

Adam R. Brandt

CONTACT INFORMATION

Environmental Studies Program
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RESEARCH INTERESTS

Greenhouse gas emissions from liquid fuels, petroleum depletion and transitions to petroleum substitutes, environmental impacts of energy systems, economics of resource quality

EDUCATION

University of California, Berkeley

Ph.D. candidate, Energy and Resources Group, January 2006 to present (expected completion December 2008)

- Dissertation title: Climate impacts of declining petroleum resource quality: process emissions and market dynamics
- Advisor: Alexander E. Farrell

M.S., Energy and Resources, May 2005

University of California, Santa Barbara

B.S., Environmental Studies (emphasis Physics), Highest Honors, June 2003

CURRENT POSITION

Ph.D. Candidate, Energy and Resources Group, University of California, Berkeley
Teaching Assistant, Environmental Studies Program, University of California, Santa Barbara

ACADEMIC EXPERIENCE

University of California, Berkeley

Graduate Student Researcher

August 2003 to August 2007

Research projects included work with:

- California Air Resources Board: developed recommendations for Low Carbon Fuel Standard. February to June 2007. URL: http://www.energy.ca.gov/low_carbon_fuel_standard/
- Energy Modeling Consortium (collaboration between UCB, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, and Stanford University): researched advanced robustness-based energy modeling methods. May to August 2006.
- Climate Decision Making Center, Carnegie Mellon University: modeled the energy efficiency and carbon emissions implications substitutes for conventional petroleum. August 2004 to July 2005. URL: <http://cdmc.epp.cmu.edu/>
- Lawrence Berkeley National Laboratory: analyzed uncertainty in greenhouse gas emissions inventory methodologies. Developed research recommendations for improving accuracy of California greenhouse gas inventories. August 2003 to May 2004. URL: http://www.energy.ca.gov/pier/final_project_reports/CEC-500-2005-097.html

University of Southern California Los Angeles, California

Undergraduate Research Fellow

June 2002 to September 2002

Sustainable Cities Program undergraduate research fellowship in Industrial Ecology. Modeled the Los Angeles economy using regional economic input-output analysis to optimize materials reuse and materials flows in industry.

PUBLICATIONS

***Brandt A.R.** (2008). Converting oil shale to liquid fuels: energy inputs and greenhouse gas emissions of the Shell in situ conversion process. In review: *Environmental Science & Technology*.

Farrell, A.E., D. Sperling, et al. (2007). A Low Carbon Fuel Standard for California, Part 1: Technical Analysis. California Energy Commission, August 1st. Available from http://www.energy.ca.gov/low_carbon_fuel_standard/

Farrell, A.E., D. Sperling, et al. (2007). A Low Carbon Fuel Standard for California, Part 2: Policy Analysis. California Energy Commission, August 1st. Available from http://www.energy.ca.gov/low_carbon_fuel_standard/

***Brandt, A.R.** and A.E. Farrell (2007). Scraping the Bottom of the Barrel: CO₂ Emission Consequences of a Transition to Low-Quality and Synthetic Petroleum Resources. *Climatic Change*, 84(3-4):241-263.

***Brandt, A.R.** (2007). Testing Hubbert. *Energy Policy*, 35(May):3074-3088.

*Farrell, A.E. and **A.R. Brandt** (2006). Risks of the oil transition. *Environmental Research Letters*, 1(1). Available from http://www.iop.org/EJ/article/1748-9326/1/1/014004/erl6_1_014004.pdf

Farrell, A.E., A. Kerr, **A.R. Brandt**, M. Torn (2005). Research Roadmap for Greenhouse Gas Inventory Methods. California Energy Commission Report #CEC-500-2005-097.

*indicates peer-reviewed publication

PAPERS IN
PREPARATION

Brandt A.R., A.E. Farrell (2008). Dynamics of the oil transition: modeling capacity, costs, and emissions. UC Energy Institute, Energy Policy and Economics Working Paper 021. http://www.ucei.berkeley.edu/PDF/EPE_021.pdf

Brandt A.R. (2007). Converting Green River oil shale to liquid fuels with the Alberta Taciuk Processor: energy inputs and greenhouse gas emissions. Working paper: <http://abrandt.berkeley.edu>

INVITED
LECTURES

Stanford University, Energy Resources Engineering departmental seminar. Invited lecture on oil shale production energy balances and GHG emissions, December 4th, 2007.

CONFERENCE
PRESENTATIONS

Brandt A.R. (2007). "Converting Green River oil shale to liquid fuels with ATP and ICP technologies: A life-cycle comparison of energy efficiency and GHG emissions." 27th Oil Shale Symposium, Colorado School of Mines, October 17th, 2007.

Brandt A.R. (2006). "Testing Hubbert." Best Student Paper Award Competition at 26th North American Conference of the International Association for Energy Economics, Ann Arbor, Michigan, September 25th, 2006.

A.E. Farrell and A. Brandt (2006). "Greenhouse gas emissions from a transition to oil substitutes." Modeling the Oil Transition: A DOE/EPA Workshop on the Economic and Environmental Implications of Global Energy Transitions, April 20th to 21st, 2006. Resources for the Future, Washington DC. Available from <http://cta.ornl.gov/oilTransitions/>

Brandt, A.R. and A.E. Farrell (2005). "Scraping the Bottom of the Barrel: CO₂ Emission Consequences of a Transition to Low-Quality and Synthetic Petroleum Resources." 25th Annual North American Conference of the International Association for Energy Economics, Denver, Colorado, September 19th 2005.

TEACHING
EXPERIENCE

University of California, Santa Barbara

Teaching Assistant

January 2008 to March 2008

Environmental Studies 115, *Energy and the Environment*. Contact: Mel Manalis, UC Santa Barbara Environmental Studies Department, manalis@es.ucsb.edu.

University of California, Santa Barbara

Teaching Assistant

April 2003 to June 2003

Environmental Studies 118, *Industrial Ecology: Designing for the Environment*. Contact: Mel Manalis, see above.

Invited lectures for courses

- Oil depletion modeling, UC Berkeley, Civil and Environmental Engineering 170 (Earth, Energy and Humans), March 23rd, 2007.
- Petroleum and society, UC Berkeley, Energy and Resources 200/100 (Energy and Society), September 21st, 2006; September 22nd, 2005.
- Renewable energy, with Douglas Bushey UC Berkeley, Environmental Science, Policy, and Management 10, April 6th, 2006.
- Testing the Hubbert model of oil depletion. UC Berkeley, Renewable and Appropriate Energy Laboratory, February 8th, 2006.
- Environmental impacts of oil production and oil substitutes, UC Santa Barbara, Environmental Studies 115 (Energy and the Environment) February 23rd, 2007; February 28th, 2006; January, 2004.
- Mathematical modeling of oil depletion. UC Santa Barbara, Environmental Studies 190 (Special Topics in the Environment) February 2006.

CONSULTING
EXPERIENCE

Life Cycle Associates LLC, Portola Valley, CA

Consultant

December 2007 - March 2008

Consulting on American Petroleum Institute (API) funded project. Analyzing models of transportation greenhouse gas emissions proposed for use in federal regulatory processes (specifically the GREET model). Modeling of greenhouse gas impacts of low-quality fuels such as heavy oil and tar sands.

Natural Resources Defense Council, San Francisco, California

Consultant

May to August 2006

Studied the energy inputs and outputs and resulting climate impacts of oil shale development in Colorado and Utah. Prepared report outlining energy balances and emissions from oil shale development. Contact: Johanna Wald, Senior Attorney, NRDC, (415) 875-6100

OTHER
EXPERIENCE

Baobab Valley Resource Reserve, Morogoro region, Tanzania, East Africa

Assistant and fund-raiser

June to September 2001

Worked with a non-profit organization working toward sustainable development in rural Tanzania. Assisted with water supply projects in small rural village. Received over \$15,000 in grants and scholarships in conjunction with another student. Was personally awarded the UC President's Undergraduate Fellowship and Kirby-Jones scholarship.

MEDIA
APPEARANCES

Parks, N. Shale-oil development on the fast track. *Environmental Science & Technology*, Policy News, February 6th, 2008. <http://pubs.acs.org/subscribe/journals/esthag-w/2008/feb/policy/np-oilshale.html>

Kolbert, E. Unconventional crude: Canada's synthetic fuel boom. *The New Yorker*, November 12th,

2007. http://www.newyorker.com/reporting/2007/11/12/071112fa_fact_kolbert

HONORS AND
AWARDS

- September 2006: Received Student Paper Award for paper “Testing Hubbert,” 26th annual conference of the United States Association of Energy Economists.
- June 2003: Outstanding Senior of 2003, Environmental Studies program, UC Santa Barbara.
- June 2003: Highest Honors upon graduation (top 2.5% of graduating students), UC Santa Barbara.
- 1998-2003: Dean’s Honors, UC Santa Barbara, 15 consecutive quarters.
- June 2001: Awarded UC President’s Undergraduate Scholarship and Kirby-Jones Scholarship.
- 1999-2000: Highest GPA in Sophomore class of the Educational Opportunity Program, a program for under-represented students and students whose parents did not attend college.

COMPUTER SKILLS

- Mathematical Packages: MATLAB, JMP (statistical package), Mathematica
- Languages: AMPL (mathematical programming), Ploticus (script-based plotting)
- Applications: MS office, L^AT_EX