



Adam Brandt

Associate Professor of Energy Resources Engineering

 Curriculum Vitae available Online

Bio

BIO

Research:

I am interested in reducing the environmental impacts of energy systems. More specifically, I focus on understanding, measuring, and reducing greenhouse gas (GHG) emissions from fossil energy sources. Reducing GHG emissions from fossil fuels is important because fossil energy sources will continue to be key components of our energy system for decades to come.

My research in this area uses the tools of life cycle assessment (LCA) and process optimization to measure and estimate impacts from technologies at broad scales (LCA) and to help reduce these impacts (optimization). Applications include reducing GHG emissions from transportation energy supply and from power systems through CCS.

Teaching:

Through my teaching, I aim to help train the next generation of energy professionals to: optimize energy systems so as to improve their efficiency; rigorously account for the environmental impacts of energy sources; and think critically about systems-scale phenomena in energy production and consumption

ACADEMIC APPOINTMENTS

- Associate Professor, Energy Resources Engineering
- Affiliate, Precourt Institute for Energy

ADMINISTRATIVE APPOINTMENTS

- Acting Assistant Professor, Department of Energy Resources Engineering, Stanford University, (2009-2012)
- Assistant Professor, Department of Energy Resources Engineering, Stanford University, (2012- present)

HONORS AND AWARDS

- Student paper award, United States Association for Energy Economics (2006)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Science Advisory Panel, Methane Reconciliation Project, National Renewable Energy Laboratory (2015 - present)
- Technical steering committee, Independent Review of Well Stimulation, California Council on Science and Technology. (2013 - present)
- Organizing committee, Connecting the Dots: The Energy, Water, Food, Climate Nexus (2013 - 2014)
- Selection committee, Stanford Interdisciplinary Graduate Fellowship (2012 - 2014)
- Team leader, Technical review of natural gas leakage, NOVIM (2012 - 2013)

- Invited speaker, CERA Week 2012, Houston TX, March 6th, 2012 (2012 - 2012)
- Invited speaker: EES seminar. November 28th, 2012, University of Calgary, Institute for sustainable energy, environment and economy (ISEEE) (2012 - 2012)
- Technical advisor, California Environmental Protection Agency, Air Resources Board (CARB) - Low Carbon Fuel Standard regulatory proceedings (2011 - present)
- Expert testimony, European Commission, Directorate General - Climate. May 27, 2011. (2011 - 2011)
- Invited speaker, Workshop on Low Carbon Fuel Standards, Victoria, BC, October 12th-13th 2011 (2011 - 2011)
- Invited speaker, CRC Workshop on life cycle analysis of biofuels. Argonne National Laboratory, October 17th, 2011 (2011 - 2011)
- Invited speaker, Center for European Policy Studies, Brussels, Belgium. March 21st, 2011 (2011 - 2011)
- Technical advisor, European Union, DG Climate - Fuel Quality Directive regulatory proceedings (2010 - 2011)
- Invited Speaker, SLAC National Accelerator Laboratory, February 1st, 2010 (2010 - 2010)
- Search committee, GCEP post-doctoral scholars (2010 - 2010)
- Invited Speaker, Energy, Environment and Society Speaker Series, Humboldt State University, CA, April 2009 (2009 - 2009)
- Invited Speaker, Stanford University, Stanford Energy Seminar, September 23rd, 2009 (2009 - 2009)
- Invited Speaker, Department of Energy Resources Engineering, Stanford University, CA, December 2007 (2007 - 2007)

PROFESSIONAL EDUCATION

- Ph.D., University of California, Berkeley , Energy and Resources (2008)
- M.S., University of California, Berkeley , Energy and Resources (2005)
- B.S., University of California, Santa Barbara , Environmental Studies, emphasis Physics (2003)

LINKS

- Personal web page: <http://pangea.stanford.edu/~abrandt/>
- Brandt Research: <https://earth.stanford.edu/ere/about/energy-resources-engineering-faculty#gs.xjctvs>
- Environmental Assessment and Optimization (EAO) Group: <https://pangea.stanford.edu/researchgroups/eao>
- Google Scholar: <https://scholar.google.com/citations?user=QF3UoDoAAAAJ&hl=en>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research:

I am interested in reducing the environmental impacts of energy systems. More specifically, I focus on understanding, measuring, and reducing greenhouse gas (GHG) emissions from fossil energy sources. Reducing GHG emissions from fossil fuels is important because fossil energy sources will continue to be key components of our energy system for decades to come.

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Teaching:

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Teaching

COURSES

2018-19

- ERE Master's Graduate Seminar: ENERGY 351 (Win)
- ERE PhD Graduate Seminar: ENERGY 352 (Win)
- Fundamentals of Energy Processes: EE 293B, ENERGY 293B (Win)
- Optimization of Energy Systems: ENERGY 191, ENERGY 291 (Win)
- Sustainable Energy for 9 Billion: ENERGY 104 (Spr)

2017-18

- Fundamentals of Energy Processes: EE 293B, ENERGY 293B (Aut)
- Optimization of Energy Systems: ENERGY 191, ENERGY 291 (Win)
- Sustainable Energy for 9 Billion: ENERGY 104 (Spr)

2016-17

- Fundamentals of Energy Processes: EE 293B, ENERGY 293B (Win)
- Optimization of Energy Systems: ENERGY 191, ENERGY 291 (Win)
- Sustainable Energy for 9 Billion: ENERGY 104 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Eric Lebel, Tim Yeskoo, Jacques de Chalendar

Postdoctoral Faculty Sponsor

GIACOMO BENINI, Evan Sherwin

Doctoral Dissertation Advisor (AC)

Holger Teichgraber, Jingfan Wang

Master's Program Advisor

Yulia Chen, Rachel Orsini, Sindhu Sreedhara

Doctoral Dissertation Co-Advisor (AC)

Ranjitha Shivaram

Doctoral (Program)

Wennan Long, Yuhao Nie, Jeff Rutherford, Lin Shi, Zhan Zhang

Publications

PUBLICATIONS

- **Single-blind inter-comparison of methane detection technologies - results from the Stanford/EDF Mobile Monitoring Challenge** *ELEMENTA-SCIENCE OF THE ANTHROPOCENE*
Ravikumar, A. R., Sreedhara, S., Wang, J., Englander, J., Roda-Stuart, D., Bell, C., Zimmerle, D., Lyon, D., Mogstad, I., Ratner, B., Brandt, A. R.
2019; 7
- **Short-term solar power forecast with deep learning: Exploring optimal input and output configuration** *SOLAR ENERGY*
Sun, Y., Venugopal, V., Brandt, A. R.

2019; 188: 730–41

- **Clustering methods to find representative periods for the optimization of energy systems: An initial framework and comparison** *APPLIED ENERGY*
Teichgraber, H., Brandt, A. R.
2019; 239: 1283–93
- **Biomethane addition to California transmission pipelines: Regional simulation of the impact of regulations** *Applied Energy*
Von Wald, G. A., et al
2019: 292-301
- **Design and operations optimization of membrane-based flexible carbon capture** *International Journal of Greenhouse Gas Control*
Yuan, M.
2019; 84: 154-163
- **Three considerations for modeling natural gas system methane emissions in life cycle assessment** *Journal of Cleaner Production*
Grubert, E. A., et al
2019; 222: 760-767
- **Short-term solar power forecast with deep learning: Exploring optimal input and output configuration** *Short-term solar power forecast with deep learning: Exploring optimal input and output configuration*
Sun, Y.
2019; 188: 730-741
- **Optimal design and operation of integrated solar combined cycles under emissions intensity constraints** *APPLIED ENERGY*
Brodrick, P. G., Brandt, A. R., Durlafsky, L. J.
2018; 226: 979–90
- **Global carbon intensity of crude oil production.** *Science (New York, N.Y.)*
Masnadi, M. S., El-Houjeiri, H. M., Schunack, D., Li, Y., Englander, J. G., Badahdah, A., Monfort, J., Anderson, J. E., Wallington, T. J., Bergerson, J. A., Gordon, D., Koomey, J., Przesmitzki, et al
2018; 361 (6405): 851–53
- **Climate-wise choices in a world of oil abundance** *ENVIRONMENTAL RESEARCH LETTERS*
Brandt, A. R., Masnadi, M. S., Englander, J. G., Koomey, J., Gordon, D.
2018; 13 (4)
- **Analysis of the energy return on investment (EROI) of existing fields**
Masnadi, M., Brandt, A.
AMER CHEMICAL SOC.2018
- **Well-to-refinery emissions and net-energy analysis of China's crude-oil supply** *NATURE ENERGY*
Masnadi, M. S., El-Houjeiri, H. M., Schunack, D., Li, Y., Roberts, S. O., Przesmitzki, S., Brandt, A. R., Wang, M.
2018; 3 (3): 220–26
- **"Good versus Good Enough?" Empirical Tests of Methane Leak Detection Sensitivity of a Commercial Infrared Camera** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Ravikumar, A. P., Wang, J., McGuire, M., Bell, C. S., Zimmerle, D., Brandt, A. R.
2018; 52 (4): 2368–74
- **Solar PV output prediction from video streams using convolutional neural networks** *Energy & Environmental Science*
Sun, Y.
2018: 8
- **Aerial Interyear Comparison and Quantification of Methane Emissions Persistence in the Bakken Formation of North Dakota, USA** *Environmental Science and Technology*
Englander, J. G., Brandt, A. R., Conley, S., Lyon, D. R., Jackson, R. B.
2018; 52: 8947–8953
- **Assessment of methane emissions from the U.S. oil and gas supply chain.** *Science (New York, N.Y.)*
Alvarez, R. A., Zavala-Araiza, D., Lyon, D. R., Allen, D. T., Barkley, Z. R., Brandt, A. R., Davis, K. J., Herndon, S. C., Jacob, D. J., Karion, A., Kort, E. A., Lamb, B. K., Lauvaux, et al

2018; 361 (6398): 186–88

- **Convolutional Neural Network for Short-term Solar Panel Output Prediction**
Sun, Y., Venugopal, V., Brandt, A. R., IEEE
IEEE.2018: 2357–61
- **Aerial inter-year comparison and quantification of methane emissions persistence in the Bakken formation of North Dakota, USA.** *Environmental science & technology*
Englander, J. G., Brandt, A. R., Conley, S., Lyon, D. R., Jackson, R. B.
2018
- **Optimal design and operation of integrated solar combined cycles under emissions intensity constraints** *Applied Energy*
Brodrick, P. G.
2018; 226 (0306-2619): 979-990
- **Assessment of methane emissions from the U.S. oil and gas supply chain** *Science*
Alvarez, R. A.
2018: 186–88
- **Improved characterization of methane emissions from the U.S. oil and gas supply chain** *Science*
Alvarez, R. A.
2018; 361 (6398): 186-188
- **Operational optimization of an integrated solar combined cycle under practical time-dependent constraints** *ENERGY*
Brodrick, P. G., Brandt, A. R., Durlofsky, L. J.
2017; 141: 1569–84
- **Evaluation of a proposal for reliable low-cost grid power with 100% wind, water, and solar** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Clack, C. M., Qvist, S. A., Apt, J., Bazilian, M., Brandt, A. R., Caldeira, K., Davis, S. J., Diakov, V., Handschy, M. A., Hines, P. H., Jaramillo, P., Kammen, D. M., Long, et al
2017; 114 (26): 6722–27
- **Methane, Black Carbon, and Ethane Emissions from Natural Gas Flares in the Bakken Shale, North Dakota** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Gvakharia, A., Kort, E. A., Brandt, A., Peischl, J., Ryerson, T. B., Schwarz, J. P., Smith, M. L., Sweeney, C.
2017; 51 (9): 5317-5325
- **When Comparing Alternative Fuel-Vehicle Systems, Life Cycle Assessment Studies Should Consider Trends in Oil Production** *JOURNAL OF INDUSTRIAL ECOLOGY*
Wallington, T. J., Anderson, J. E., De Kleine, R. D., Kim, H. C., Maas, H., Brandt, A. R., Keoleian, G. A.
2017; 21 (2): 244-248
- **Designing better methane mitigation policies: the challenge of distributed small sources in the natural gas sector** *ENVIRONMENTAL RESEARCH LETTERS*
Ravikumar, A. P., Brandt, A. R.
2017; 12 (4)
- **Energy Intensity and Greenhouse Gas Emissions from Oil Production in the Eagle Ford Shale** *ENERGY & FUELS*
Yeh, S., Ghandi, A., Scanlon, B. R., Brandt, A. R., Cai, H., Wang, M. Q., Vafi, K., Reedy, R. C.
2017; 31 (2): 1440-1449
- **Updating the US Life Cycle GHG Petroleum Baseline to 2014 with Projections to 2040 Using Open-Source Engineering-Based Models** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Cooney, G., Jamieson, M., Marriott, J., Bergerson, J., Brandt, A., Skone, T. J.
2017; 51 (2): 977-987
- **Are Optical Gas Imaging Technologies Effective For Methane Leak Detection?** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Ravikumar, A. P., Wang, J., Brandt, A. R.
2017; 51 (1): 718-724
- **Estimating decades-long trends in petroleum field energy return on investment (EROI) with an engineering-based model.** *PloS one*

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- Tripathi, V. S., Brandt, A. R.
2017; 12 (2)
- **Energetic productivity dynamics of global super-giant oilfields** *Energy & Environmental Science*
Masnadi, M., Brandt, A.
2017; 10 (6): 1493-1504
 - **Potential solar energy use in the global petroleum sector** *ENERGY*
Wang, J., O'Donnell, J., Brandt, A. R.
2017; 118: 884-892
 - **Methane Leaks from Natural Gas Systems Follow Extreme Distributions** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Brandt, A. R., Heath, G. A., Cooley, D.
2016; 50 (22): 12512-12520
 - **Energy Intensity and Greenhouse Gas Emissions from Tight Oil Production in the Bakken Formation** *ENERGY & FUELS*
Brandt, A. R., Yeskoo, T., McNally, M. S., Vafi, K., Yeh, S., Cai, H., Wang, M. Q.
2016; 30 (11): 9613-9621
 - **Assessment of advanced solvent-based post-combustion CO₂ capture processes using a bi-objective optimization technique** *APPLIED ENERGY*
Kang, C. A., Brandt, A. R., Durlofsky, L. J., Jayaweera, I.
2016; 179: 1209-1219
 - **Improved exergetic life cycle assessment through matrix reduction technique** *INTERNATIONAL JOURNAL OF LIFE CYCLE ASSESSMENT*
Smith, S. S., Calbry-Muzyka, A., Brandt, A. R.
2016; 21 (10): 1379-1390
 - **GHGfrack: An Open-Source Model for Estimating Greenhouse Gas Emissions from Combustion of Fuel during Drilling and Hydraulic Fracturing.** *Environmental science & technology*
Vafi, K., Brandt, A.
2016; 50 (14): 7913-7920
 - **Quantifying atmospheric methane emissions from oil and natural gas production in the Bakken shale region of North Dakota** *JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES*
Peischl, J., Karion, A., Sweeney, C., Kort, E. A., Smith, M. L., Brandt, A. R., Yeskoo, T., Aikin, K. C., Conley, S. A., Gvakharia, A., Trainer, M., Wolter, S., Ryerson, et al
2016; 121 (10): 6101-6111
 - **Fugitive emissions from the Bakken shale illustrate role of shale production in global ethane shift** *GEOPHYSICAL RESEARCH LETTERS*
Kort, E. A., Smith, M. L., Murray, L. T., Gvakharia, A., Brandt, A. R., Peischl, J., Ryerson, T. B., Sweeney, C., Travis, K.
2016; 43 (9): 4617-4623
 - **Aerial Surveys of Elevated Hydrocarbon Emissions from Oil and Gas Production Sites** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Lyon, D. R., Alvarez, R. A., Zavala-Araiza, D., Brandt, A. R., Jackson, R. B., Hamburg, S. P.
2016; 50 (9): 4877-4886
 - **A new carbon capture proxy model for optimizing the design and time-varying operation of a coal-natural gas power station** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Kang, C. A., Brandt, A. R., Durlofsky, L. J.
2016; 48: 234-252
 - **Comparing Natural Gas Leakage Detection Technologies Using an Open-Source "Virtual Gas Field" Simulator** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Kemp, C. E., Ravikumar, A. P., Brandt, A. R.
2016; 50 (8): 4546-4553
 - **Water Use and Management in the Bakken Shale Oil Play in North Dakota** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Horner, R. M., Harto, C. B., Jackson, R. B., Lowry, E. R., Brandt, A. R., Yeskoo, T. W., Murphy, D. J., Clark, C. E.
2016; 50 (6): 3275-3282

- **GHGfrack: An open-source model for estimating greenhouse gas emissions from combustion of fuel in drilling and hydraulic fracturing** *Environ. Sci. Technol.*
Vafi, K., Brandt, A.
2016; 7913–20
- **Energy Return on Investment (EROI) for Forty Global Oilfields Using a Detailed Engineering-Based Model of Oil Production** *PLOS ONE*
Brandt, A. R., Sun, Y., Bharadwaj, S., Livingston, D., Tan, E., Gordon, D.
2015; 10 (12)
- **Net energy analysis of Bakken crude oil production using a well-level engineering-based model** *ENERGY*
Brandt, A. R., Yeskoo, T., Vafi, K.
2015; 93: 2191-2198
- **Embodied Energy and GHG Emissions from Material Use in Conventional and Unconventional Oil and Gas Operations** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Brandt, A. R.
2015; 49 (21): 13059-13066
- **The productivity and potential future recovery of the Bakken formation of North Dakota** *JOURNAL OF UNCONVENTIONAL OIL AND GAS RESOURCES*
McNally, M., Brandt, A. R.
2015; 11: 11–18
- **Oil Sands Energy Intensity Assessment Using Facility-Level Data** *ENERGY & FUELS*
Englander, J. G., Brandt, A. R., Elgowainy, A., Cai, H., Han, J., Yeh, S., Wang, M. Q.
2015; 29 (8): 5204-5212
- **Well-to-Wheels Greenhouse Gas Emissions of Canadian Oil Sands Products: Implications for US Petroleum Fuels** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Cai, H., Brandt, A. R., Yeh, S., Englander, J. G., Han, J., Elgowainy, A., Wang, M. Q.
2015; 49 (13): 8219-8227
- **Uncertainty in Regional-Average Petroleum GHG Intensities: Countering Information Gaps with Targeted Data Gathering.** *Environmental science & technology*
Brandt, A. R., Sun, Y., Vafi, K.
2015; 49 (1): 679-686
- **Optimization of carbon-capture-enabled coal-gas-solar power generation** *ENERGY*
Brodrick, P. G., Kang, C. A., Brandt, A. R., Durlofsky, L. J.
2015; 79: 149-162
- **Well-to-Wheels Greenhouse Gas Emissions of Canadian Oil Sands Products: Implications for U.S. Petroleum Fuels.** *Environmental science & technology*
Cai, H., Brandt, A. R., Yeh, S., Englander, J. G., Han, J., Elgowainy, A., Wang, M. Q.
2015; 49 (13): 8219–27
- **Know your oil**
Gordon, D., Brandt, A. R., Bergerson, J., Koomey, J.
Carnegie Endowment for International Peace.2015
- **Optimization of carbon-capture-enabled coal-gas-solar power generation** *Energy*
Brodrick, P. G., Kang, C. A., Brandt, A. R., Durlofsky, L. J.
2015; 79: 149-162
- **Optimizing heat integration in a flexible coal-natural gas power station with CO2 capture** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Kang, C. A., Brandt, A. R., Durlofsky, L. J.
2014; 31: 138-152
- **Reproducibility of LCA Models of Crude Oil Production** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Vafi, K., Brandt, A. R.
2014; 48 (21): 12978-12985

- **Reproducibility of LCA models of crude oil production.** *Environmental science & technology*
Vafi, K., Brandt, A. R.
2014; 48 (21): 12978-12985
- **Uncertainty of Oil Field GHG Emissions Resulting from Information Gaps: A Monte Carlo Approach.** *Environmental science & technology*
Vafi, K., Brandt, A. R.
2014; 48 (17): 10511-10518
- **Energy and environment. Methane leaks from North American natural gas systems.** *Science*
Brandt, A. R., Heath, G. A., Kort, E. A., O'Sullivan, F., Pétron, G., Jordaan, S. M., Tans, P., Wilcox, J., Gopstein, A. M., Arent, D., Wofsy, S., Brown, N. J., Bradley, et al
2014; 343 (6172): 733-735
- **A better currency for investing in a sustainable future** *Nature Climate Change*
Carbajales-Dale, M., Barnhart, C. J., Brandt, A. R., Benson, S. M.
2014; 4 (7): 524-527
- **Uncertainty in Regional-Average Petroleum GHG Intensities: Countering Information Gaps with Targeted Data Gathering** *Environ. Sci. Technol.*
Brandt, A., Sun, Y., Vafi, K.
2014: 679-86
- **Ensuring benefits from North American shale gas development: Towards a research agenda** *Journal of Unconventional Oil and Gas Resources*
Bazilian, M., Brandt, A. R., Billman, L., Heath, G., Logan, J., Mann, M., Melaina, M., Statwick, P., Arent, D., Benson, S. M.
2014; 7: 71-74
- **Oil Sands Energy Intensity Analysis for GREET Model Update** *Technical Report, Argonne National Laboratory*
Englander, J. G., Brandt, A. R.
2014
- **Calculating systems-scale energy efficiency and net energy returns: A bottom-up matrix-based approach** *ENERGY*
Brandt, A. R., Dale, M., Barnhart, C. J.
2013; 62: 235-247
- **The energetic implications of curtailing versus storing solar- and wind-generated electricity** *ENERGY & ENVIRONMENTAL SCIENCE*
Barnhart, C. J., Dale, M., Brandt, A. R., Benson, S. M.
2013; 6 (10): 2804-2810
- **Historical trends in greenhouse gas emissions of the Alberta oil sands (1970-2010)** *ENVIRONMENTAL RESEARCH LETTERS*
Englander, J. G., Bharadwaj, S., Brandt, A. R.
2013; 8 (4)
- **Peak oil demand: the role of fuel efficiency and alternative fuels in a global oil production decline.** *Environmental science & technology*
Brandt, A. R., Millard-Ball, A., Ganser, M., Gorelick, S. M.
2013; 47 (14): 8031-8041
- **CO2 Mitigation Potential of Mineral Carbonation with Industrial Alkalinity Sources in the United States.** *Environmental science & technology*
Kirchofer, A., Becker, A., Brandt, A., Wilcox, J.
2013; 47 (13): 7548-7554
- **The energy efficiency of oil sands extraction: Energy return ratios from 1970 to 2010** *ENERGY*
Brandt, A. R., Englander, J., Bharadwaj, S.
2013; 55: 693-702
- **Open-Source LCA Tool for Estimating Greenhouse Gas Emissions from Crude Oil Production Using Field Characteristics.** *Environmental science & technology*
El-Houjeiri, H. M., Brandt, A. R., Duffy, J. E.
2013; 47 (11): 5998-6006
- **Using Infrastructure Optimization to Reduce Greenhouse Gas Emissions from Oil Sands Extraction and Processing** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*

-
- Middleton, R. S., Brandt, A. R.
2013; 47 (3): 1735-1744
- **Historical trends in life-cycle greenhouse gas emissions of Alberta oil sands extraction from 1970 to 2010: Causes and implications for future emissions** *Environmental Research Letters*
Englander, J., Brandt, A. R., Bharadwaj, S.
2013; 8 (4): 44036
 - **Assessing the Potential of Mineral Carbonation with Industrial Alkalinity Sources in the US** *International Conference on Greenhouse Gas Technologies (GHGT)*
Kirchofer, A., Brandt, A., Krevor, S., Prigiobbe, V., Becker, A., Wilcox, J.
ELSEVIER SCIENCE BV.2013: 5858–5869
 - **Estimating greenhouse gas (GHG) emissions from oil production operations using detailed field characteristics** *Environmental Science & Technology*
El-Houjeiri, H. M., Brandt, A. R.
2013: 5998–6006
 - **Impact of alkalinity sources on the life-cycle energy efficiency of mineral carbonation technologies** *ENERGY & ENVIRONMENTAL SCIENCE*
Kirchofer, A., Brandt, A., Krevor, S., Prigiobbe, V., Wilcox, J.
2012; 5 (9): 8631-8641
 - **Variability and Uncertainty in Life Cycle Assessment Models for Greenhouse Gas Emissions from Canadian Oil Sands Production** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Brandt, A. R.
2012; 46 (2): 1253-1261
 - **Willingness to Pay for a Climate Backstop: Liquid Fuel Producers and Direct CO2 Air Capture** *ENERGY JOURNAL*
Nemet, G. F., Brandt, A. R.
2012; 33 (1): 53-81
 - **Exploring the variation of GHG emissions from conventional oil production using an engineering-based LCA model** *American Center for Life Cycle Assessment (ACLCA) LCA XII Conference*
El-Houjeiri, H. M., Brandt, A. R.
2012
 - **Optimal heat integration in a coal-natural gas energy park with CO2 capture** *GHGT-11, the 11th International Conference on Greenhouse Gas Control Technologies*
Kang, C. A., Brandt, A. R., Durllofsky, L. J.
2012
 - **Impact of CO2 Emissions Policy and System Configuration on Optimal Operation of an Integrated Fossil-Renewable Energy Park** *Carbon Management Technologies Conference*
Kang, C. A., Brandt, A. R., Durllofsky, L. J.
2012
 - **Optimal operation of an integrated energy system including fossil fuel power generation, CO2 capture and wind** *ENERGY*
Kang, C. A., Brandt, A. R., Durllofsky, L. J.
2011; 36 (12): 6806-6820
 - **Oil Depletion and the Energy Efficiency of Oil Production: The Case of California** *SUSTAINABILITY*
Brandt, A. R.
2011; 3 (10): 1833-1854
 - **A General Mathematical Framework for Calculating Systems-Scale Efficiency of Energy Extraction and Conversion: Energy Return on Investment (EROI) and Other Energy Return Ratios** *ENERGIES*
Brandt, A. R., Dale, M.
2011; 4 (8): 1211-1245
 - **Oil Shale as an Energy Resource in a CO2 Constrained World: The Concept of Electricity Production with in Situ Carbon Capture** *ENERGY & FUELS*
Mulchandani, H., Brandt, A. R.
2011; 25 (4): 1633-1641

- **CO₂ Interim Storage: Technical Characteristics and Potential Role in CO₂ Market Development** *10th International Conference on Greenhouse Gas Control Technologies*
Farhat, K., Brandt, A., Benson, S. M.
ELSEVIER SCIENCE BV.2011: 2628–2636
- **Land Use Greenhouse Gas Emissions from Conventional Oil Production and Oil Sands** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Yeh, S., Jordaan, S. M., Brandt, A. R., Turetsky, M. R., Spatari, S., Keith, D. W.
2010; 44 (22): 8766-8772
- **The Climate Impacts of Bioenergy Systems Depend on Market and Regulatory Policy Contexts** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Lemoine, D. M., Plevin, R. J., Cohn, A. S., Jones, A. D., Brandt, A. R., Vergara, S. E., Kammen, D. M.
2010; 44 (19): 7347-7350
- **Global oil depletion: A review of the evidence** *ENERGY POLICY*
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- Vafi, K., A.R. Brandt, (2014). Validation of GHG estimation models for petroleum production: challenges and promises. LCA XIV, American Center for Life Cycle Assessment. October 7th, 2014. - American Center for Life Cycle Assessment (10/7/2014)
- Hewlett Foundation, Cynthia and George Mitchell Foundation, Funders Meeting on Methane Emissions Strategy (10/2/2014)
- Lockheed Martin STAR Labs, Science Colloquium. Invited lecture on methane leaks from natural gas systems. September 25th, 2014.
- Carnegie Endowment for International Peace. Oil Carbon Index Workshop. Washington, D.C., September 18th, 2014.
- Society of Petroleum Engineers, Low Carbon Intensity Processes for Low Mobility Oil Recovery. Newport Beach, CA, 27th July - 1st August, 2014.
- Carnegie Mellon University, Center for Climate and Energy Decision Making Seminar. Invited lecture on methane leaks from natural gas systems. March 31st 2014, Pittsburg PA.
- University of California Berkeley, Energy and Resources Group Colloquium. Invited lecture on methane leaks from natural gas systems. March 19th 2014, Berkeley, CA.
- University of Texas, Petroleum and Geosystems Engineering Departmental Seminar. Invited lecture on energy efficiency of oil extraction. October 28th 2013, Austin TX