J.I.** G.C. Hurtt, J.Q. Chambers, Q. Thomas. 2008 Clustered disturbances lead to bias in large-scale estimates based on forest sample plots. *Ecology Letters.* 11:6:554-563.
- Chambers, J.Q., **J.I. Fisher,** H. Zeng, E.L. Chapman, D.B. Baker, and G.C. Hurtt. 2007 Hurricane Katrina's Carbon Footprint on U.S. Gulf Coast Forests. *Science.* 318:1107
- Fisher, J.I.,** A.D. Richardson, and J.F. Mustard. 2007 Phenology model from surface meteorology does not capture satellite-based greenup estimations. *Global Change Biology* 13:707-721
- Fisher, J.I.** & J.F. Mustard. 2007 Cross-scalar satellite phenology from ground, Landsat, and MODIS data. *Remote Sensing of Environment* 109:261–273
- Fisher, J.I.,** J.F. Mustard, and M. Vadeboncoeur. 2006 Green leaf phenology at Landsat resolution: Scaling from the field to the satellite. *Remote Sensing of Environment.* 100:2:265-279
- Fisher, J.I.** & J.F. Mustard. 2004 High spatial resolution sea surface climatology from Landsat thermal infrared data. *Remote Sensing of Environment.* 90:293-307.

- Fisher, J.I.**, J. F. Mustard, and P. Sanou. **2004** Policy imprints in Sudanian forests: Trajectories of vegetation change under land management practices in West Africa. *Submitted, International J.Remote Sensing*
- Fisher, J.I.** and S.J. Goetz. **2001** Considerations in the use of high spatial resolution imagery: an applications research assessment. *American Society for Photogrammetry and Remote Sensing (ASPRS) Conference Proceedings*, St. Louis, MO.

SELECTED ABSTRACTS

- J.I. Fisher.** Phenological indicators of forest composition in northern deciduous forests. *American Geophysical Union*. San Francisco, CA. December 2007.
- J.I. Fisher**, A.D. Richardson, and J.F. Mustard. Phenology model from weather station meteorology does not predict satellite-based onset. *American Geophysical Union*. San Francisco, CA. December 2006.
- Chambers, J., **J.I. Fisher**, G Hurtt, T. Baker, P. Camargo, R. Campanella, *et al.*, Charting the Impacts of Disturbance on Biomass Accumulation in Old-Growth Amazon Forests. *American Geophysical Union*. San Francisco, CA. December 2006.
- Fisher, J.I.**, A.D. Richardson, & J.F. Mustard. Phenology model from surface meteorology does not capture satellite-based greenup estimations. *American Geophysical Union. Eos Trans.* 87(52). San Francisco, CA. December 2006.
- Fisher, J.I.**, J.F. Mustard, and M. Vadeboncoeur. Green leaf phenology at Landsat resolution: scaling from the plot to satellite. *American Geophysical Union. Eos Trans.* 86(52). San Francisco, CA. December 2005.
- Fisher, J.I.** and J.F. Mustard. Riparian forest loss and landscape-scale change in Sudanian West Africa. *Ecological Association of America*. Portland, Oregon. August 2004.
- Fisher, J.I.** and J.F. Mustard. High spatial resolution sea surface climatology from Landsat thermal infrared data. *American Society for Photogrammetry and Remote Sensing (ASPRS) New England Region Technical Meeting*. Kingston, Rhode Island. November, 2004.
- Fisher, J.I.**, J.F. Mustard, and P. Sanou. Trajectories of vegetation change under controlled land-use in Sudanian West Africa. *American Geophysical Union. Eos Trans.* 85(47). San Francisco, CA. December 2004.
- Fisher, J.I.** and J.F. Mustard. Constructing a climatology of Narragansett Bay surface temperature with satellite thermal imagery. *The Rhode Island Natural History Survey Conference*. Cranston, RI. March, 2003.
- Fisher, J.I.** and J.F. Mustard. Constructing a high resolution sea surface climatology of Southern New England using satellite thermal imagery. *New England Estuarine Research Society*. Fairhaven, MA. May, 2003.
- Fisher, J.I.** and J.F. Mustard. High spatial resolution sea surface climatology from Landsat thermal infrared data. *Ecological Society of America Conference*. Savannah, GA. August, 2003.
- Fisher, J.I.** and S.J. Goetz. Considerations in the use of high spatial resolution imagery: an applications research assessment. *American Society for Photogrammetry and Remote Sensing (ASPRS) Conference Proceedings*, St. Louis, MO. March, 2001.

SEMINARS AND PRESENTATIONS

- Fisher, J.I.** Emissions Reductions from Renewable Energy and Energy Efficiency in California Air Districts for EPA State Climate and Energy Program. June 14, 2011.
- Fisher, J.I.** and B. Biewald. WECC Coal Plant Retirement Based On Forward-Going Economic Merit. Presentation for Western Grid Group. WECC, January 10, 2011.
- Fisher, J.I.** 2010. Protecting Electricity and Water Consumers in a Water-Constrained World. National Association of State Utility Consumer Advocates. November 16, 2010.
- James, C., **J.I. Fisher**, D. White, and N. Hughes. 2010. Quantifying Criteria Emissions Reductions in CA from Efficiency and Renewables. CEC / PIER Air Quality Webinar Series. October 12, 2010.

Fisher, J.I. Climate Change, Water, and Risk in Electricity Planning. National Association of Regulatory Utility Commissioners (NARUC), Portland, OR. July 22, 2008.

Fisher, J.I. E. Hausman, and C. James. Emissions Behavior in the Northeast from the EPA Acid Rain Monitoring Dataset. Northeast States for Coordinated Air Use Management (NESCAUM), Boston, MA. January 30, 2008.

Fisher, J.I. J.F. Mustard, and M. Vadeboncoeur. Climate and phenological variability from satellite data. Ecology and Evolutionary Biology, Tulane University. March 24, 2006.

Fisher, J.I., J.F. Mustard, and M. Vadeboncoeur. Anthropogenic and climatic influences on green leaf phenology: new observations from Landsat data. Ecosystems Center at the Marine Biological Laboratory. Woods Hole, MA. Seminar, September 27, 2005.

Fisher, J.I. and J.F. Mustard. High resolution phenological modeling in Southern New England. Woods Hole Research Center. Woods Hole, MA. Seminar, March 16, 2005.

TEACHING

Teaching Assistant	2005	Global Environmental Remote Sensing, Brown University
Teaching Assistant	2002 & 2004	Estuarine Oceanography, Brown University

FELLOWSHIPS

2007 Visiting Fellow, Watson Institute for International Studies, Brown University

2003 Fellow, National Science Foundation East Asia Summer Institute (EASI)

2003 Fellow, Henry Luce Foundation at the Watson Institute for International Studies, Brown University

UNIVERSITY SERVICE

Representative	2005-2006	Honorary Degrees Committee, Brown University
Representative	2004-2006	Graduate Student Council, Brown University