

## DANIEL SANCHEZ

Email: [sanchezd@berkeley.edu](mailto:sanchezd@berkeley.edu)

Department of Environmental Science, Policy, & Management

Studying engineered biomass & bioenergy systems that remove CO<sub>2</sub> from the atmosphere

### Recent Experience

*Assistant Specialist in Cooperative Extension*, (September 2018-Present)

Department of Environmental Science, Policy, and Management, University of California, Berkeley

Director of Carbon Removal Laboratory, focused on engineering, analysis and policy for commercialization of sustainable negative emissions technologies

Member of Joint Institute for Wood Product Innovation, dedicated to providing California forest product information, research, and analysis to increase economic drivers for healthy forests

Associate Editor, Negative Emissions Technologies. *Frontiers in Climate*

Research Interests: carbon dioxide removal, energy systems modeling, bioenergy, technology commercialization, forest management, carbon capture and sequestration, climate policy

#### Sponsored research grants:

Opportunities for low-carbon and carbon-negative fuels from non-merchantable biomass in California (2020-2022)

Source: Board of Forestry and Fire Protection (Amount = \$225k)

Analysis of the Bioeconomy for Carbon Drawdown (2019-2021)

Source: Lawrence Livermore National Laboratory (Amount = \$100k)

Decentralized Biomass Torrefaction to Reduce Cost and Improve Utilization of Treated Woody Biomass Residues (2019-2021)

Source: California Department of Fire and Forest Protection (Amount = \$353k)

Joint Institute for Wood Products Innovation: Evaluation of Literature, Research Gaps, Partnerships, and Priorities (2019)

Source: Board of Forestry and Fire Protection (Amount = \$225k)

Quantifying Carbon and Cost Impacts Associated with Forest Management in CA (2018-2019)

Source: Windward Fund (Amount = \$125k)

Harnessing the Bioeconomy for Carbon Drawdown: Potential and Innovation Needs (2018-2019)

Source: Lawrence Livermore National Laboratory (Amount = \$50k)

Integrating CO<sub>2</sub> Capture, Utilization, & Storage at Pulp & Paper Mills in the United States (2019)

Source: Climateworks Foundation (Amount = \$50k)

#### Awards:

Secretary of Energy Achievement Award for “Getting to Neutral: Options for Negative Carbon Emissions in California” (2021) (awarded to all authors)

*AAAS Congressional Science & Engineering Fellow*, AAAS Science and Technology Policy Fellowship (2017-2018)  
Washington, D.C.

Supported Senator Michael Bennet (D-CO) on energy, climate, environment, and conservation

Advanced opportunities for carbon sequestration and bioenergy in 2018 Farm Bill

Coordinated state-level engagement with and rural communities around climate impacts and solutions

*Postdoctoral Research Scientist*, Carnegie Institution for Science / Department of Global Ecology, (2016-2017)  
Stanford University, Stanford, CA

Worked with Drs. Chris Field and Katherine Mach to study feasibility and implementation of carbon dioxide removal technologies, including bioenergy with carbon capture and sequestration (BECCS)

Previously, worked with Drs. Ken Caldeira and Michael Mastrandrea to study near-zero emission energy systems, focusing on innovation and R&D priorities for deep decarbonization.

### Education

*Ph.D., Energy and Resources*, University of California Berkeley (2013- 2015)

Dissertation: “Deployment, Design, and Commercialization of Carbon-Negative Energy Systems”

Researcher, Renewable and Appropriate Energy Laboratory (RAEL). PI: Daniel M. Kammen

Graduate Student Researcher, Energy Biosciences Institute (EBI). PI: Hanna Breetz

Graduate Student Instructor, Climate Policy and Politics (Spring 2015). Dr. Danny Cullenward

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- M.S., Energy and Resources*, University of California Berkeley (2011- 2013)  
Project: “Dairy Biogas in California: Cost-Effective Development”
- B.S.E., Chemical and Biomolecular Engineering*, School of Engineering & Applied Science, University of Pennsylvania  
Graduated Magna Cum Laude. Minor in Mathematics (2006- 2010)
- Grants and Scholarships (Graduate)
- National Science Foundation Graduate Research Fellowship (Amount = \$300k) (2012-2015)  
Chancellor’s Graduate Diversity Fellowship, University of California Berkeley (2011-2015)  
Analyst, “Cleaner Air, Cleaner Energy: Converting Forest Fire Management Waste to On Demand Renewable Energy” California Energy Commission PON-14-303. (Amount = \$1.99M)  
Analyst, “Building a Healthier and More Robust Future: 2050 Low Carbon Energy Scenarios for California” California Energy Commission PON-14-309. (Amount = \$700k)

### Extracurricular and Advisory Activities

- Advisory Board Member*, Takachar, Berkeley, CA (2018-Present)  
Startup company focused on increasing the amount of waste biomass economically transformed into marketable products around the world using a concept called oxygen-lean torrefaction
- Author and Reviewer*, Value Chains and Cross-Industry Integration, National Petroleum Council Carbon Capture, Use and Storage Study, U.S. Department of Energy (2018-2019)
- Board Member*, Center for Carbon Removal, Oakland, CA (2015-2017)  
A nonprofit developing initiatives to accelerate the development of scalable, sustainable, economically-viable strategies for removing carbon dioxide from the atmosphere
- Advisory Board Member*, Cyclotron Road, Berkeley, CA (2015-Present)  
A targeted commercialization program for hard energy technology at Lawrence Berkeley National Lab
- Special Projects Officer*, Energy and Resources Group Alumni Network, Berkeley, CA (2016-2018)
- Co-President*, Berkeley Energy and Resource Collaborative (BERC) (2011-2014)  
Led 3000-member student energy organization; managed executive and leadership team  
Personally fundraised over \$100k for operating budget

### Prior Research/Work Experience

- Volunteer*, Energy, Climate and Environment Working Group, Hillary for America (2015-2016)  
Authored memos for campaign advisors on renewable fuels, carbon dioxide removal, carbon capture and sequestration (CCS), and biogenic emissions accounting policy  
Member of working groups supporting platform development on electricity, public lands, and international clean energy development policy
- Volunteer*, Cleantech Party for Hillary (Fall 2016)  
Organized fundraising, phonebanking, and canvassing events in San Francisco, CA and Reno, NV
- Young Summer Scholar*, Ecosystem Services and Management Group, International Institute for Applied Systems Analysis (IIASA), Vienna, Austria (Summer 2015)  
Developed energy modeling tools to study deployment of power-to-gas and power-to-liquids technology
- Technology to Market Summer Scholar*, Advanced Research Projects Agency-Energy (ARPA-E) (Summer 2013)  
Conducted market research and economic analysis of natural gas exploration and production technology, synthetic biotechnology, and renewable fuels to inform program development
- Climate Policy Research Intern*, Division of Ratepayer Advocates, CA Public Utilities Commission (Summer 2012)  
Led policy and economic analysis, lobbying, and public communication on issue of biogas development
- Policy Associate*, Capital Access Program, Green For All (2010- 2012)  
Coordinated business development program for national environmental nonprofit. Portfolio included business coaching, workforce development, market research, and hosting of five national events
- Energy and Environmental Policy Intern and Special Advisor*, Center for American Progress (Summer 2009)

### Publications (Academic)

- L. Rosa, D.L. Sanchez, M. Mazzotti. “Assessment of carbon dioxide removal potential via BECCS in a carbon-neutral Europe” *Energy & Environmental Science*, 14, 5 (2021)
- F. Schenuit, R. Colvin, M. Fridahl, B. McMullin, A. Reisinger, D.L. Sanchez, L. S.M. Smith, A. Torvanger, A. Wreford, O. Geden. “Carbon dioxide removal policy in the making: assessing developments in 9 OECD cases” *Frontiers in Climate*, 3, 7 (2021)

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- D.L. Sanchez, K. Fingerman, C. Herbert, S. Uden. “Policy Options for Deep Decarbonization and Wood Utilization in California's Low Carbon Fuel Standard” *Frontiers in Climate*, 3, 40 (2021)
- W.J. Sagues, H.Jameel, D.L. Sanchez, S.Park. “Prospects for bioenergy with carbon capture & storage (BECCS) in the United States pulp and paper industry” *Energy & Environmental Science*, 13, 8, (2020)
- H.J. Buck., L.J. Martin, O. Geden, P. Kareiva, L. Koslov, W. Krantz, B. Kravitz, J. Noël, E.A. Parson, C.J. Preston, D.L. Sanchez. “Evaluating the efficacy and equity of environmental stopgap measures” *Nature Sustainability*, 3, 7 (2020)
- S.K.Thengane, J. Burek, K. Kung, A.F. Ghoniem, D.L. Sanchez “Life cycle assessment of rice husk torrefaction and prospects for decentralized facilities at rice mills” *Journal of Cleaner Production*, 275 (2020)
- W.J. Sagues, C. Assis, P. Hah, D.L. Sanchez;N Z. Johnson, M. Acharya, H. Jameel,; S. Park. “Decarbonizing agriculture through the conversion of animal manure to dietary protein and ammonia fertilizer” *Bioresource technology*, 297 (2020)
- S.K. Thengane, K. Kung, R. York, S. Sokhansanj, C.J. Lim, D.L. Sanchez. “Technoeconomic and emissions evaluation of mobile in-woods biochar production” *Energy Conversion and Management*, 223 (2020)
- S. Shayegh, D.L. Sanchez. “Impact of market design on cost-effectiveness of renewable portfolio standards” *Renewable and Sustainable Energy Reviews*, 136 (2021)
- H.J. Buck, J. Furfman, D.R. Morrow, D.L. Sanchez, F.M Wang. “Adaptation and Carbon Removal” *One Earth*, 3, 4 (2020)
- L. Rosa, D.L. Sanchez, G. Realmonte, D. Baldocchi, P. D'Odorico. “The water footprint of carbon capture and storage technologies” *Renewable and Sustainable Energy Reviews* (2020)
- S.K. Thengane, K.S. Kung, A. Gupta, M. Ateia, D.L. Sanchez, S.M Mahajani, C.J. Lim, S. Sokhansanj, A.F. Ghoniem. “Oxidative torrefaction for cleaner utilization of biomass for soil amendment” *Cleaner Engineering and Technology*, 1 (2020)
- W.J. Sagues, S. Park, H. Jameel, D.L. Sanchez. “Enhanced Carbon Dioxide Removal from Coupled Direct Air Capture-Bioenergy Systems” *Sustainable Energy and Fuels*, 3, 11, (2019)
- D.L. Sanchez, B.Z. Houlton, W. Silver. “UC experts can lead on carbon dioxide removal” *California Agriculture*, 73, 2 (2019) <https://doi.org/10.3733/ca.2019a0009>
- R. Jacobson, D.L. Sanchez. “Opportunities for Carbon Dioxide Removal Within the United States Department of Agriculture” *Frontiers in Climate*, 25 July 2019, <https://doi.org/10.3389/fclim.2019.00002>
- D.L. Sanchez, P.A. Turner, E. Baik, C.B. Field, S.M. Benson and K.J. Mach. “Rightsizing expectations for bioenergy with carbon capture and storage toward ambitious climate goals” in *Bioenergy with Carbon Capture and Storage: Using Natural Resources for Sustainable Development*, Elsevier Press (2019).
- D.L. Sanchez, N. Johnson, S. McCoy, P.A. Turner, K.J. Mach. “Near-term deployment of carbon capture and storage from biorefineries in the United States” *Proceedings of the National Academies of Sciences*, 115, 4875-4880 (2018) <http://www.pnas.org/content/pnas/115/19/4875.full.pdf>.
- D.L. Sanchez, D.M. Kammen. “A commercialization strategy for carbon-negative energy” *Nature Energy*, 1, 1-4 (2016). doi: 10.1038/NENERGY.2015.2
- D.L. Sanchez, D.S. Callaway. “Optimal scale of bioenergy with carbon capture and storage (BECCS) facilities” *Applied Energy* (2016) doi:10.1016/j.apenergy.2016.02.134
- D.L. Sanchez, J.H. Nelson, J. Johnston, A. Mileva, D. Kammen. “Biomass enables the transition to a carbon-negative power system across western North America.” *Nature Climate Change*, 5, 230–234 (2015).
- D.L. Sanchez, V. Sivaram. “Saving innovative climate and energy research: Four recommendations for Mission Innovation” *Energy Research & Social Science* 29, 123–126 (2017). <https://doi.org/10.1016/j.erss.2017.05.022>
- D.L. Sanchez, G. Amador, J. Funk. “Federal research, development, and demonstration priorities for carbon dioxide removal in the United States” *Environmental Research Letters*, 13, 015005 (2018). <https://doi.org/10.1088/1748-9326/aaa08f>
- E. Baik, D.L. Sanchez, *et al.* “Geospatial Analysis of the Near-Term Technical Potential for BECCS in the U.S.” *Proceedings of the National Academies of Sciences*, 115, 3290-3295 (2018).
- P.A. Turner, C.B. Field, D.B. Lobell, D.L. Sanchez, K.J. Mach. “Unprecedented rates of land-use transformation in modeled climate change mitigation pathways” *Nature Sustainability*, 1, 240-245 (2018).
- S. Shayegh, D.L. Sanchez, K. Caldeira. “Evaluating relative benefits of different types of R&D for clean energy technologies” *Energy Policy*, 107, 532–538 (2017). <https://doi.org/10.1016/j.enpol.2017.05.029>
- P.A. Turner *et al.* “The global overlap of bioenergy and carbon sequestration potential” *Climatic Change*, 148, 1-10 (2018).

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- C. Stanton *et al.* “Managing Cropland and Rangeland for Climate Mitigation: An Expert Elicitation on Soil Carbon in California” *Climatic Change* (2018) <https://doi.org/10.1007/s10584-018-2142-1>.
- S.J. Davis *et al.* (with over 30 authors) “Providing energy services without net addition of carbon dioxide to the atmosphere” *Science* (2018). <http://science.sciencemag.org/node/711939.full>
- S.J. Lalonde *et al.* “Limited Carbon Storage Potential from Forest Management in the Sierra Nevada: An Expert Elicitation” *Ecosphere* Volume 9(7) (2018).
- M. Bomberg, D.L. Sanchez, T. Lipmann. “Optimizing Fermentation Process Miscanthus-to-Ethanol Biorefinery Scale under Uncertain Conditions” *Environ. Res. Lett.*, 9, 064018 (2014).
- S. Mesfun, D.L. Sanchez, S. Leduc, E. Wetterlund, J. Lundgren, Markus Biberacher, F. Kraxner. “Power-to-gas and power-to-liquid for managing renewable electricity intermittency in the Alpine Region” *Renewable Energy* (2017).
- D.L. Sanchez. “Dairy Biogas in California: Cost-Effective Development” *PolicyMatters* Vol. 9 Issue 1.

### Press (Selected)

- 1a (WAMU / National Public Radio). “What It Really Means For Companies To Be Carbon Neutral” [NPR](#). 8/2/2021
- Lisa Song and James Temple. “The Climate Solution Actually Adding Millions of Tons of CO<sub>2</sub> Into the Atmosphere” [ProPublica](#). 4/29/2021.
- Emily Pontecorvo. “Meet the startup producing oil to fight climate change” [Grist](#). 5/18/2021.
- Emily Pontecorvo. “A Midwest pipeline promises to return carbon dioxide to the ground” [Grist](#). 3/10/2021.
- Nathanael Johnson. “So-called ‘negative emissions’ might actually work, at least in California” [Grist](#). 2/1/2020.
- Emily Pontecorvo. “Biofuels are a controversial climate solution. Could they still help save the planet?” [Grist](#). 9/11/2020.
- “City Visions: Carbon capture and the fight against climate change.” [Interview on KALW](#). 11/26/2018.
- J. Gallagher. “Fermenting change.” *Nature Energy* 3: 449 (2018). <https://doi.org/10.1038/s41560-018-0188-y>
- Chris Mooney. “The world needs to store billions of tons of carbon. It could start in a surprising place.” [Washington Post](#). 4/23/2018.
- D. Hernandez. “Why Some Scientists Are Embracing Activism” [Wall Street Journal](#). 4/22/2017.
- “A Big Picture Solution for Global Warming” [Kleinman Center for Energy Policy](#). 11/2016
- B. Plumer. “Can we build power plants that actually take carbon dioxide out of the air?” [Vox.com](#). 3/11/2015.
- R. Sweeny. “Clean Energy Innovation Requires Collaboration, Researcher Says” [RTO Insider](#). 11/28/2016.
- M. Hellman. “ERG Students Achieve National Recognition for Groundbreaking Studies” [Berkeley Graduate Division](#). 4/14/2015.
- R. Meadows. “Biomass could generate carbon-negative power.” ESA 2015. Dispatches. *Frontiers in Ecology and the Environment* 13: 124–128. <http://dx.doi.org/10.1890/1540-9295-13.3.124>.
- N. Bauer. “Power systems: Carbon negative at the regional level.” *Nature Climate Change*, 5, 196–197 (2015).

### Reviews

- D.L. Sanchez. “Blessing, with Menace?” *Science* Vol. 345. No 146. doi:10.1126/science.1256191
- D.L. Sanchez, D.M. Kammen. “Removing harmful greenhouse gases from the air using energy from plants.” *Frontiers for Young Minds*, 3:14, doi: 10.3389/frym.2015.00014.

### Correspondence

- D.L. Sanchez, J.H. Nelson, J. Johnston, A. Mileva, D. Kammen. “Emissions accounting for bioenergy with CCS.” *Nature Climate Change*, 5, 495–496 (2015).

### Participation in Symposia and Workshops

- Organizer- “Forest Biofuels Working Group” Met weekly over six months to support in-state development of forest biofuels production. Joint Institute for Wood Products Innovation. (3/2020 – 8/2020)
- Participant “Finance Forest Restoration” Sierra Nevada Conservancy (3/8/2021)
- Presentation - “Biomass Carbon Removal and Storage (BiCRS)” Japan Ministry of Trade and Environment / Innovation for Cool Earth Foundation Roadmap (2/2/2021)
- Participant “Forest Finance Executive Roundtable” Governor’s Office of Planning and Research (1/14/2021)
- Participant “Governing Bioenergy with Carbon Capture and Storage” Carnegie Geoengineering Governance Initiative (11/30/2020)
- Participant “Forest Futures Salon: Hydrogen and forest restoration” (7/20/2020)

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- Organizer- “Federal policy priorities for bioenergy and carbon removal” ½-day workshop in partnership between Carbon Removal Lab and Carbon180 (7/15/2020)
- Participant in Congressional Office visits with UC ANR leadership as part of CARET conference. Washington, DC (3/1-5/2020)
- Expert participant “University of Virginia Carbon Dioxide Removal Initiative” Charlottesville, VA (1/17/2020)
- Session Organizer- “Implications of the Green New Deal for Climate Policy” American Geophysical Union Annual Meeting. San Francisco, CA (12/12/2019)
- Presentation “Innovative wood products drive carbon-beneficial forest management in California” (offered multiple times)
- CSU Stanislaus (11/7/2019)
  - Forest Management Task Force (4/13/2020)
- Presentation at INFORMS annual meeting. Seattle, WA (10/22/2019)
- Presentation and participation- “Leveraging First Generation Bioethanol Production Facilities Workshop” Department of Energy Biomass Energy Technologies Office. Ames, Iowa (9/24-26/2019)
- Expert discussant and participant “Carbon dioxide removal for non-governmental organizations” Carnegie Geoengineering Governance Initiative & Pan-African Climate Justice Alliance. Nairobi, Kenya (7/9-13/2019)
- Panel moderator for “Land for mitigation, biodiversity, food, and fiber: how can we do it all?” Low-Emissions Solutions Conference (LESC) at the Global Climate Action Summit, University of San Francisco (9/11/2018)
- Panel chair and presenter for “Informing Energy Technology Commercialization Through Systems Analysis” INFORMS Fall Meeting 2018, Phoenix, AZ (11/6/2018)
- Participant at “Workshop on Carbon Dioxide Removal Technologies RD&D Needs” Energy Futures Initiative, Washington, DC (11/14/2018)
- Participant at “Financing the Logjam” workshop on California forest management, Commonwise, Truckee, CA (11/30/2018)
- Participant at Carbon Capture Coalition meeting on federal carbon removal and utilization policy, New Orleans, LA (12/10/2018)
- Presentation on “Near-term opportunities for bioenergy with carbon capture and sequestration” including
- American Geophysical Union Fall meeting, Washington, DC (12/13/18)
  - Presentation to Energy and Environmental Economics, San Francisco, CA (4/11/2019)
  - Presentation to Union of Concerned Scientists, Oakland, CA (11/14/2018)
  - Panel on “Realizing the New Carbon Economy: Innovations for Carbon Negative Infrastructure” National Council for Science and the Environment 2019 Annual Conference, Washington, DC (1/9/2019)
  - Department of Environmental Science, Policy, and Management Colloquium, Berkeley, CA (4/4/2019)
  - Energy and Resources Group Colloquium, Berkeley, CA (2/6/2019)
- Presentation on “Overview of bioenergy with carbon capture and sequestration (BECCS)”, Carbon Management meeting at National Renewable Energy Laboratory (1/24/2019)
- Participant at “Social Aspects of Carbon Dioxide Removal” Workshop, Cornell University, Washington, DC (2/13/2019)
- Presentation at California Foresters Association panel on Wood Innovation, Sacramento, CA (3/7/2019)
- Participant at “Establishing a Carbon Removal Assessment Agenda” American University, Washington, DC (3/14/2019)
- Presentation on “Innovative Wood Use Can Enable Carbon-Beneficial Forest Management in CA”
- Air Resources Board (5/2/2019)
  - Resources Agency (6/20/2019)
- Moderator of session “Ecosystems and Carbon” Berkeley Fire Research Consortium, Berkeley, CA (5/9/2019)
- Presentation on “Carbon dioxide removal from bioenergy” Negative Emissions Technology Global Siting Workshop in Edinburgh, Scotland (5/22/2019)
- Presentation on “Near-term deployment of carbon capture and storage from biorefineries in the United States” CO2 Summit III: Pathways to Carbon Capture, Utilization, and Storage Deployment. May, 2017. Calabria, Italy Fondazione Eni Enrico Mattei (FEEM). May, 2017. Milan, Italy.
- Presentation on “Priorities for the Next Wave of Energy Innovation.” Kleinman Center for Energy Policy, University of Pennsylvania. November 21, 2016. Philadelphia, PA.



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- Presentation on “The Transition to a Carbon-Negative Power System.” Bioenergy with Carbon Capture and Sequestration workshop, Washington, D.C. May 18, 2015. Co-hosted by the US Department of Energy’s Office of Fossil Energy and the Bioenergy Technologies Office.
- Presentation on “Carbon-Negative Energy Systems” (Offered several times, based on PhD dissertation)  
Department of Environmental Science Policy and Management, Berkeley, CA. March 2017.  
Environmental Studies Departmental Seminar, Amherst College. February 14, 2014. Amherst, MA  
Energy Resource Engineering Departmental Seminar, Stanford University. November 7, 2016. Stanford, CA.  
Invited Seminar, Lawrence Livermore National Laboratory. April 6, 2016.  
Energy and Resources Group Colloquium. November 18, 2015. Berkeley, CA.  
Invited Seminar, Lawrence Berkeley National Laboratory. November 23, 2015.
- Presentation on “Optimal Sizing of Biomass Electricity with Carbon Capture and Storage (BECCS): Framework and Application to Illinois.” Tokyo Institute of Technology Third International Education Forum on Environment and Energy Science. Perth, WA. December 2014. (Selected ‘Best Presentation Award’)
- Presentation by M.S. Torn, et al. “Ecological Limits to Terrestrial Biological Carbon Dioxide Removal” American Geophysical Union Fall Meeting. San Francisco, CA. December 2014.
- “Drivers of Optimal Sizing of Cellulosic Biorefineries” Union of Concerned Scientists / Great Plains Institute Cellulosic Biofuels Summit. Ames, IA. July 2014.
- Presentation on “Natural Gas Exploration and Production Economics: What can the U.K. learn from the United States?” Gas: An (Un)conventional Pathway Towards Our Energy Future? Cambridge University. June 2014.
- Presentation on “Exploring the Role of Bioenergy in Decarbonization in the WECC using the SWITCH Model.” Presentation to Western Energy Policy Research Conference. Portland, OR. September 2013.

### Consulting Reports

- M. O’Hare, P. Alstone, D. Sanchez. “Environmental Risks and Opportunities in Cannabis Cultivation.” BOTEC Analysis, prepared for Washington State Liquor Control Board. August 2013.
- “Energía Reino Verde 12 MW Giant King Grass Biomass Power Plant Feasibility Study” PELICAN, S.A. Nicaragua, 2014.

### Publications (Non-academic and grey literature)

- D. Sandalow, R. Aines, J. Friedmann, C.M. McCormick, D.L. Sanchez. “Biomass carbon removal and storage (BiCRS) roadmap.” Innovation for Cool Earth Foundation (ICEF). Tokyo, Japan. (2021). Available at: <https://www.icef.go.jp/pdf/2020/roadmap/roadmap.pdf>
- Joint Institute for Wood Products Innovation. “Recommendations to Expand Wood and Biomass Utilization in California.” Board of Forestry and Fire Protection (2021)
- D.L. Sanchez, T. Zimring, C. Mater, K. Harrell et al. “Literature Review and Evaluation of Research Gaps to Support Wood Products Innovation” Board of Forestry and Fire Protection (2020)
- S.E. Baker, J.K. Stolaroff, G. Peridas, S.H. Pang, H.M. Goldstein, F.R. Lucci, W. Li, E.W. Slessarev, J. Pett-Ridge, F.J. Ryerson *et al.* “Getting to neutral: options for negative carbon emissions in California” Lawrence Livermore National Lab (2019)
- D. L. Sanchez and R. Jacobson. “Research, Development, and Demonstration Capabilities relevant to Carbon Dioxide Removal at the United States Department of Agriculture” Energy Futures Initiative (2019)
- R. Jacobson, and D.L. Sanchez. “How can land grant universities lead on carbon removal?” Carbon180. June 24, 2019. [Medium.com](https://medium.com)
- D.L. Sanchez and V. Sivaram. “Mission Innovation Is in Trouble. Here’s How to Save It.” Greentech Media. June 02, 2017. <https://www.greentechmedia.com/articles/read/mission-innovation-is-in-trouble.-heres-how-to-save-it>
- D. L. Sanchez, M.D. Mastrandrea, M. Inman. “Global Priorities for Zero-Emission Energy Innovation: An Expert Elicitation and Discussion.” Near Zero (2016). <http://www.nearzero.org/reports/global-innovation>
- M. Inman, D.L. Sanchez, M.D. Mastrandrea, S.J. Davis, K. Fries. “An Unprecedented Push for Low-Carbon Energy Innovation: Expert Perspectives on R&D Opportunities for Mission Innovation.” Near Zero (2016). <http://www.nearzero.org/reports/mission-innovation>
- D. Sanchez. “Natural Gas Exploration and Production Economics in the United States.” Advanced Research Projects Agency – Energy (ARPA-E) Technology-to-Market Program. 2014.

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- D. Sanchez. “First Markets for Chemicals from Bioconversion of Methane and Sugars.” Advanced Research Projects Agency – Energy (ARPA-E) Technology-to-Market Program. 2014.
- D. Sanchez, N. Rogers, J. Parillo. “Dairy Biogas in California: Cost-Effective Development.” White paper by Division of Ratepayer Advocates / California Public Utilities Commission. 2012.
- “Water Works: Rebuilding Infrastructure, Creating Jobs, Greening the Environment.” Green for All/ American Rivers/ Pacific Institute/ Economic Policy Institute Report. October 2011.
- “Nonprofit Social Enterprise: Models and Funding.” Green for All Capital Access Program. Feb. 2012.
- “A Roadmap for U.S.-China Collaboration on Carbon Capture and Sequestration.” Center for American Progress/ Asia Society/ Lawrence Livermore National Laboratory Report. November 2009.
- Numerous blog posts published on [ClimateProgress.org](http://ClimateProgress.org), [GreenForAll.org](http://GreenForAll.org), [BERC](http://BERC), and [LifeAtErg](http://LifeAtErg)