

JAMES H. WILLIAMS

Curriculum Vitae

1248 Carlotta Avenue
Berkeley, CA 94707

Tel: (510) 717-4366
jim.williams@evolved.energy

Education

Ph.D. Energy and Resources, University of California, Berkeley, 1994

M.S. Energy and Resources, University of California, Berkeley, 1986

B.S. Physics, Washington & Lee University, Lexington, VA, 1980

Professional Positions

Director, Deep Decarbonization Pathways Project, New York/Paris, 2015 - present

Chief Scientist, Energy & Environmental Economics, San Francisco, 2005 - present

Associate Professor, Monterey Institute of International Studies, 2008-2013

Lecturer, U.C. Berkeley, 2002, 2003, 2006

Project Manager/Senior Associate, Nautilus Institute, 1997-2000

Post-Doctoral Fellow, U.C. Berkeley and Lawrence Berkeley National Laboratory, 1995-97

Graduate Student Research Assistant, Rocky Mountain Biological Laboratory, 1985

Engineer, MOS Analog Group, National Semiconductor Corp., Santa Clara, CA, 1982-84

Oil and Gas Exploration Field Engineer, Schlumberger Well Services, 1981

Peer-Reviewed Journal Articles

Morrison, G., S. Yeh, A. Eggert, C. Yang, J. Nelson, J. Greenblatt, R. Isaac, M. Jacobson, J. Johnston, D. Kammen, A. Mileva, J. Moore, D. Roland-Holst, M. Wei, J. Weyant, J.H. Williams, R. Williams, C. Zapata (2015). Comparison of low-carbon pathways for California. *Climatic Change*.
<http://dx.doi.org/10.1007/s10584-015-1403-5>

Wu, G.C., M.S. Torn, and J.H. Williams (2015). Incorporating land-use requirements and environmental constraints in low-carbon electricity planning for California. *Environmental Science & Technology*, 49 (4), 2013-2021. <http://dx.doi.org/10.1021/es502979v>

McKenzie, L., R. Orans, J.H. Williams, A. Mahone (2014). Strengthening the Clean Power Plan: three key opportunities for the EPA. *The Electricity Journal*, 27 (10).
<http://dx.doi.org/10.1016/j.tej.2014.11.001>

Cutter, E., B. Haley, J.H. Williams, C.K. Woo, (2014). Cost-effective water-energy nexus: a California case study. *The Electricity Journal*, 27 (5), 61–68. <http://dx.doi.org/10.1016/j.tej.2014.06.009>

Cutter, E., B. Haley, J. Hargreaves, J.H. Williams, (2014). Utility scale energy storage and the need for flexible capacity metrics, *Applied Energy*, 124, 274–282.
<http://dx.doi.org/10.1016/j.apenergy.2014.03.011>

Hu, J., G. Kwok, X. Wang, J.H. Williams, F. Kahrl, (2013), Using natural gas generation to improve power system efficiency in China, *Energy Policy*. <http://dx.doi.org/10.1016/j.enpol.2013.04.066>

- Kahrl, F., J. Hu, G. Kwok, J. H. Williams (2013), Strategies for expanding natural gas-fired electricity generation in China: economics and policy, *Energy Strategy Review*, 1, 1-8. <http://dx.doi.org/10.1016/j.esr.2013.04.006>
- Kahrl, F., J.H. Williams, J. Hu (2013), The political economy of electricity dispatch reform in China, *Energy Policy*, 53, 361-369. <http://dx.doi.org/10.1016/j.enpol.2012.10.062>
- Haley, B., J.B. Gallo, A. Kehr, M. Perry, D. Siao, W. Smallen, M.S. Torn, J.H. Williams (2012), The 2020 emissions reduction impact of urban water conservation in California, *Journal of Water and Climate Change*, 3, 151-162. <http://doi:10.2166/wcc.2012.047>
- Williams, J.H., A. DeBenedictis, R. Ghanadan, A. Mahone, J. Moore, W. Morrow, S. Price, M.S. Torn (2012), The technology path to deep greenhouse gas emissions cuts by 2050: the pivotal role of electricity, *Science*, 335, 53-59. <http://dx.doi.org/10.1126/science.1208365>
- Kahrl, F., J.H. Williams, J. Hu, J. Ding (2011), Challenges to China's transition to a low carbon electricity system, in Renewable Energy Special Issue, *Energy Policy*, 39, 4032-4041. <http://dx.doi.org/10.1016/j.enpol.2011.01.031>
- Von Hippel, D., T. Suzuki, J.H. Williams, T. Savage, and P. Hayes (2011), Energy security and sustainability in Northeast Asia, in Asian Energy Security Special Issue, *Energy Policy*, 39, 6719-6730. <http://dx.doi.org/10.1016/j.enpol.2009.07.001>
- Mahone, A., C.K. Woo, J.H. Williams, I. Horowitz (2009), Renewable portfolio standards and cost-effective energy-efficiency investment, *Energy Policy*, 37, 774-777. <http://dx.doi.org/10.1016/j.enpol.2008.11.033>
- Williams, J.H. and F. Kahrl (2008), Electricity reform and sustainable development in China, *Environmental Research Letters*, 3, 044009 1-14. <http://iopscience.iop.org/1748-9326/3/4/044009>
- Von Hippel, D., P. Hayes, J.H. Williams, C. Greacen, M. Sagrillo, and T. Savage (2008), International energy assistance needs and options for the Democratic People's Republic of Korea (DPRK), *Energy Policy*, 36, 541-552. <http://dx.doi.org/10.1016/j.enpol.2007.09.027>
- Orans, R., S. Price, J.H. Williams, and C.K. Woo (2007), A Northern California-British Columbia partnership for renewable energy, *Energy Policy*, 35, 3979-3983. <http://dx.doi.org/10.1016/j.enpol.2007.03.013>
- Williams, J.H. and R. Ghanadan (2006), Electricity reform in developing and transition countries: a reappraisal, *Energy*, 31, 815-844. <http://dx.doi.org/10.1016/j.energy.2005.02.008>
- Williams, J.H. and N. Dubash (2004), Asian electricity reform in historical perspective, *Pacific Affairs*, 77, 411-436. <http://www.jstor.org/stable/i40001260>
- Williams, J.H. and N. Dubash (2004), The political economy of electricity reform in Asia: introduction to *Pacific Affairs* special issue, *Pacific Affairs*, 77, 403-410. <http://www.jstor.org/stable/i40001260>
- Williams, J.H., and D. Von Hippel (2002), Fuel and famine: rural energy crisis in the Democratic People's Republic of Korea, *Asian Perspective*, 26, 111-140 <http://escholarship.org/uc/item/62p9634r>
- Von Hippel, D. and J.H. Williams (2002), Case study of a rural energy survey in the Democratic People's Republic of Korea, *Asian Perspective*, 26, 77-109 <http://escholarship.org/uc/item/62p9634r>

Williams, J.H. (1999), Fang Lizhi's big bang: a physicist and the state in China, *Historical Studies in the Physical and Biological Sciences*, 30, 49-88
<http://www.jstor.org/stable/i27757816>

Williams, J.H. (1990), Fang Lizhi's expanding universe, *China Quarterly*, 123, 459-484
<http://dx.doi.org/10.1017/S0305741000018877>

Harte, J. and J.H. Williams (1988), Arctic aerosol and arctic climate, *Journal of Climatic Change*, 13, 161-189 <http://dx.doi.org/10.1007/BF00140568>

Articles in Preparation

Yeh, S., C. Yang, M. Gibbs, D. Roland-Holst, J. Greenblatt, A. Mahone, M. Wei, G. Brinkman, J. Bushnell, J. Cunningham, A. Eggert, L. Goulder, B. Haley, E. Hart, J.H. Williams, Can California achieve 40 percent greenhouse gas emissions reduction by 2030? (in submission to *Nature Energy*)

Hart, E., B. Haley, J.H. Williams, Long-duration energy imbalance in very low carbon electricity systems: assessing “seasonal storage” requirements (in preparation for submission to *Environmental Science and Technology*)

Williams, J.H. The influence of political economy on China’s science and technology development strategy: the case of energy (in preparation for submission to special issue of *Minerva* on “Historical influences of Chinese grand strategy on science and technology”)

Book Chapters

Kahrl, F., R. Bharvirkar, C. Greacen, C. Sangarasri Greacen, M. Patankar, P. Shreedharan, J.H. Williams (2012), Utilities regulation and sustainability, *The Encyclopedia of Sustainability, Volume 7: China, India, and East and Southeast Asia: Assessing Sustainability*, Great Barrington, MA: Berkshire.

Von Hippel. D., J.H. Williams, P. Hayes, Energy security – East Asia (2012), *The Encyclopedia of Sustainability, Volume 7: China, India, and East and Southeast Asia: Assessing Sustainability*, Great Barrington, MA: Berkshire.

Von Hippel. D., T. Suzuki, J. H. Williams, T. Savage, and P. Hayes (2011) Evaluating the energy security impacts of energy policies, in Benjamin Sovacool, ed., *The Routledge Handbook of Energy Security*, London: Routledge.

Dubash, N. and J.H. Williams (2006), The political economy of electricity liberalization, in *Transforming Power: Energy as a Social Project*, edited by John Byrne et al., pp.155-189, New Brunswick, NJ: Transaction Publishers.

Williams, J.H. (2000), Wind power in Inner Mongolia, in *Methodological and Technological Issues in Technology Transfer*, edited by Bert Metz et al., IPCC Working Group 3 Special Report, pp. 387-388, Intergovernmental Panel on Climate Change, Cambridge: Cambridge University Press.

Edited Volumes

Williams, J.H. and N. Dubash, eds. (2004), The political economy of electricity reform in Asia, special issue of *Pacific Affairs*, 77(1).

Carson, C., Pollack, E., Westwick, P. and Williams, J.H., eds. (1999), Physicists in the post-war political arena, special issue of *Historical Studies in the Physical and Biological Sciences*, 30(1).

Williams, J.H., editor and translator (1991), in Fang Lizhi, *Bringing Down the Great Wall: Writings on Science, Culture, and Democracy in China*, 336 pp., New York: Alfred A. Knopf.

Williams, J.H., editor and translator (1988), Astrophysics and ideology in people's China, special issue of *Chinese Studies in Philosophy*, 19(4).

Non-Peer Reviewed Articles, Reports, and Manuals

Williams, J.H., B. Haley, R. Jones, (2015), *Policy Implications of Deep Decarbonization in the United States*, A report of the Deep Decarbonization Pathways Project of the Sustainable Development Solutions Network and the Institute for Sustainable Development and International Relations. <http://deepdecarbonization.org/countries/#united-states>

Schmidt-Traub, G., J. Sachs, J.H. Williams, T. Ribera, M. Colombier, H. Waisman (2015), *Why Climate Policy Needs Long-Term Deep Decarbonization Pathways*, Sustainable Development Solutions Network and Institute for Sustainable Development and International Relations Working Paper. http://unsdsn.org/wp-content/uploads/2015/11/151130-Why-Climate-Policy-requires-long-term-Deep-Decarbonization-Pathways_rev.pdf

Waisman, H., L. Segafredo, C. Bataille, G. Schmidt-Traub, M. Colombier, J.H. Williams, (2015), *Pathways to Deep Decarbonization: 2015 Report*. Sustainable Development Solutions Network and Institute for International Relations and Sustainable Development. <http://deepdecarbonization.org/ddpp-reports/>

Williams, J.H., and Teng Fei, (2015), *What Would New Breakthroughs on Climate Change Mean for the U.S.-China Relationship?* A ChinaFile Conversation, Asia Society. <http://www.chinafile.com/conversation/what-would-new-breakthroughs-climate-change-mean-us-china-relationship>

Williams, J.H., and H. Waisman, G. Schmidt-Traub, M. Colombier, L. Segafredo, *Pathways to Deep Decarbonization: 2015 Report Executive Summary*. 2015. Sustainable Development Solutions Network and Institute for International Relations and Sustainable Development. http://deepdecarbonization.org/wp-content/uploads/2015/06/DDPP_EXESUM.pdf

Wu, G., N. Schlag, D. Cameron, E. Brand, L. Crane, J. Williams, S. Price, (2015). *Integrating Land Conservation and Renewable Energy Goals in California: A Study of Costs and Impacts Using the Optimal Renewable Energy Build-Out (ORB) Model*. Technical report for The Nature Conservancy. http://scienceforconservation.org/dl/TNC_ORB_Report_Final_2015.pdf

Schell, O., J.H. Williams, G. He, R. Hsu (2015), *California and China: A Vital Partnership in Developing Clean Energy and Combating Climate Change*, a special report of the Asia Society. <http://asiasociety.org/center-us-china-relations/vital-partnership-california-and-china-collaborating-clean-energy-and-comb>

Williams, J.H., B. Haley, J. Moore, F. Kahrl, A. Jones, M.S. Torn, H. McJeon, (2014), *Pathways to Deep Decarbonization in the United States by 2050*. Jointly prepared by Energy and Environmental Economics, Lawrence Berkeley National Laboratory, and Pacific Northwest National Laboratory for the Sustainable Development Solutions Network. <http://unsdsn.org/what-we-do/deep-decarbonization-pathways/>

- Williams, J.H., B. Haley, J. Moore, F. Kahrl, (2014), *Deep Decarbonization Pathways for the United States*, chapter in Sustainable Development Solutions Network and Institute for International Relations and Sustainable Development, *Pathways to Deep Decarbonization: 2014 Report*. <http://unsdsn.org/what-we-do/deep-decarbonization-pathways/>
- Kahrl, F., J.H. Williams, T. Houser, and O. Schell (2013), “Developing a Roadmap for California-China Collaboration on Climate Change: Background and Strategy,” prepared for Asia Society
- Williams, J.H. (2013), Book Review, *Rise of the Red Engineers: The Cultural Revolution and the Origins of China’s New Class* by Joel Andreas, in *China Quarterly*, 215.
- Olson, A., N. Schlag, A. Mahone, J.H. Williams (2013), “Portland General Electric Low Carbon Integrated Resource Planning Portfolios,” prepared for PGE and Environmental Stakeholder Group.
- Von Hippel, D., and J.H. Williams (2013), “Nuclear safety concerns with China’s growing reactor fleet.” *Energy Governance and Security Monitor* (Hanyang University, ROK).
- Williams, J.H. (2012), “Fang Lizhi: An Appreciation.” *China Quarterly*, 211, 844-850. <http://dx.doi.org/10.1017/S0305741012000896>
- Williams, J.H. (2012), “Fang Lizhi: An Appreciation.” Published concurrently in three forums of the American Physical Society: *American Physical Society Forum in International Physics*. *American Physical Society Forum on the History of Physics*. *Physics and Society*. <http://www.aps.org/units/fps/newsletters/201210/williams.cfm>
- Olson, A., A. Mahone, J.H. Williams (2012), “Scenario Planning in a Utility Regulatory Context,” Report to NARUC on Capacity Assistance to the Colorado Public Utilities Commission on Scenario Planning and Training in the Utility Sector.
- Mahone, A., B. Haley, R. Orans, J.H. Williams (2011), “Electric Vehicles and Gas-Fired Power: A Strategic Approach to Mitigating Rate Increases and Greenhouse Gas Price Risk,” *Public Utilities Fortnightly*. http://www.fortnightly.com/uploads/12012011_ElecVehiclesGasFiredPower.pdf
- Kahrl, F., J.H. Williams, J.H. Ding, (2011), *Four Things You Should Know About China’s Electricity System*, Cooperative Competitors Briefing Series, prepared for the China Environment Forum, Woodrow Wilson International Center for Scholars. <http://www.wilsoncenter.org/topics/docs/Four%20Things%20You%20Should%20Know%20About%20China's%20Electricity%20System%20by%20E3.pdf>
- Kahrl, F., J.H. Ding, S. Price, J.H. Williams (2010), *Energy Efficiency Power Plant Calculator*, bilingual (Chinese-English) software model and documentation, prepared for the Regulatory Assistance Project and the Natural Resources Defense Council for use in China, <http://china.nrdc.org/library/2010DSMTraining-en>
- Mahone, A., W.Morrow, R. Orans, F. Pearl, S. Price, and J. H. Williams (2010), *After Cap and Trade: An Alternative Climate Policy Strategy for the U.S.*, prepared for the Brookings Institution. An abbreviated version of this report is available at http://www.brookings.edu/papers/2010/0628_cap_trade_pearl.aspx
- DeBenedictis, A., A. Mahone, W. Morrow, S. Price, J.H. Williams (2009), *Meeting California’s Long-Term Greenhouse Gas Reduction Goals*, prepared for Hydrogen Energy International, http://www.ethree.com/California_2050.html

- Horii, B., A. Mahone, J. Moore, A. Olson, R. Orans, S. Price, M. Smart, J.H. Williams (2008), *CPUC/CEC Greenhouse Gas Modeling Results and Documentation*, http://www.ethree.com/cpuc_ghg_model.html.
- Goldman, C., N. Hopper, B. Horii, A. Mahone, J. Moore, S. Price, J.H. Williams (2008), *National Action Plan for Energy Efficiency: Guide to Resource Planning with Energy Efficiency*, prepared for U.S. DOE and U.S. EPA, http://www.epa.gov/cleanenergy/documents/resource_planning.pdf
- Williams, J.H., S. Price, J. Moore, W. Morrow (2007), *Draft Methodology for the Evaluation of the Market Transformation Effects of the Self-Generation Incentive Program*, prepared for California Public Utilities Commission.
- Price, S., Dugan, R., E. Kollman, M. McGranahan, J. Moore, J.H. Williams (2006), *Value of Distribution Automation Applications*, report prepared for California Energy Commission, Contract 500-01-025.
- Kammen, D.M. and J.H. Williams (2006), "Plug and Go: Hybrid Electric Cars Drive Away Oil Imports," *California*, 117:5 (September/October 2006) 22.
- Price, S., E. Kollman, J. Moore, J.H. Williams (2006), *Energy Storage Valuation Tool: Modeling Stakeholder Costs and Benefits*, software and report developed for Electric Power Research Institute.
- Williams, J.H., R. Orans, S. Price, B. Horii, C.K. Woo (2006), *Demand Response Rate and Program Design*, Phase I, report prepared for California Energy Commission, Demand Response Research Center, DRRC-RON-02.
- Williams, J.H., S. Price, C.K. Woo (2005), *A Survey of Time of Use Pricing and Demand Response Programs*, report prepared for U.S. EPA.
- Von Hippel, D., J.H. Williams, and S. Eaton, *Multi-Dimensional Issues in International Electric Power Grid Interconnections* (2005), report prepared for U.N. Department of Economic and Social Affairs, New York: UN/DESA.
- Williams, J.H. (2003), *Our energy future: between Iraq and a hard place*, Nautilus Institute for Security and Sustainable Development working paper.
- Williams, J.H. (2003), *Our burning path: action or denial on global warming?*, Nautilus Institute for Security and Sustainable Development working paper.
- Williams, J.H. (2003) *International Best Practices for Assessing and Reducing the Environmental Impacts of High-Voltage Transmission Lines*, report prepared for Third Workshop on Power Grid Interconnection in Northeast Asia, Vladivostok, Russia.
- Von Hippel, D. and J.H. Williams (2003), *Environmental Issues for Regional Power Systems in Northeast Asia*, report prepared for Third Workshop on Power Grid Interconnection in Northeast Asia, Vladivostok, Russia.
- UC/CSU Peak Load Reduction Program (2001), *The University of California and The California State University Summer 2001 Electricity Peak Load Reduction Plan*, report prepared for CEC Contract No. 400-00-019.
- UC/CSU Peak Load Reduction Program (2001), *Photovoltaics For UC And CSU Peak Demand Reduction: A Brief Guide*, report prepared for CEC Contract No. 400-00-019.

- Williams, J.H., D. Von Hippel, and Peter Hayes (2000), *Fuel and Famine: Rural Energy Crisis in the Democratic People's Republic of Korea*, IGCC Policy Paper No. 46, San Diego: Institute on Global Conflict and Cooperation.
- Williams, J.H., P. Hayes, D. Von Hippel, C. Greacen, M. Sagrillo. "The Wind Farm in the Cabbage Patch," *Bulletin of the Atomic Scientists*, 55 (May/June 1999) 40-48.
- Busch, J.F. , J. Elliott, T. Frank, V. Gratton, T. Starrs, and Williams, J.H. (1998), *Native Power: A Handbook on Renewable Energy and Energy Efficiency for Native American Communities*. Lawrence Berkeley National Lab, LBNL-41004.
- Williams, J.H., J. Elliott, T. Frank. "Good Energy: Native Americans Lead the Way," *Winds of Change*, 12 (Summer 1997) 14-23
- Williams, J.H. et al. "Tribal College Instructors Learn About Renewable Energy," *Tribal College Journal*, 8:4 (Spring 1997)

Selected Translations (Chinese to English)

- State Electricity Regulatory Commission, *Electricity Regulation Annual Report 2008*, translated for Regulatory Assistance Project by Jim Williams, Ding Jianhua, and Fredrich Kahrl, January 2010
- Dai Qing's acceptance speech, Goldman Environmental Prize Award Ceremony, San Fransisco, April 1993.
- "A Prisoner's Journey," *Newsweek*, September 23, 1991. (Excerpt)
- "A Man of Unspeakable Thoughts," *New York Times Book Review*, April 21, 1991. (Excerpt)
- Bringing Down the Great Wall: Writings on Science, Culture, and Democracy in China*, New York: A.A.Knopf, 1991.
- "Peering Over the Great Wall," *Journal of Democracy*, 1(1), 1990.
- "Patriotism and Global Citizenship," in George Hicks, ed., *The Broken Mirror: China After Tiananmen*, London: Longmans, 1991.
- "Keeping the Faith," *The New York Review of Books*, December 21, 1989.
- Fang Lizhi's acceptance speech, Robert F. Kennedy Human Rights Award Ceremony, Washington, D.C., November 1989.
- "Student Tells the Tiananmen Story," *New York Times*, June 12, 1989. (Excerpt)
- "Beijing: Eyewitness to Massacre," *Washington Post*, June 11, 1989. (Excerpt)
- "The Expanding Universe of Fang Lizhi: Astrophysics and Ideology in People's China," *Chinese Studies in Philosophy*, 19(4), 1988.

Selected Invited Presentations

- "Pathways to Deep Decarbonization in the United States," (with Ben Haley), Union of Concerned Scientists, February 2016
- "Prospecting for a Low Carbon Future," Philomathia Forum, Berkeley Energy and Climate Initiative, U.C. Berkeley, February 2016
- "Pathways to a Sustainable Energy Future," (with Margaret Torn and Ben Haley), Environmental Defense Fund Climate Committee/Board of Trustees, Sausalito, CA, February 2016

- “Deep Decarbonization of the U.S. Energy System by 2050,” (with Ben Haley, Ryan Jones, and Margaret Torn), Poster, American Geophysical Union Fall Meeting, San Francisco, December 2015
- “Integrating Land Conservation and Renewable Energy Goals in California,” (with Grace Wu, Nick Schlag, Dick Cameron, Erica Brand, Laura Crane, Snuller Price, Rebecca Hernandez, and Margaret Torn), Poster, American Geophysical Union Fall Meeting, San Francisco, December 2015
- “Policy Implications of Deep Decarbonization in the United States,” DDPP-MAPS Technical Workshop, Paris, December 2015
- “Challenges for Low Carbon Electricity Systems: Observations from California,” EDF Climate and Energy Symposium, Electricite de France, Paris, September 2015
- “The Power of the Pathway: Key Results from the DDPP,” Deep Decarbonization Pathways Project Media Workshop, Paris, September 2015
- “Deep Decarbonization Pathways: Taking 2°C Seriously,” Energy and Resources Group Colloquium, U.C. Berkeley, September 2015
- “Deep Decarbonization Pathways in CA, US, World: Main Findings and Research Directions,” Integrated Energy Policy Report Workshop, California Energy Commission, July 2015
- “Pathways to Deep Decarbonization in the United States,” Chair’s Lecture, California Air Resources Board, Sacramento, May 2015
<http://www.arb.ca.gov/research/lectures/speakers/williams/williams.htm>
- “2030 Greenhouse Gas Reduction Scenarios,” (with Amber Mahone, Elaine Hart, Nancy Ryan, Snuller Price, Ben Haley, and Sam Borgeson), California Air Resources Board webinar, April 2015
- “Pathways to Deep Decarbonization in the United States,” Commonwealth Club, San Francisco, March 2015 <http://www.commonwealthclub.org/events/archive/podcast/deep-decarbonization-united-states>
- “California Pathways: GHG Scenario Results,” (with Amber Mahone, Elaine Hart, Nancy Ryan, Snuller Price, Ben Haley, and Sam Borgeson), California Climate Policy Modeling Forum, U.C. Davis, February 2015 https://ethree.com/public_projects/energy_principals_study.php
- “The Implications of Deep Reductions in Greenhouse Gas Emissions for Carbon Cycle Science,” (with Margaret Torn and Andrew Jones), LBNL, February 2015
- “Investment Analysis for DDPP Phase 2 Synthesis Report,” (with Ben Haley), Deep Decarbonization Pathways Project Country Team Meeting, Paris, France, January 2015
- “The Implications of Deep Reductions in Greenhouse Gas Emissions for Carbon Cycle Science,” (with Margaret Torn, Andrew Jones, Ben Haley, and Jack Moore, North American Carbon Program of the U.S. Global Change Research Program, Washington, D.C., January 2015
- “Deep Decarbonization in the U.S.: Can We Get There From Here?” (with Ben Haley), U.S. Department of Energy, Washington, D.C., January 2015
- “Deep Decarbonization in the U.S.: Can We Get There From Here?” (with Ben Haley), State Department, Washington, D.C., January 2015

- “Deep Decarbonization in the U.S.: Can We Get There From Here?” (with Ben Haley), Federal Energy Regulatory Commission, Washington, D.C., January 2015
- “Ecological Limits to Terrestrial Biological Carbon Dioxide Removal” (with Margaret Torn, Daniel Sanchez, Lydia Smith, and Umakant Mishra), American Geophysical Union, San Francisco, December 2014
- “China’s Electricity System: A Primer on Planning, Pricing, and Operations” (with Fritz Kahrl and Trevor Houser), California Energy Commission, Sacramento, October 2014
- “Deep Decarbonization in the U.S.: Can We Get There From Here?” (with Snuller Price and Jack Moore), Fahr Group LLC and NextGen America, San Francisco, September 2014
- “U.S. Low Carbon Scenario Dashboard Exercise,” Deep Decarbonization Pathways Project County Team Meeting, Reid Hall, Paris, April 2014
- “California’s Transition to a Low Carbon Economy,” Bay Area Air Quality Management District, San Francisco, February 2014
- “Pathways to a Low Carbon World,” International Honors Program, San Francisco, February 2014
- “Low Carbon Pathways Model: California and the U.S.,” Deep Decarbonization Pathways Project County Team Meeting, International Energy Agency, Paris, January 2014
- “The Importance of Regulation in Potential California-China Collaboration in Energy,” Inaugural Meeting of California-China Climate Change Collaboration Advisory Committee, Asia Society, December 2013
- “Backcasting: A Case Study of Low Carbon Pathways Modeling in California” (with Margaret Torn), Sustainable Agriculture and Food Systems Thematic Group, Sustainable Development Solutions Network, December 2013
- “Low Carbon Pathways Modeling: Methods and Results,” California Climate Policy Modeling Forum, U.C. Davis, December 2013
- “Priorities for Energy Policy Analysis in California,” Forum on California’s Electricity Policy Future: Beyond 2020, Shultz-Stephenson Task Force on Energy Policy, Hoover Institution, Stanford University, December 2013
- “The Implications of Adopting the Soviet Model of Technological Development,” Conference on The Historical Influence of Chinese Grand Strategy on Science and Technology,” Institute for Global Conflict and Cooperation, UCSD, San Diego, October 2013
- “U.S. and California Deep Decarbonization Pathway Analysis,” DDPP Inception Meeting, U.N. Sustainable Development Solutions Network, Seoul, October 2013
- “Modeling Principles for Deep Decarbonization Pathways,” DDPP Inception Meeting, U.N. Sustainable Development Solutions Network, Seoul, October 2013
- “Pathways to 2050: Modeling a Low Carbon Future,” IDDRI (Institute for Sustainable Development and International Relations), Paris, July 2013
- “Discussion of a Societal Cost Test in California” (with Brian Horii, Fritz Kahrl, Ben Haley, and Priya Shreedharan), Workshop on Societal Cost Test, California Public Utilities Commission, June 2013

- “Pathways to 2050: Modeling a Low Carbon Future,” U.N. Sustainable Development Solutions Network, New York, April 2013
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” Yale University, Climate and Energy Institute, New Haven, April 2013
- “Water-Energy Avoided Cost Framework” (with Ben Haley and Eric Cutter), California Public Utilities Commission, March 2013
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” Pacific Energy Center, Pacific Gas & Electric, San Francisco, December 2012
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” Environmental Defense Fund, San Francisco, October 2012
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” U.C. Berkeley, Environmental Engineering Seminar, October 2012
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” UK Office of Energy and Climate Change, London, March 2012
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” California’s Energy Future Policy Committee, Berkeley, March 2012
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” East Bay Environmental Network, Berkeley, March 2012
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” CALHEAT (California Hybrid, Efficient, and Advanced Truck Program) Forum, Stockton, February 2012
- “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050,” Long-Term Energy Research and Development Working Group (LERDWG), U. S. Department of Energy, Washington, D.C., February 2012
- “Climate Mitigation in California: The Path to 2050,” Environmental Leadership Program, U.C. Berkeley, July 2011
- “The Fukushima Accident and the Status of Nuclear Power in Japan,” U.C. Berkeley and Monterey Institute of International Studies, April 2011
- “Transforming the Energy Economy: Lessons from 2050 We Can Use Today,” Institute for the Future, (with Rebecca Ghanadan,) Palo Alto, January 2011
- “After Cap and Trade: US Climate Policy Options.” Briefing to U.S. Senator Jeff Bingaman, (with Ren Orans and Frank Pearl), June 2010.
- “Electricity With Chinese Characteristics: The Complexities of Decarbonizing China's Power Sector,” China Environment Forum, Woodrow Wilson Center, Washington, D.C., (with FERC Chairman Jon Wellingshof, Fritz Kahrl, and Ding Jianhua), June 2010.
http://www.wilsoncenter.org/index.cfm?fuseaction=events.event_summary&event_id=622580
- “The World in 2050: Technology Pathways to a Low-Carbon Future,” Institute for Urban and Environmental Studies, Chinese Academy of Social Sciences, Beijing, June 2010

- “The World in 2050: Technology Pathways to a Low-Carbon Future,” Climate Policy Institute, Tsinghua University, Beijing, June 2010
- “Introduction to the Energy Efficiency Power Plant Calculator,” Energy Efficiency Power Plant Workshop, Beijing, June 2010
- “Radiation Hazards of Nuclear Energy and Nuclear Weapons,” Guest Lectures, ER102 Quantitative Analysis of Global Environmental Problems, U.C. Berkeley, April 2010
- “The World in 2050: Technology Pathways to a Low-Carbon Future,” Monterey Institute of International Studies, Environmental Speaker Series, December 2009
- “Meeting California’s Greenhouse Gas Reduction Goals in 2050,” European Community, Brussels, Belgium, September 2009.
- “Meeting California’s Greenhouse Gas Reduction Goals in 2050,” California Air Resources Board, (with Snuller Price and Bill Morrow), September 2009.
- “Transforming the Global Energy System: The View from California,” Sonoma State University, Environmental Forum, May 2009.
- “Transforming the Global Energy System: The View from California,” (with Snuller Price), World Affairs Council, March 2009.
- “Modeling AB32 in California’s Electricity Sector: Impacts and Implications,” (with Snuller Price), Energy and Resources Group Colloquium, U.C. Berkeley, November 2008.
- “Reducing Greenhouse Gas Emissions from Electricity Generation in California,” Guest Lecture, ER254 Electric Power Systems, U.C. Berkeley, April 2008.
- “Climate Change Mitigation and Adaptation: Markets vs. Regulation,” U.C. Hastings School of Law, San Francisco, April 2008
- “China’s Energy and Climate Policy,” Guest Lecture, ER291 Climate Policy, U.C. Berkeley, March 2007.
- “The Berkeley Consensus: U.S. and Chinese Perspectives on Global Climate Change,” China-U.S. Climate Change Forum, U.C. Berkeley, May 2006
- “North Korean Energy and Regional Conflict,” School of Journalism, U.C. Berkeley, November 2005
- “Demand Response Pathways,” Workshop on Demand Response Valuation, Title 24 Building Energy Standards Update, California Energy Commission, July 2005.
- “Bad Energy in North Korea: Is Northeast Asian Grid Interconnection a Solution?” School of Advanced International Studies, Johns Hopkins University, February 2005
- “Institutional Dimensions of Electricity Demand Response,” Panelist, Demand Response Research Design Workshop, California Energy Commission/PIER/CIEE, February 2004
- “Energy and Conflict on the Korean Peninsula,” Environmental Studies Seminar, Sonoma State University, May 2003
- “The Social Contract of Electricity,” Political Economy of Power Sector Reform Conference, Stanford University, February 2003
- “Fuel and Famine: North Korea's Rural Energy Crisis,” World Affairs Council, San Francisco, November 2000
- “Environmental Security on the Korean Peninsula,” Panelist, Director of Central Intelligence Environmental Center, Arlington, VA, April 2000

- “Solving North Korea’s Rural Energy Crisis,” briefing to South Korean Unification Minister Lim Dong Wan, September 1999
- "Rural Energy and North Korean Stability," Roundtable Symposium on Korea, IGCC/Korean Economic Institute, U.C. San Diego, May 1999
- "An NGO Co-Operative Engagement Project in the DPRK," Conference on Northeast Asian Cooperation, Monterey Institute of International Studies, February 1999.
- "A US NGO Project in Rural North Korea," Emerging from Conflict Conference, Stanley Foundation, Virginia, October 1998.
- "A Chinese Physicist in the Post-War Political Arena," U.C. Berkeley, January 1998.
- “Energy in Native America,” Energy and Resources Group Colloquium, U.C. Berkeley, September 1997
- "Sustainable Energy: Benefits for Tribes," Mni-Sose Intertribal Water Rights Coalition, Rapid City, SD, November 1996
- “The Yurok Solar PV Electrification Project,” invited expert testimony to Yurok Tribal Council, Eureka, CA, September 1995

Courses Taught

- Electric Utility Planning (CEE221A), Winter 2013, Stanford University (co-taught with Joel Swisher and Ren Orans)
- Climate Change Mitigation (IP626), Winter 2012, Monterey Institute of International Studies
- Quantitative Methods in Environmental Science and Policy (IP512), Fall 2008, Spring 2009, Fall 2009, Fall 2010, Fall 2011 Monterey Institute of International Studies
- After Copenhagen and Fukushima: The Nuclear Future in a Climate and Security Constrained World (IP621), Fall 2011 Monterey Institute of International Studies (co-taught with Patricia Lewis and Ferenc Dalnoki-Veress)
- Electric Power System Analysis (IP659), Fall 2009, Fall 2011, Monterey Institute of International Studies
- Advanced Energy Research Seminar (IP624), Spring 2010, Spring 2011, Monterey Institute of International Studies
- Quantitative Analysis of Global Environmental Problems (ER102), U.C. Berkeley, 2002, 2003 (co-taught with John Harte), 2006, 2011 (co-taught with Margaret Torn)
- Interdisciplinary Energy Analysis (IP548), Spring 2009, Fall 2010, Monterey Institute of International Studies
- Renewable Energy Workshop (WKSH8580), Fall 2010, Monterey Institute of International Studies
- Energy Efficiency Power Plant Calculator Training, June 2010, Workshop on Energy Efficiency Power Plants, Beijing
- Energy and Development Workshop (WKSH8583), Spring 2010, Monterey Institute of International Studies
- Climate Change Policy (IP643), Spring 2008 and Fall 2008, Monterey Institute of International Studies

Directed Study (IP698), Spring 2008, Fall 2008, Fall 2009, Spring 2010, Monterey Institute of International Studies

Energy and Environmental Journalism in China (J234), U.C. Berkeley, Spring 2007 (co-taught with Orville Schell, Sandy Tolan, Mark Dowie, Rone Tempest)

Biogeochemistry: Carbon and Nitrogen Cycles (ES320), Colorado College, Spring 1996 (co-taught with Margaret Torn)

Renewable Energy and Native American Communities, NAREEP Tribal College Instructor Workshops, 1995-1996

The Political Economy of Energy in Native America (ER290), U.C. Berkeley, 1995-1996 (co-taught with Rachel Schurmann)

Advising

Internship Mentor, Lucy McKenzie (U.C. Berkeley, E3 Summer Internship) 2014 (topic: Improving Clean Air Act 111.d.)

Internship Mentor, Andy Hultgren (U.C. Berkeley, E3 Summer Internship) 2014 (topic: Distributional Impacts of Deep Decarbonization in the United States.)

Masters Project Research Advisor, Grace Wu (U.C. Berkeley, Energy and Resources Group, M.S.) 2012-2013 (Title: Assessing Environmental Impacts of Low-Carbon Electricity Pathways)

Dissertation Committee, Fredrich Kahrl (U.C. Berkeley, Energy and Resources Group, Ph.D.) 2010-2011 (Title: Socioeconomic Transition and China's Energy and Climate Policy)

Internship Mentor, Ryan Jones (Stanford University, E3 Summer Internship) 2011 (topics: Wind Net Qualifying Capacity and Solar PV Deliverability Rules)

Internship Mentor, Michaelangelo Tabone (U.C. Berkeley, E3 Summer Internship) 2011 (topic: Value of Smart Grid Applications)

Research Advisor, Student Group Project (U.C. Berkeley, ER/MSE 226, Photovoltaic Technology and Markets) 2011 (topic: Community Solar Project on Lopez Island, Washington)

Internship Mentor, Eric Stoutenberg (Stanford University, Ph.D., E3 Summer Internship) 2010 (topic: Wind Integration in Europe and the U.S.)

Internship Mentor, Ben Haley (Monterey Institute of International Studies, M.A., E3 Summer Internship) 2010 (topic: The Nexus Between Water, Energy, and Greenhouse Gas Emissions in California)

Research Advisor, Ding Jianhua (Monterey Institute of International Studies, M.A., E3 Research Intern) 2010 (topic: China's Electric Power System)

Faculty Advisor for Directed Study, Ben Haley (Monterey Institute of International Studies, M.A.) 2010 (topic: Energy and Development)

Faculty Advisor for Directed Study, Claudine Desiree (Monterey Institute of International Studies, M.A.) 2010 (topic: Energy and Development)

Faculty Advisor for Directed Study, Ding Jianhua (Monterey Institute of International Studies, M.A.) 2009 (topic: Environmental Regulation in the U.S.: Lessons for China)

Faculty Advisor for Directed Study, Bridget Nuxoll (Monterey Institute of International Studies, M.A.) 2009 (topic: History of Energy Resources: Coal, Petroleum, and Nuclear Power)

Research Advisor, Anna Monders (Monterey Institute of International Studies, M.A.) 2008
(topic: Arctic Climate Change and International Security)

Faculty Advisor for Directed Study, Neal Reardon (Monterey Institute of International Studies,
M.A.) 2008 (topic: Solar Thermal and Wind Power Systems and Site Assessment)

Internship Mentor, Jessica Shipley (U.C. Berkeley, Goldman School M.P.A., E3 Summer
Internship) 2008 (topic: Achieving Agressive Emissions Reductions by 2050: Changes and
Strategies for the U.S.)

Masters Project Research Advisor, Zack Subin (U.C. Berkeley, ERG M.S. Project) 2008 (topic:
Greenhouse Gas Abatement Supply Curves for California's Transportation Sector)

Internship Mentor, Zack Subin (U.C. Berkeley, E3 Summer Internship) 2007 (topic: Greenhouse
Gas Abatement Supply Curves for California's Transportation Sector)

Switzer Foundation Mentor, Chris Greacen (U.C. Berkeley, ERG Ph.D. Dissertation) 1998-2002
(topic: Renewable Energy, Common Property, and Rural Electricity Provision in Thailand)

Service and Professional Activities

Invited Panelist, U.S. Department of Energy, Low Carbon Energy Futures Workshop,
Washington, D.C., 2016

Project Advisory Committee, U.S.-China Collaboration on Clean Air Technologies and Policies,
Asia Society, 2016

Invited Reviewer, U.S. Department of Energy, *Quadrennial Technology Review*, 2015

Steering Committee, Roadmap for California-China Collaboration on Climate Change, Asia
Society, 2013-present

Steering Committee, California Climate Policy Modeling Forum, 2013-present

Coordinating Committee, Deep Decarbonization Pathways Project of the U.N. Sustainable
Development Solutions Network, 2013-present

Invited Panelist, After the 2020 Renewables Portfolio Standard: Next Steps for California, U.C.
Berkeley, 2013

Reviewer, *Energy Policy*, *Environmental Science and Technology*, *Energy*, *Pacific Affairs*,
China Quarterly, and others.

California's Energy Future Policy Committee, California Council on Science and Technology,
2012-present

Chair, Energy-Business Faculty Hiring Committee, Graduate School of International Policy and
Management, Monterey Institute of International Studies, 2011

Adjunct Faculty Hiring Lead, International Environmental Policy Program, Monterey Institute of
International Studies, 2011

Invited Panelist/Reviewer, Dams and Sustainability in China, China Environment Forum,
Woodrow Wilson Center, Washington, DC, 2011

Member, Faculty Promotion Committee, Graduate School of International Policy and
Management, Monterey Institute of International Studies, 2011

Textbook Reviewer for Richard Wolfson, *Energy, Environment, and Climate*, published by
W.W. Norton, 2011

Chair, Science Working Group, Graduate School of International Policy and Management, Monterey Institute of International Studies, 2010

Member, Faculty Contract Renewal Committee, Graduate School of International Policy and Management, Monterey Institute of International Studies, 2010

Research Proposal Reviewer, Netherlands Organization for Scientific Research (NWO), March 2010

Program Director and Convenor, China-US Climate Change Forum, U.C. Berkeley, Spring 2006

Board of Directors, EcoEquity (US NGO focused on international climate equity issues), 2005 - present

Board of Directors, Palang Thai (Bangkok-based energy and sustainable development NGO), 2004-present

Program Director and Convenor, Workshop on the Political Economy of Asian Electricity Reform, Thailand Environment Institute, Bangkok, Thailand, December 2003

Board of Directors, Institute of Sustainable Power, 2001-2002

Organizer and Curriculum Designer, Second Study Tour of DPRK Energy Experts to the U.S. (including first visits by North Koreans to World Bank and U.S. Department of Energy), April 1999

Conference Organizer, Sustainable Energy in North Korea, U.C. Berkeley, April 1999

Conference Organizer, Clean Coal Technologies in China, Nautilus Institute, Berkeley, CA, January 1999

Conference Convenor and Organizer, Physicists in the Cold War Political Arena, Office of History of Science and Technology, U.C. Berkeley, January 1998

Organizer and Curriculum Designer, First Study Tour of DPRK Energy Experts to the U.S., December 1997

Program Director and Convenor, Berkeley-Princeton Conference on Renewable Energy and Development, May 1997

Organizer and Curriculum Designer, Tribal College Instructor Workshop, Native American Renewable Energy Education Project, Carbondale, CO, August 1996

Scientific Advisor, Citizens for a Better Environment, Oakland, CA 1995-2004

Editorial Advisory Board, *Chinese Studies in Philosophy*, 1993-1997

Honors/Fellowships

Energy and Resources Group Post-Doctoral Fellowship, 1995-97

MacArthur International and Strategic Studies Dissertation Fellowship, 1990-92

Institute on Global Conflict and Cooperation Dissertation Fellowship, 1988-90

Selected Grants and Contracts

Earth Institute, Columbia University, *U.S. Deep Decarbonization Pathways Model and Scenarios*, Principal Investigator, 2014

Asia Society, Energy Foundation, Sunnylands Foundation, *California-China Collaboration on Climate Change*, Project Manager, 2013

Regulatory Assistance Project, *Water-Energy Nexus Phase 2*, Project Manager, 2013

- China Environment Forum, *Policy Brief on U.S.-China Energy Cooperation*, Project Manager, 2011
- Regulatory Assistance Project, *Technical Support for State Electricity Regulatory Commission and Development of Utility Energy Efficiency Planning Tool*, Project Manager, 2011
- Regulatory Assistance Project, *Technical Support for State Electricity Regulatory Commission Analysis of Greenhouse Gas Reduction Policy Options in China's Electricity Sector*, Project Manager, 2009-2010
- Regulatory Assistance Project, *Energy Efficiency Power Plant Calculator for China, Tool Development and Training*, Project Manager, 2009-2010
- Mark Faculty Grant, *Current Developments in U.S. and International Climate Change Policy*, Monterey Institute of International Studies, 2009
- Lundeen Faculty Grant, *Arctic Climate Change and International Security*, Monterey Institute of International Studies, 2008
- California Public Utilities Commission, *Modeling of Implementation of AB32 (California's Global Warming Solutions Act) in California's Electricity Sector*, P.I. Energy and Environmental Economics, Inc., 2007-2008
- California Energy Commission, Public Interest Energy Research Program, *Demand Response Valuation*, P.I. Energy and Environmental Economics, Inc., 2005-2006
- California Energy Commission, Public Interest Energy Research Program, *Demand Response Rate Design*, P.I. Energy and Environmental Economics, Inc., 2005-2006
- California Energy Commission, *UC/CSU Peak Load Reduction Project*, 2000-2001, P.I. University of California Office of the President/Gruenich Resource Advocates
- Department of Energy, *North Korean Energy Study*, 1998-1999, P.I. Peter Hayes
- W. Alton Jones Foundation, *North Korean Village Wind Energy Project*, 1997-1999, P.I. Peter Hayes (grant renewed once)
- Department of Energy, *Native American Renewable Energy Education Project*, 1995-97, P.I. Neville Cook (grant renewed twice)
- Institute on Global Conflict and Cooperation Research Grant, 1986-87, P.I. John Holdren

Certifications

EIT Certificate, California Board for Professional Engineers and Land Surveyors
Photovoltaic Design and Installation, Solar Energy International
Wind Electric System Design and Installation, Solar Energy International

Memberships

American Geophysical Union
IEEE Power and Energy Society

Dissertation Committee

Prof. John Holdren (chair), Prof. Kenneth Jowitt, Prof. Thomas Gold