

Corinne D. Scown, Ph.D.

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POSITIONS	<p>Deputy Div. Director, Staff Scientist Sustainable Energy Systems Group Energy Analysis & Environmental Impacts Div. Energy Technologies Area Lawrence Berkeley National Laboratory</p> <p>Co-Founder & President, Cyklos Materials</p>	<p>VP Life-cycle, Economics, & Agronomy Div. Joint BioEnergy Institute</p> <p>Head of Sustainability Analysis Energy Biosciences Institute, UC Berkeley</p>
RESEARCH INTERESTS	<p>Bioenergy and bioproducts, wastewater treatment and organic waste management systems, biodegradable and circular polymers, life-cycle assessment, technoeconomic modeling. <i>Personal website:</i> www.cscown.com</p>	
EDUCATION	<p>University of California, Berkeley, USA</p> <p>Ph.D., Civil Engineering, December 2010</p> <ul style="list-style-type: none"> • Dissertation Title: “Life-Cycle Water Impacts of U.S. Transportation Fuels” • Advisor: Arpad Horvath <p>M.S., Civil Engineering, May 2008</p> <p>Carnegie Mellon University, Pittsburgh, Pennsylvania USA</p> <p>B.S., Civil Engineering, December, 2006 double major in Engineering and Public Policy</p>	
PEER-REVIEWED PUBLICATIONS	<p>72. Nawa Raj Baral, Minliang Yang, Deepanwita Banerjee, Aindrila Mukhopadhyay, Blake A. Simmons, Steven W. Singer, Corinne D. Scown* (Expected 2022). “Influence of titer, rate, yield, and lignin-derived aromatic monomer utilization on the cost and carbon footprint microbially-produced biofuels.” <i>Under revision for Energy & Environmental Science</i>. Role: Major (Lead PI)</p> <p>71. Yan Wang, Nawa Raj Baral, Minliang Yang, Corinne D. Scown* (Expected 2022). “Co-processing agricultural residues and wet organic waste can produce lower-cost carbon-negative fuels and bioplastics.” <i>Under review at Joule</i>. Role: Major (Lead PI) Preprint available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4167270</p> <p>70. Sarah L. Nordahl, Chelsea V. Preble, Thomas W. Kirchstetter, Corinne D. Scown* (Expected 2022). “Greenhouse gas and air pollutant emissions from composting ” <i>Under review Environmental Science & Technology</i>. Role: Major (Lead PI)</p> <p>69. Chien-Yuan Lin, Yang Tian, Kimberly Nelson-Vasilchik, Joel Hague, Ramu Kakumanu, Mi Yeon Lee, Venkataramana R. Pidatala, Jessica Trinh, Christopher M. De Ben, Jutta Dalton, Trent R. Northen, Edward E. K. Baidoo, Blake A. Simmons, John M. Gladden, Corinne D. Scown, Daniel H. Putnam, Albert P. Kausch, Henrik V. Scheller, Aymerick Eudes (Expected 2022). “Engineering sorghum for higher 4-hydroxybenzoic acid content.” <i>Under review at Metabolic Engineering Communications</i>. Role: Minor</p>	

68. Kevin Orner*, Sarah Smith, Sarah Nordahl, Alicia Chakrabarti, Hanna Breunig, **Corinne D. Scown**, HL Leverenz, Kara Nelson, Arpad Horvath (**Expected 2022**). “Environmental and Economic Impacts of Managing Nutrients in Digestate Derived from Sewage Sludge and High-Strength Organic Waste.” *Accepted w/ revisions to Environmental Science & Technology*. **Role: Minor**
67. **Corinne D. Scown*** (**Expected 2022**). “Prospects for carbon-negative biomanufacturing.” *Accepted w/ revisions to Trends in Biotechnology*. **Role: Sole author**
66. Yang Tian, Minliang Yang, Chien-Yuan Lin, Joon-Hyun Park, Chuan-Yin Wu, Ramu Kaku-manu, Christopher M. De Ben, Jutta Dalton, Khanh M. Vuu, Patrick M. Shih, Edward E. K. Baidoo, Stephen Temple, Daniel H. Putnam, Henrik V. Scheller, **Corinne D. Scown***, Aymerick Eudes* (**Expected 2022**). “Expression of dehydroshikimate dehydratase in sorghum improves biomass yield, accumulation of protocatechuate, and biorefinery economics” *In press at ACS Sustainable Chemistry & Engineering*. **Role: Major**
65. Nawa Raj Baral*, Shruti K. Mishra, Anthe George, Sagar Gautam, Umakant Mishra, **Corinne D. Scown** (**Expected 2022**). “Multifunctional Landscapes for Dedicated Bioenergy Crops Lead to Low-Carbon Market-Competitive Biofuels.” *In press at Renewable & Sustainable Energy Reviews*. **Role: Minor**
64. Ezinne C. Achinivu, Mica Cabrera, Athiyya Shaheen Umar Malick, Minliang Yang, Nawa Raj Baral, **Corinne D. Scown**, Blake A. Simmons, John Gladden*, (**Expected 2022**). “In Situ Synthesis of Protic Ionic Liquids for Biomass Pretreatment.” *In press at ACS Sustainable Chemistry & Engineering*. **Role: Minor**
63. Jérémy Demarteau, Alexander R. Epstein, Peter R. Christiansen, Mark Abubekrov, Hai Wang, Simon J. Teat, Trevor J. Seguin, Christopher W. Chan, **Corinne D. Scown**, Thomas P. Russel, Jay D. Keasling, Kristin A. Persson, Brett A. Helms* (**Expected 2022**). “Circularity in Mixed Plastics Chemical Recycling Enabled by Variable Rates of Polydiketoenamine Hydrolysis.” *Science Advances*, available at *ChemRxiv*. DOI: 110.1126/sciadv.abp882 **Role: Minor**
62. Minliang Yang, Di Liu, Nawa Raj Baral, Chien-Yuan Lin, Blake A. Simmons, John M. Gladden, Aymerick Eudes, **Corinne D. Scown*** (**2022**). “Comparing in planta accumulation with microbial routes to set targets for a cost-competitive bioeconomy.” *Proceedings of the National Academy of Sciences*. DOI: 10.1073/pnas.2122309119 **Role: Major (Lead PI)**
61. Pablo Cruz-Morales, Kevin Yin, Alexander Landera, John R. Cort, Robert P. Young, Jennifer E. Kyle, Robert Bertrand, Anthony T. Iavarone, Suneil Acharya, Aidan Cowan, Yan Chen, Jennifer W. Gin, **Corinne D. Scown**, Christopher J. Petzold, Carolina Araujo-Barcelos, Eric Sundstrom, Anthe George, Yuzhong Liu, Sarah Klass, Alberto A. Nava, Jay D. Keasling*, (**2022**). “Biosynthesis of polycyclopropanated high energy biofuels.” *Joule*. DOI: 10.1016/j.joule.2022.05.011 **Role: Minor**
60. Ana E. Comesana, Tyler Huntington, **Corinne D. Scown**, Kyle E. Niemeyer, Vi H. Rapp* (**2022**). “A systematic method for selecting molecular descriptors as features when training models for predicting physiochemical properties.” *Fuel*. DOI: 10.1016/j.fuel.2022.123836 **Role: Minor (Co-PI)**
59. Sagar Gautam*, Umakant Mishra, **Corinne D. Scown**, Skye A. Willis, Kabindra Adhikari, Beth A. Drewniak (**2022**). “Continental United States May Lose 1.8 Petagrams of Soil Organic Carbon Under Climate Change by 2100” *Global Ecology and Biogeography*. DOI: 10.1111/geb.13489 **Role: Minor**
58. **Corinne D. Scown***, Jay D. Keasling* (**2022**). “Sustainable manufacturing with synthetic biology: Producing commodity chemicals with engineered bacteria that live on industrial waste gases captures more greenhouse gases than it emits.” *Nature Biotechnology*. DOI: 10.1038/s41587-022-01248-8 **Role: Major**

57. Jérémy Demarteau, Nemi Vora, Jay D. Keasling, Brett A. Helms*, **Corinne D. Scown*** (2022). “Lower-Cost, Lower-Carbon Production of Infinitely Recyclable Polydiketoenamine Plastics.” *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.1c07851 **Role: Major (Co-PI & Work Lead)**
56. Hanna Breunig*, Sarah Josephine Smith, Laxmi Rao, Alastair Robinson, Jacky Kinson, Robert Thornton, **Corinne D. Scown**, Vi Rapp (2022) “Economic and greenhouse gas analysis of regional bioenergy-powered district energy systems in California.” *Resources, Conservation, & Recycling*. DOI: 10.1016/j.resconrec.2022.106187 **Role: Moderate**
55. Deepanwita Banerjee, Thomas Eng, Yusuke Sasaki, Aparajitha Srinivasan, Asun Oka, Robin A. Herbert, Jessica Trinh, Vasanth R. Singan, Ning Sun, Dan Putnam, **Corinne D. Scown**, Blake Simmons, Aindrila Mukhopadhyay* (2021). “Genomics Characterization of an engineered *Corynebacterium glutamicum* in Bioreactor Cultivation under Ionic Liquid Stress.” *Frontiers in Bioengineering and Biotechnology*. DOI: 10.3389/fbioe.2021.766674 **Role: Minor**
54. Ezinne C. Achinivu, Skye Frank, Nawa Raj Baral, Lalitendu Das, Mood Mohan, Peter Otoupal, Emara Shabir, Sean Utan, **Corinne D. Scown**, Blake A. Simmons, John Gladden*. (2021). “Alkanolamines as Dual Functional Solvents for Biomass Deconstruction and Bioenergy Production.” *Green Chemistry*. DOI: 10.1039/D1GC02667D **Role: Moderate**
53. Aashutosh Mistry, Ankit Verma, Shashank Sripad, Rebecca Ciez, Valentin Sulzer, Ferran Brosa Planella, Robert Timms, Yumin Zhang, Rachel Kurchin, Philipp Dechent, Weihang Li, Samuel Greenbank, Dilip Krishnamurthy, Alexis M. Fenton Jr., Kevin Tenny, Prehit Patel, Daniel Juarez Robles, Paul Gasper, Andrew Colclasure, Artem Baskin, **Corinne D. Scown**, Venkat Subramanian, Edwin Khoo, Srikanth Allu, David Howey, Steven DeCaluwe, Scott A. Roberts, Venkatasubramanian Viswanathan* (2021). “A Minimal Information Set to Enable Verifiable Theoretical Battery Research.” DOI: 10.1021/acsenerylett.1c01710 *ACS Energy Letters*. **Role: Minor**
52. Kevin D. Orner*, Sarah Josephine Smith, Hanna M. Breunig, **Corinne D. Scown**, Kara Nelson (2021). “Fertilizer Demand and Potential Supply through Nutrient Recovery from Organic Waste Digestate in California.” DOI: 10.1016/j.watres.2021.117717 *Water Research*. **Role: Minor**
51. Yan Wang, Tyler Huntington, **Corinne D. Scown*** (2021). “Tree-Based Automated Machine Learning to Predict Biogas Production for Anaerobic Co-Digestion of Organic Waste.” *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.1c04612 **Role: Major (Lead PI)**
50. Nawa Raj Baral, Minliang Yang, Benjamin G. Harvey, Blake A. Simmons, Aindrila Mukhopadhyay, Taek Soon Lee, **Corinne D. Scown*** (2021). “Production Cost and Carbon Footprint of Biomass-Derived Dimethylcyclooctane as a High Performance Jet fuel Blendstock.” *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.1c03772 **Role: Major (Lead PI)**
49. Fan Tong, Alan Jenn, Derek Wolfson, **Corinne D. Scown***, Maximilian Auffhammer* (2021) “Energy consumption and charging load profiles of long-haul truck electrification.” *Environmental Research: Infrastructure and Sustainability*. DOI: 10.1088/2634-4505/ac186a **Role: Major (Lead PI)**
48. Jason Porzio, **Corinne D. Scown*** (2021). “Life-Cycle Assessment Considerations for Batteries and Battery Materials.” *Advanced Energy Materials*. DOI: 10.1002/aenm.202100771 **Role: Major (Lead PI, Wrote majority of paper)**
47. Fan Tong, Alan Jenn, Derek Wolfson, **Corinne D. Scown***, Maximilian Auffhammer* (2021). “Energy, Health, and Climate Impacts from Long-Haul Truck Electrification.” *Environmental Science & Technology*. DOI: 10.1021/acs.est.1c01273 **Role: Major (Lead PI)**

46. Minliang Yang, Jeff Dahlberg, Nawa Raj Baral, Daniel Putnam, **Corinne D. Scown*** (2021). "Identifying forage sorghum ideotypes for advanced biorefineries." *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.1c01706 **Role: Major (Lead PI)**
45. Sarah Josephine Smith*, Andrew Satchwell, Thomas W. Kirchstetter, **Corinne D. Scown** (2021). "The implications of facility design and enabling policies on the economics of dry anaerobic digestion." *Waste Management*. DOI: 10.1016/j.wasman.2021.04.048 **Role: Moderate**
44. Christopher DelRe, Yufeng Jiang, Philjun Kang, Junpyo Kwon, Zhiyuan Ruan, Le Ma, Aaron Hall, Kyle Zolkin, Tim Li, **Corinne D. Scown**, Robert O. Ritchie, Thomas P. Russell, Ting Xu* (2021). "Nanoscale Enzyme Dispersion Enables Near Complete Depolymerization of Polyesters With Programmable Latency." *Nature*. DOI: 10.1038/s41586-021-03408-3 **Role: Minor**
43. Harsha D. Magurudeniya, Nawa Raj Baral, Alberto Rodriguez, **Corinne D. Scown**, Jeff Dahlberg, Daniel Putnam, Anthe George, Blake A. Simmons, and John M. Gladden* (2021). "Use of Ensiled Biomass Sorghum Increases Ionic Liquid Pretreatment Efficiency and Reduces Biofuel Production Cost and Carbon Footprint." *Green Chemistry*. DOI: 10.1039/D0GC03260C **Role: Moderate**
42. Nemi Vora, Peter R. Christensen, J r my Demartea, Nawa Raj Baral, Jay D. Keasling, Brett A. Helms, **Corinne D. Scown*** (2021) "Leveling the cost and carbon footprint of circular polymers that are chemically recycled to monomer." *Science Advances*. DOI: 10.1126/sciadv.abf0187 **Role: Major (Co-PI & Work Lead)**.
41. Shruti K. Mishra*, Sagar Gautam, Umakant Mishra, **Corinne D. Scown** (2021). "Performance-based Payments for Soil Carbon Sequestration can Enable a Low-Carbon Bioeconomy." *Environmental Science & Technology*. DOI: 10.1021/acs.est.0c06452 **Role: Moderate**
40. Carolina A. Barcelos, Asun M. Oka, Jipeng Yan, Lalitendu Das, Ezinne Achinivu, Harsha Magurudenia, Simay Akdemir, Jie Dong, Nawa Raj Baral, Chunsheng Yan, **Corinne D. Scown**, Deepti Tanjore, Ning Sun, Blake A. Simmons, John Gladden, Eric Sundstrom* (2021). "High-efficiency conversion of ionic liquid-pretreated woody biomass to ethanol at pilot scale" *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.0c07920 **Role: Moderate**
39. **Corinne D. Scown***, Nawa Raj Baral, Minliang Yang, Nemi Vora, Tyler Huntington (2021). "Technoeconomic analysis for biofuels and bioproducts." *Current Opinion in Biotechnology*. DOI: 10.1016/j.copbio.2021.01.002 **Role: Major (Wrote paper, Lead PI)**
38. Chelsea V. Preble*, Sharon S. Chen, Toshifumi Hotchi, Michael D. Sohn, Randy L. Maddalena, Marion L. Russell, Nancy J. Brown, **Corinne D. Scown**, Thomas W. Kirchstetter (2020). "Emission rates of greenhouse gases, nitrogen oxides, odorous species, and volatile organic compounds for the dry anaerobic digestion and composting of organic municipal solid waste." *Environmental Science & Technology*. DOI: 10.1021/acs.est.0c03953 **Role: Minor**
37. Nawa Raj Baral, Jeff Dahlberg, Daniel Putnam, Jenny C. Mortimer, **Corinne D. Scown*** (2020). "Supply cost and life-cycle greenhouse gas footprint of dry and ensiled biomass sorghum for biofuel production." *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.0c03784 **Role: Major (Lead PI)**
36. Minliang Yang, Nawa Raj Baral, Aikaterini Anastasopoulou, Hanna M. Breunig, **Corinne D. Scown*** (2020). "Cost and life-cycle greenhouse gas implications of integrating biogas upgrading and carbon capture technologies in cellulosic biorefineries." *Environmental Science & Technology*. DOI: 10.1021/acs.est.0c02816 **Role: Major (Lead PI)**
35. Sagar Gautam*, Umakant Mishra, **Corinne D. Scown**, Yao Zhang (2020). "Sorghum biomass production in the continental United States and its potential impacts on soil organic carbon and nitrous oxide emissions." *GCB Bioenergy*. DOI: 10.1111/gcbb.12736 **Role: Minor**

34. Sarah L. Nordahl, Jay Devkota, Jahon Amirebrahimi, Sarah Smith, Hanna Breunig, Chelsea Preble, Andrew Satchwell, Ling Jin, Nancy Brown, Thomas Kirchstetter, **Corinne D. Scown*** (2020). “Life-Cycle Greenhouse Gas Emissions and Human Health Tradeoffs of Organic Waste Management Strategies.” *Environmental Science & Technology*. DOI: 10.1021/acs.est.0c00364 **Role: Major (Work lead, Co-PI). First Runner-Up, ES&T 2020 Best Policy Paper**
33. Minliang Yang, Nawa Raj Baral, Blake A. Simmons, Jenny C. Mortimer, Patrick M. Shih*, **Corinne D. Scown*** (2020). “Accumulation of high-value bioproducts in planta can improve the economics of advanced biofuels.” DOI: 10.1073/pnas.2000053117 *Proceedings of the National Academy of Sciences*. **Role: Major (Lead PI)**
32. Tyler Huntington, Xinguang Cui, Umakant Mishra*, **Corinne D. Scown*** (2020). “Machine Learning to Predict Bioenergy Sorghum Yields under Future Climate Scenarios.” *Biofuels, Bioproducts and Biorefining*. DOI: 10.1002/bbb.2087 **Role: Major (Lead PI)**
31. Hanna M. Breunig*, Jahon Amirebrahimi, Sarah Smith, **Corinne D. Scown** (2019). “Role of Digestate and Biochar in Carbon-Negative Bioenergy.” *Environmental Science & Technology*. DOI: 10.1021/acs.est.9b03763. **Role: Major (Lead PI)**
30. Nawa Raj Baral, Olga Kavvada, Daniel Mendez Perez, Aindrila Mukhopadhyay, Taek Soon Lee, Blake A. Simmons, **Corinne D. Scown*** (2019). “Greenhouse Gas Footprint, Water-Intensity, and, Production Cost of Bio-Based Isopentanol as a Renewable Transportation Fuel.” *ACS Sustainable Chemistry & Engineering*, 7, 15434-15444. DOI: 10.1021/acssuschemeng.9b02928 **Role: Major (Lead PI)**
29. Nawa Raj Baral, Eric R. Sundstrom, Lalitendu Das, John Gladden, Aymerick Eudes, Jenny C. Mortimer, Steven W. Singer, Aindrila Mukhopadhyay, **Corinne D. Scown*** (2019). “Approaches for More Efficient Biological Conversion of Lignocellulosic Feedstocks to Biofuels and Bioproducts.” *ACS Sustainable Chemistry & Engineering*, 7, 9062-9079. DOI: 10.1021/acssuschemeng.9b01229 **Role: Major (Lead PI, Led writing)**
28. Elias Martinez-Hernandez, Xinguang Cui, **Corinne D. Scown**, Myriam A. Amezcua Allieri, Jorge Aburto, Blake Simmons (2019) “Techno-economic and greenhouse gas analyses of lignin valorization to eugenol and phenolic products in integrated ethanol biorefineries.” *Biofuels, Bioproducts and Biorefining*. DOI: 10.1002/bbb.1989 **Role: Minor**
27. Nawa Raj Baral, Olga Kavvada, Daniel Mendez Perez, Aindrila Mukhopadhyay, Taek Soon Lee, Blake A. Simmons, **Corinne D. Scown*** (2019). “Techno-Economic Analysis and Life-Cycle Greenhouse Gas Mitigation Cost of Five Potential Jet Fuel Molecules.” *Energy & Environmental Science*, 12, 807-824. DOI: 10.1039/C8EE03266A **Role: Major (Lead PI)**
- Took parental leave in early 2019–
26. Andrew Satchwell*, **Corinne D. Scown**, Sarah Josephine Smith, Jahon Amirebrahimi, Ling Jin, Thomas W. Kirchstetter, Nancy Brown, Chelsea Preble (2018). “Accelerating the Deployment of Anaerobic Digestion to Meet Zero Waste Goals.” *Environmental Science & Technology*. DOI: 10.1021/acs.est.8b04481 **Role: Major (Co-PI, Conceptualized paper)**
25. Xinguang Cui, Olga Kavvada, Tyler Huntington, **Corinne D. Scown*** (2018). “Strategies for Near-Term Scale-Up of Cellulosic Biofuel Production Using Sorghum and Crop Residues in the U.S.” *Environmental Research Letters*. DOI: 10.1088/1748-9326/aae6e3 **Role: Major (Lead PI)**
24. Lipeng Wu*, Amit Gokhale*, Konstantinos Goulas, John Myers, F. Dean Toste, **Corinne D. Scown*** (2018). “Hybrid Biological-Chemical Approach Offers Flexibility and Reduces the Carbon Footprint of Bio-Based Plastics, Rubbers, and Fuels” *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.8b03158 **Role: Major (Wrote paper, ran analysis)**

23. Hanna Marie Breunig*, Tyler Huntington, Ling Jin, Alastair Robinson, **Corinne D. Scown (2018)**. “Temporal and Geographic Drivers of Biomass Residues in California” *Resources, Conservation & Recycling*. DOI: 10.1016/j.resconrec.2018.08.022 **Role: Major (Lead PI)**
22. Michael Taptich, **Corinne D. Scown***, Arpad Horvath (2018). “Drop-in biofuels offer strategies for meeting California’s 2030 climate mandate.” *Environmental Research Letters*, 13(9), 094018. DOI: <https://doi.org/10.1088/1748-9326/aadcb2> **Role: Major (Wrote proposal, led project)**
21. Hanna Breunig*, Tyler Huntington, Alastair Robinson, Ling Jin, **Corinne D. Scown (2018)**. “Dynamic Geospatial Modeling of the Building Stock to Project Urban Energy Demand.” *Environmental Science & Technology*, 52(14), 7604–7613. DOI: 10.1021/acs.est.8b00435 **Role: Major (Lead PI)**
20. Binod Neupane, N.V.S.N. Murthy Konda, Seema Singh, Blake A. Simmons, **Corinne D. Scown* (2017)**. “Life-Cycle Greenhouse Gas- and Water-Intensity of Cellulosic Biofuel Production Using Cholinium Lysinate Ionic Liquid Pretreatment.” *ACS Sustainable Chemistry & Engineering*, 5(11), 10176–10185. DOI: 10.1021/acssuschemeng.7b02116 **Role: Major (Lead PI)**
19. Hanna Breunig*, Ling Jin, Alastair Robinson, **Corinne D. Scown (2017)**. “Bioenergy Potential from Food Waste in California.” *Environmental Science & Technology*, 51(3), 1120–1128. DOI: 10.1021/acs.est.6b04591 **Role: Major (Lead PI)**

–Took parental leave in late 2016–

18. Jian Sun, N.V.S.N. Murthy Konda, Jian Shi, Ramakrishnan Parthasarathi, Tanmoy Dutta, Feng Xu, **Corinne D Scown**, Blake Simmons, Seema Singh* (2016). “CO2 Enabled Process Consolidation for the Production of Cellulosic Ethanol in Bionic Liquids.” *Energy & Environmental Science*, 9(9), 2822–2834. DOI: 10.1039/C6EE00913A **Role: Moderate**
17. Sankaranarayananpillai Shylesh, Amit A. Gokhale, **Corinne D. Scown**, Daeyoung Kim, Alexis T. Bell* (2016). “From Sugars to Wheels: Conversion of Ethanol to 1,3-Butadiene Over Metal Promoted Magnesium-Silicate Catalysts.” *ChemSusChem*, 9(12), 1462–1472. DOI: 10.1002/cssc.201600195 **Role: Major (Ran analysis, heavy edits)**
16. Michael J. Liszka, Aram Kang, NVSN Murthy Konda, Kim Tran, **Corinne D. Scown**, John M. Gladden, Seema Singh, Jay D. Keasling, Taek Soon Lee, Blake A. Simmons, Kenneth L. Sale* (2016). “Switchable Ionic Liquids Based on Di-Carboxylic Acids for One-Pot Pretreatment, Saccharification and Fermentation of Biomass to an Advanced Biofuel.” *Green Chemistry*, 18, 4012–4021. DOI: 10.1039/C6GC00657D **Role: Minor**
15. Roger Sathre*, Hanna Breunig, Jeffery Greenblatt, Peter Larsen, Eric Masanet, Thomas McKone, Nigel Quinn, **Corinne D. Scown (2016)**. “Spatially-explicit water balance implications of carbon capture and sequestration.” *Environmental Modelling & Software*, 75, 153–162. DOI: 10.1016/j.envsoft.2015.10.011 **Role: Minor**
14. Feng Xu, Jian Sun, Suryanarayana Konda Naga Venkata, Jian Shi, Tanmoy Dutta, **Corinne D. Scown**, Blake A. Simmons, Seema Singh* (2016). “Transforming biomass conversion with ionic liquids: process intensification and the development of a high-gravity, one-pot process for the production of cellulosic ethanol.” *Energy & Environmental Science*, 9, 1042–1049. DOI: 10.1039/C5EE02940F **Role: Moderate**
13. Marcelle C. McManus*, Caroline M. Taylor*, Alison Mohr, Carly Whittaker, **Corinne D. Scown**, Aiduan Li Borrion, Neryssa Glithero, Yao Yin (2015). “Challenge Clusters Facing LCA in Sustainability Decision-making - What We Can Learn From Biofuels.” *International Journal of Life Cycle Assessment*, 20(10), 1399–1414. DOI: 10.1007/s11367-015-0930-7 **Role: Minor**

12. Sanil Sreekumar, Madhesan Balakrishnan, Konstantinos Goulas, Gorkem Gunbas, Amit A. Gokhale, Lin Louie, **Corinne D. Scown***, Alexis T. Bell* and F. Dean Toste* (2015). “Upgrading Lignocellulosic Products to Drop-In Biofuels via Dehydrogenative Cross-Coupling and Hydrodeoxygenation Sequence.” *ChemSusChem*, 8(16), 2609-2614. DOI: 10.1002/cssc.201500754 **Role: Major (Ran analysis, Heavy edits)**
11. Madhesan Balakrishnan, Eric R. Sacia, Sanil Sreekumar, Gorkem Gunbas, Amit A. Gokhale, **Corinne D. Scown***, F. Dean Toste*, Alexis T. Bell* (2015). “Novel Pathways for Fuels and Lubricants from Biomass Optimized Using Life Cycle Assessment.” *Proceedings of the National Academy of Sciences*, 112(25), 7645-7649. DOI: 10.1073/pnas.1508274112 **Role: Major (Ran analysis, Writing and heavy edits)**
10. Roger Sathre*, **Corinne D. Scown**, Olga Kavvada, Thomas P. Hendrickson (2015). “Energy and Climate Effects of Second-life Use of Electric Vehicle Batteries in California Through 2050.” *Journal of Power Sources*, 288, 82-91. DOI: 10.1016/j.jpowsour.2015.04.097 **Role: Major (Lead PI)**
9. Thomas P. Hendrickson*, Olga Kavvada, Nihar Shah, Roger Sathre, **Corinne D. Scown*** (2015). “Life-cycle Implications and Supply Chain Logistics of Electric Vehicle Battery Recycling in California.” *Environmental Research Letters*, 10(1), 014011. DOI: 10.1088/1748-9326/10/1/014011 **Role: Major (Lead PI)**
8. Roger Sathre*, **Corinne D. Scown**, William Morrow, John Stevens, Ian Sharp, Joel Ager, Karl Walczak, Frances Houle, Jeffrey B. Greenblatt* (2015). “Life-cycle Net Energy Analysis of Large-scale Hydrogen Production via Photo-electrochemical Water-splitting.” *Energy & Environmental Science*, 7(10), 3264-3278. DOI: 10.1039/C4EE01019A **Role: Minor**
7. **Corinne D. Scown***, Amit Gokhale, Paul Willems, Arpad Horvath, Thomas E. McKone (2014). “The Role of Lignin in Driving Down Life-cycle Carbon Emissions, Water Use, and Cost for U.S. Cellulosic Biofuels.” *Environmental Science & Technology*, 48(15), 8446-8455. DOI: 10.1021/es5012753 **Role: Major (Lead PI)**
6. **Corinne D. Scown***, Michael Taptich, William W. Nazaroff, Arpad Horvath, Thomas E. McKone (2013). “Achieving Deep Cuts in the Carbon Intensity of US Automobile Transportation by 2050: Complementary Roles for Electricity and Biofuels.” *Environmental Science & Technology*, 47(16), 9044-9052. DOI: 10.1021/es4015635 **Role: Major (Postdoc)**
5. **Corinne D. Scown***, William W. Nazaroff, Umakant Mishra, Bret Strogon, Agnes B. Lobscheid, Eric Masanet, Nicholas J. Santero, Arpad Horvath, Thomas E. McKone (2012). “Lifecycle Greenhouse Gas Implications of US National Scenarios for Cellulosic Ethanol Production.” *Environmental Research Letters*, 7(1) 014011. DOI:10.1088/1748-9326/7/1/014011 **Role: Major (Postdoc)**
4. **Corinne D. Scown***, Arpad Horvath, Thomas E. McKone (2011). “Water Footprint of U.S. Transportation Fuels.” *Environmental Science & Technology*, 45(7), 2541-2553. Also published in *Environmental Science & Technology* virtual issue entitled “Water-Energy Nexus” 1(1). DOI: 10.1021/es102633h **Role: Major (PhD Research)**
3. Thomas E. McKone*, William W. Nazaroff, Peter Berck, Maximilian Auffhammer, Tim Lipman, Margaret S. Torn, Eric Masanet, Agnes Lobscheid, Nicholas Santero, Umakant Mishra, Audrey Barrett, Matthew Bomberg, Kevin Fingerman, **Corinne Scown**, Bret Strogon, Arpad Horvath (2011). “Grand Challenges for Life-Cycle Assessment of Biofuels.” *Environmental Science & Technology*, 45(5), 1751-1756. DOI: 10.1021/es103579c **Role: Minor. Second Runner-Up, ES&T 2011 Best Feature Paper**
2. Ping Chen, **Corinne Scown***, H. Scott Matthews, James H. Garrett, Jr., Chris Hendrickson (2009). “Managing Critical Infrastructure Interdependence through Economic Input-Output Methods.” *ASCE Journal of Infrastructure Systems*, 15(3), 200-210. DOI: 10.1061/(ASCE)1076-0342(2009)15:3(200) **Role: Major (Wrote paper, Led revisions)**

1. Chung Yan Shih, **Corinne D. Scown**, Lucio Soibelman, H. Scott Matthews*, James H. Garrett, Jr., Keith Dodrill, Sandra McSurdy (2009). "Data Management for Geospatial Vulnerability Assessment of Interdependencies in US Power Generation." *ASCE Journal of Infrastructure Systems*, 15(3), 179-189. DOI: 10.1061/(ASCE)1076-0342(2009)15:3(179) **Role: Major (Writing, Figures, Led revisions)**

*Corresponding author(s)

TECHNICAL
REPORTS AND
BOOK CHAPTERS

Corinne D. Scown, Alastair Robinson, Hanna Breunig, Ling Jin, Tyler Huntington, Sarah Smith, Jay Devkota, Sarah Nordahl, Nawa Baral. *Paths to Sustainable Distributed Generation through 2050: Matching Local Waste Biomass Resources with Grid, Industrial, and Community Needs*. California Energy Commission, Sacramento, CA, CEC-500-2020-061.

Arpad Horvath, **Corinne D. Scown**, Michael Taptich, Kate Piscopo. *The Future of Drop-In Fuels*. California Air Resources Board, Sacramento, CA, Contract No. 13-308.

N.V.S.N. Murthy Konda, Dominique Loque, and **Corinne D. Scown**. Towards the Design of Economically Sustainable Lignocellulosic Biorefineries. Book chapter in *Biomass Pretreatment and Conversion Processes* (Eds.) Rajeev Kumar, Seema Singh, and Venkatesh Balan. Nova Publishing Science Publishers. Accepted, May 2016.

Thomas P. Hendrickson, Roger Sathre, Olga Kavvada, **Corinne Scown** (2016). *Plug-In Electric Vehicle Battery Recycling Scale-Up Strategies for California (2015-2050)*. California Energy Commission, Sacramento, CA, PIR-12-015.

Roger Sathre, Hanna Breunig, Peter Larsen, Eric Masanet, Thomas McKone, Nigel Quinn, **Corinne Scown** (2012). *Spatially-Explicit Impacts of Carbon Capture and Sequestration on Water Supply and Demand*. Lawrence Berkeley National Laboratory, Berkeley, CA.

Iain S. Walker, Sara Al-Beaini, Samuel Borgeson, Brian Coffey, David Gregory, Kyle Konis, **Corinne Scown**, Jelena Simjanovic, John Stanley, Bret Strogon (2009). *Feasibility of Achieving Net-Zero-Energy Net-Zero-Cost Homes*. Lawrence Berkeley National Laboratory, Berkeley, CA, LBNL 2067E.

INTELLECTUAL
PROPERTY &
STARTUPS

Co-Founder: Cyklos Materials	2022-Current
Software Disclosure: Smelly-Odor Webtool (Smelly) v1	Approved 2019
Software Disclosure: Agile Cradle-to-Grave (AgileC2G)	
Life-Cycle Assessment Model and Webtool	Approved 2018
Software Disclosure: Bio-Siting Tool	
Geospatial Biorefinery Siting and Heat Utilization Webtool	Approved 2018

GRANTS

Carbon Negative Materials Assessment (CaNMA)	2022-present
Amount: \$1.5M, Agency: ARPA-E	
Role: Co-PI	
Bio-C2G Model for Rapid, Agile Assessment of Biofuel and Co-product Routes	2021-present
Amount: \$900K, Agency: DOE EERE BETO	
Role: Lead PI	
EFRI E3P: Program Plastic Lifecycle by Rationally Designed Enzyme-Containing Plastics	2021-present
Amount: \$2M, Agency: NSF	
Role: Co-PI	

LBNL LDRD: Advanced Manufacturing - Circular Polymers Amount: \$200K/year for 3 years, Agency: LBNL LDRD Role: Lead PI	2020-present
Systems-Level Strategy to Improve the Re-X Potential of Conventional and Novel Polymers Amount: \$250K, Agency: DOE EERE AMO & SPIA Role: Lead PI	2020-present
Multi-Input, Multi-Output Biorefineries to Reduce Greenhouse Gas and Air Pollutant Emissions Amount: \$1M, Agency: DOE EERE BETO Role: Lead PI	2020-present
Technoeconomic Analysis and Life-Cycle Assessment of Stationary Grid-Connected Battery Storage Systems Amount: \$350K, Agency: Shell International Exploration and Production Inc. Role: Lead PI	2019-present
LBNL Feedstock to Function Tool: Improving biobased product and fuel development through adaptive technoeconomic and performance modeling Amount: \$900K, Agency: DOE EERE BETO Role: Co-PI	2018-present
LBNL LDRD: Emerging TechnoEconomic Analysis Amount: \$450K, Agency: LBNL LDRD Role: Lead PI	2018-2020
Bio-C2G Model for Rapid, Agile Assessment of Biofuel and Co-product Routes Amount: \$900K, Agency: DOE EERE BETO Role: Lead PI	2018-2021
Design and Development of Bio-Advantaged Vitrimers as Closed-Loop Bioproducts Amount: \$2M, Agency: DOE EERE BETO Role: Co-PI	2018-present
Joint BioEnergy Institute (JBEI) Amount: \$125M, Agency: DOE Office of Science Role: Co-PI	2017-present
Technoeconomic Analysis of Microbial Sulfate Reduction Inhibition Using Perchlorate Treatment Amount: \$230K, Agency: AMPAC Role: Lead PI	2017-2019
Paths to Sustainable Distributed Generation through 2050: Matching Local Waste Biomass Resources with Grid, Industrial, and Community Needs Amount: \$1.5M, Agency: California Energy Commission Role: Lead PI	2015-2019

- Enabling Anaerobic Digestion Deployment for Municipal Solid Waste-to-Energy** **2015-2019**
Amount: \$4.3M, Agency: California Energy Commission
Role: Co-PI
- Synthesis of bio-inspired adaptive membranes for direct capture of CO₂ from biogas** **2014-2015**
Amount: \$221K, Agency: LBNL Laboratory Directed Research and Development
Role: Co-PI
- Large-scale Recycling of California's PEV Battery Packs** **2013-2015**
Amount: \$250K, Agency: California Energy Commission
Role: Lead PI
- Life-cycle Assessment** **2012-2015**
Amount: \$150K, Agency: LBNL Program Development Funds
Role: Lead PI
- Building Life-cycle Assessment Capacity for Advanced Biofuels** **2013-2016**
Amount: \$565K, Agency: Energy Biosciences Institute
Role: Co-PI
- The Future of Drop-in Fuels** **2013-2017**
Amount: \$400K, Agency: California Air Resources Board
Role: Technical Lead

RESEARCH
EXPERIENCE

- Energy Biosciences Institute, Berkeley, California USA**
Head of Sustainability **2017-present**
Member of EBI leadership team, aiding with the development of the revised EBI mission, and through life-cycle environmental and societal impact analysis, providing guidance for the institute roadmap and policy stance as it focuses on its expanded research and educational goals across the energy sector.
- Joint BioEnergy Institute, Emeryville, California USA**
VP, Life-cycle, Economics, & Agronomy Division **2017-present**
Founder and leader of JBEI's new division: LEAD, including technoeconomic analysis, life-cycle assessment, and field trials of wild type and engineered feedstocks. 40% time appointment, remaining 60% time spent on other LBNL projects.
- Director of Technoeconomic Analysis* **2015-2017**
Leader of JBEI's technoeconomic modeling and life-cycle assessment research in collaboration with experimental and computational researchers within JBEI and the Advanced Biofuel Process Demonstration Unit (ABPDU). 40% time appointment, remaining 60% time spent on other LBNL projects.
- Lawrence Berkeley National Lab, Berkeley, California USA**
Deputy Division Director for Research **2018-present**
Serving in the leadership for the Energy Analysis & Environmental Impacts Division at LBNL, which is made up of more than 100 permanent staff, and many additional junior staff. Responsibilities include ensuring high-quality scientific output, funding stability, and career development for division staff.
- Deputy Group Leader & Staff Scientist, Sustainable Energy Systems Group* **2015-present**
Serving in the leadership for the Sustainable Energy Systems group at LBNL, supervising fellow

scientists as well as postdocs and grad students. Coordinating with group and division leadership to ensure high-quality scientific output, funding stability, and career development for members. Promoted to Staff Scientist in 2017.

Research Scientist **2014-2017**
 Leading a variety of projects, including state-funded research on drop-in iofuels and electric vehicle battery recycling as well as biofuels research funded by the Energy Biosciences Institute.

Principal Scientific Engineering Associate **2012-2013**
 Team: Energy & Environmental Analysis Team, Carbon Cycle 2.0
 Research on scenario and model development for energy efficient buildings, biomass for energy applications, photovoltaics, and carbon capture and sequestration.

University of California, Berkeley, USA

Assistant Researcher **2017-present**
 Entry-level position in the Professional Research Series. Serving as a member of leadership team for EBI, housed at the university, and PI on research projects brought in through UC Berkeley.

Research Engineer **2012-2017**
 Project Title: Life-Cycle Environmental and Economic Decision-Making for Alternative Biofuels
 Advisor: Professor Arpad Horvath Primary objective is to develop an understanding of the broad environmental and economic impacts of producing biofuels with respect to other transportation fuel alternatives such as petroleum-based fuels and electricity. Deliverables include a carbon assessment tool and a series of national biofuel production scenarios.

Postdoctoral Scholar **2010-2011**
 Project Title: Life-Cycle Energy Assessment of Water and Waste Water Systems in California
 Advisor: Professor Arpad Horvath Primary objective is to develop a tool for assessing the greenhouse gas and water resource impacts of water supply and wastewater treatment in California.

Graduate Student Researcher **2007-2010**
 Project Title: Life-Cycle Water Impacts of U.S. Transportation Fuels
 Advisor: Professor Arpad Horvath
 Primary objective is to conduct dissertation-oriented research in the following areas: water requirements for transportation fuel production and delivery, energy-water connection, and water consumption impact assessment.

Graduate Student Researcher **2008-2009**
 Project Title: World Resources Institute Transportation Energy Tool
 Advisor: Lee Schipper, Ph.D.
 Tasks include developing an excel-based policy analysis tool for determining the greenhouse gas impacts of various transportation-related policies and writing a series of white papers to be published by the World Resources Institute in Washington, DC.

Advisory Board Member **2008**
 Project Title: Energy Free Home Challenge
 Advisor: Iain Walker, Ph.D.
 Tasks include estimating the cost for model net zero energy home to determine whether the cost and energy requirements for the competition entrants would be feasible and providing general input on proposed rules, contest logistics, and contest goals.

Carnegie Mellon University, Pittsburgh, Pennsylvania USA

Graduate Research Assistant **2007**

Project Title: Knowledge Management and Visualization in Support of Vulnerability Assessment of Electricity Production

Advisor: Professors H. Scott Matthews and Lucio Soibelman

Tasks include developing a prototype that integrates spatial and non-spatial data for vulnerability assessment of electricity supply based on coal mine production and rail transportation.

Undergraduate Research Assistant

2004-2006

Project Title: Economic Input-Output Life-Cycle Assessment

Advisor: Professor H. Scott Matthews

Tasks include retrieval and aggregation of Occupational Safety and Health Administration data for integration into the Economic Input-Output Life-Cycle Assessment (EIO-LCA) tool and development of a tutorial for new EIO-LCA users.

Northeast Midwest Institute, Washington, DC USA

Undergraduate Research Fellow

2006

Project Title: Electrical Grid Modernization

Advisor: Diane DeVaul, Ph.D. and Richard Munson

Tasks include collection of information on electrical grid modernization, distributed generation, and broadband over power lines for preparation of a white paper.

CONFERENCE
PAPERS

John J. Feldhausen, David C. Bell, Shane T. Kosir, Joshua S. Heyne, Corinne Scown, Vi Rapp, and Ana Comesana. "The Co-Optimization of Sustainable Aviation Fuel: Cost, Emissions, and Performance." *In AIAA Scitech 2021 Forum*, p. 2029. 2021.

Fan Tong, Derek Wolfson, Maximilian Auffhammer, Corinne D. Scown, "Climate and Health Impacts of Long-Haul Truck Electrification in the United States." *Transportation Research Board*, Washington, DC, 2020.

Michael Taptich, Corinne D. Scown, Kate Piscopo, Arpad Horvath, "Exceeding California's 2030 greenhouse gas reduction targets for on-road transport with drop-in biofuels." *Transportation Research Board*, Washington, DC, 2017.

Roger C. Sathre, Hanna Breunig, Jeffery Greenblatt, Peter Larsen, Thomas E. McKone, Nigel W. Quinn, Corinne Scown (2012). "Spatially-Explicit Water Balance Implications of Carbon Capture and Sequestration." *Proceedings of the 11th Annual Conference on Carbon Capture, Utilization, and Sequestration*, Pittsburgh, PA. April 30-May 3, 2012.

Aurora L. Sharrard, Ashley Nikithser, Corinne Scown, H. Scott Matthews, Melissa Bilec (2007). "The Challenge of Correlating Air Monitor Data with Construction Site Activity: A Pittsburgh Case Study." *Proceedings of the Construction Research Congress*, Grand Bahama Island, Bahamas. American Society of Civil Engineers, Construction Institute. May 6-8, 2007.

Chung Yan Shih, Corinne D. Scown, Lucio Soibelman, H. Scott Matthews, James H. Garrett, Jr., Keith Dodrill, Sandra McSurdy (2007). "Decision Support Framework for Electricity Production Vulnerability Assessment." *Proceedings of the 2007 ASCE Computing in Civil Engineering Conference*, Pittsburgh, PA, July 24-27, 2007.

PHD ADVISING &
COMMITTEES

Wilson McNeil, Co-Advised with Rob Harley (Ongoing)

Jason Porzio, Primary Research Advisor (Co-Advised by Scott Moura) (Ongoing)

Sarah Nordahl, Primary Research Advisor (Co-Advised by Rob Harley) (Ongoing)

Sarah Smith, Committee Member (Graduated Fall 2020)

CONFERENCE
ORGANIZING

Steering Committee, AIChE 2019 Bioenergy Sustainability Conference, Nashville, TN, October 2019.

Steering Committee and Panel Organizer, California Bioresources Economy Summit, Berkeley, CA, January 2019.

Track Chair and Leadership Committee, International Conference on Sustainable Design, Engineering and Construction, Tempe, AZ, May 2016.

Organizing Committee, International Symposium on Sustainable Systems & Technologies, Oakland, CA, May 2014.

Organizing Committee, International Society for Industrial Ecology 2011 Conference, Berkeley, CA, June 2011.

SELECTED INVITED
TALKS &
CONFERENCE
PRESENTATIONS

“Designing the bioeconomy for deep decarbonization”, Keynote Talk, Annual Green Chemistry & Engineering Conference, June 3, 2022. [virtual]

“Influence of TRY and lignin-derived aromatic utilization on the cost and carbon footprint of bio-fuels”, Invited Talk, 44th Symposium on Biomaterials, Fuels and Chemicals, May 2, 2022. [virtual]

“U.S. Department of Energy Wood Heater Workshop #3: Adoption of new wood heater technology and integration with other renewables”, Invited Panelist, April 26, 2022. [virtual]

“Overcoming the Engineering and Environmental Challenges of Achieving a More Circular Economy”, Invited Talk, CUWP Seminar Series, University of Wisconsin-Madison, April 14, 2022. [virtual visit]

“Overcoming the Engineering and Environmental Challenges of Achieving a More Circular Economy”, Invited Talk, Ezra’s Systems Roundtable Seminar, Cornell University, February 4, 2022. [virtual due to COVID]

“Weighing Life-Cycle Climate and Health Tradeoffs in the Push Toward Zero Waste”, Invited Talk, EEE Research Seminar, Purdue University, January 18, 2022.

“Converting Wet, Stinky Waste into Usable Energy”, Guest Lecture for UC Berkeley E93, October 29, 2021.

“Circular Plastics and the Environment”, Invited Talk, IEEE Silicon Valley/Bay Area Sustainability (SVS) Webinar, October 13, 2021. [virtual due to COVID]

“Health and Climate Impacts from Long-Haul Truck Electrification”, Invited Talk, Battery Modeling Webinar Series, Widely attended seminar series hosted by Carnegie Mellon University, August 17, 2021. [virtual due to COVID]

“Production Cost and Carbon Footprint of Biomass-Derived Dimethylcyclooctane as a High Performance Jet Fuel Blendstock”, Invited Conference Presentation, Society for Industrial Microbiology and Biotechnology Annual Meeting, Austin, TX, August 10, 2021. [Conference was in-person, my talk was virtual due to LBNL-COVID travel restrictions]

“Designing the Bioeconomy for Deep Decarbonization: Opportunities and impacts for the agricultural sector”, Invited Conference Presentation, Society for Industrial Microbiology and Biotechnol-

ogy Annual Meeting, Austin, TX, August 9, 2021. [Conference was in-person, my talk was virtual due to LBNL-COVID travel restrictions]

“Opportunities and impacts for the agricultural sector”, Invited Plenary Talk, Designing the Bioeconomy for Deep Decarbonization, DOE Multi-Lab Workshop, April 30, 2021. [virtual due to COVID]

“Cost and greenhouse gas implications of advanced bio-jet fuel production”, Invited Conference Presentation, SIMB Symposium on Biomaterials, Fuels and Chemicals, April 27, 2021. [virtual due to COVID]

“Weighing life-cycle climate and public health tradeoffs in organic waste management”, Invited Keynote Talk, AIChE Food-Energy-Water Conference, Berkeley, CA, February 2021. [virtual due to COVID]

“Life-Cycle Impacts of Anaerobic Digestion Deployment for Municipal Solid Waste-to-Energy”, Invited Talk, U.S. EPA 2020 California Bioresources Alliance Symposium, Sacramento, CA, November 2020. [virtual due to COVID]

“Life-Cycle Impacts of Anaerobic Digestion Deployment for Municipal Solid Waste-to-Energy”, Invited Seminar, Stanford University Energy Resources Engineering Graduate Seminar, Stanford, CA, September 2020. [virtual due to COVID]

“Machine Learning for Predicting Feedstock Yields, Biofuel Production Costs, and Emissions”, Inter-BRC Machine Learning Workshop, Washington, DC, February 2020.

“Lignin Valorization for Sustainable, Lower-Cost Biofuels and Bioproducts” Invited speaker on behalf of JBEI. DOE Genomic Sciences Program (GSP) PI Meeting Plenary Talk, Washington, DC, February 2020.

“Sustainability at the Joint BioEnergy Institute”, Invited Panel Speaker, AIChE Bioenergy Sustainability Conference, Nashville, TN, October 2019.

“Biomass Availability for Biogas Production”, Invited Plenary Speaker, U.S. Biogas, San Diego, CA, October 2019.

“Overview of available bioresources information”, Invited Panel Leader and Speaker, California Bioresources Economy Summit, Berkeley, CA, January 2019.

“Valuing organic waste-to-energy systems”, Conference Presentation, Society of Environmental Toxicology and Chemistry-North America Annual Meeting, Sacramento, CA, November 2018.

“Technoeconomic analysis and life-cycle assessment for emerging technologies”, Invited Talk, Shell, Houston, TX, November 2018.

“Technoeconomic analysis, life-cycle assessment, and scale-up for biomaterials”, Invited Talk, Synthetic Biology for Materials Workshop, Dept. of Defense, Arlington, VA, October 2018.

“Technoeconomic analysis and life-cycle assessment for emerging technologies”, Invited Talk, Energy Storage: Sustainability & Supply Chain Innovation Workshop, Berkeley, CA, October 2018.

“Bio-Siting Tool Demo”, Invited Demo, California Bioresources Economy Summit Steering Committee Meeting, Sacramento, CA, May 11, 2018.

“Life-cycle Assessment Overview”, Invited Talk (Workshop), 40th Symposium on Biotechnology for Fuels & Chemicals LCA/TEA Workshop, SIMB, Clearwater Florida, April 28, 2018.

“Life-Cycle Greenhouse Gas Assessment”, Guest Lecture, Chemical Engineering 90, UC Berkeley, Berkeley, CA, March 2018.

“Role of Lignin in Economically & Environmentally Sustainable Biorefineries”, Invited Talk, Georgia Tech TAPPI Seminar Series, Atlanta, GA, February 2018.

“How Valuable is a Feedstock-Agnostic Biorefinery?”, Society of Environmental Toxicology and Chemistry (SETAC) North America, Minneapolis, MN, November 2017.

“Bioenergy Potential from Food Waste in California”, International Society for Industrial Ecology/International Symposium on Sustainable Systems and Technology Joint Conference, Chicago, IL, June 2017.

“Life-Cycle Greenhouse Gas Assessment”, Guest Lecture, Chemical Engineering 90, UC Berkeley, Berkeley, CA, March 2017.

“Using life-cycle assessment to guide the development of bio-based fuels, lubricants, rubber, and plastic”, Society of Environmental Toxicology and Chemistry-Europe Annual Meeting, Nantes, France, May 2016.

“Overview of Research at the Joint BioEnergy Institute”, Energy Modeling Forum 33, Global Bio-Energy Policy Scenario Working Group Meeting, Stanford, CA, April 2016.

“Life-Cycle Greenhouse Gas Assessment”, Guest Lecture, Chemical Engineering 90, UC Berkeley, Berkeley, CA, March 2016.

“Life-cycle Engineering”, Guest Lecture, Energy from Biomass, UC Berkeley, Berkeley, CA, November 2015.

“A Whirlwind Tour of Emerging Technology Assessment at LBNL”, LCA XV, Vancouver, Canada, October 2015.

“Closing the Gap Between Basic Research, Technoeconomic Analysis, and Life-cycle Assessment for Bio-based Fuels and Products”, Joint BioEnergy Institute Seminar, Emeryville, CA, June 2015

“Technoeconomic Analysis at JBEI”, Joint BioEnergy Institute, Emeryville, CA, April 2015.

“Life-cycle Greenhouse Gas Assessment”, Guest Lecture, Chemical Engineering 90, UC Berkeley, Berkeley, CA, March 2015.

“Water and Climate Impacts of Transportation Systems”, Keynote at University of Illinois, Urbana-Champaign EWES SRIS Summit, Urbana, IL, April 2014.

“US Water-Energy Nexus: Data gaps, uncertainties, and future projections”, The National Academies Roundtable on Science and Technology for Sustainability, Washington, DC, June 2013.

“The Role of Biomass in Low-Carbon Automotive Transport”, Society of Environmental Toxicology and Chemistry North America, Long Beach, CA, November 2012.

“Life-cycle Assessment at Lawrence Berkeley National Laboratory”, Life-cycle Assessment XII, Tacoma, WA, September 2012.

“Uncertainty and Scenario Analysis in LCA of Emerging Technologies”, Life-cycle Assessment XII, Tacoma, WA, September 2012.

“Life-cycle Assessment of Biofuels for Transportation: Understanding the Effects of Scale”, Society of Environmental Toxicology and Chemistry Europe, Berlin, Germany, May 2012.

“Life-Cycle Water and Greenhouse Gas Implications of Alternative Fuel Production”, Lawrence Berkeley National Lab, Berkeley, CA, January 2012.

“Life-Cycle Water and Greenhouse Gas Implications of Alternative Fuel Production”, Arizona State University, Tempe, AZ, January 2012.

“Sustainable Systems: The Interface Between Infrastructure and the Environment”, University of Illinois Urbana-Champaign, Urbana, IL, December 2011.

“Life-Cycle Water Impacts of Transportation Fuels”, International Society for Industrial Ecology 2011 Conference, Berkeley, CA, June 2011.

“Water Footprint of U.S. Transportation Fuels”, Webinar for the Engineers for a Sustainable World National Chapter, June 2011.

“Biofuels”, Guest lecture given four separate times for UC Extension Courses: “Energy for Sustainability”, “Transportation Sustainability”, 2009 & 2010.

PEER REVIEW &
EDITORIAL
ACTIVITIES

Editorial Advisory Board, ACS Sustainable Chemistry & Engineering (IF = 8.2)

Editorial Board Member, Environmental Research: Infrastructure and Sustainability (Launched 2020)

Associate Editor, Agronomy Journal (IF = 2.2)

Reviewer for National Academies report: “Gaseous Carbon Waste Streams Utilization: Status and Research Needs”

Reviewer for Engineering and Physical Sciences Research Council, UK Research and Innovation

(analogous to NSF in U.S.)

Gordon Research Conference Reviewer

Reviewer for DOE-funded Center for Computationally Assisted Science and Technology (CCAST)

EPA STAR Fellowship Review Panel Member

Manuscript Reviewer for Nature Biotechnology (IF = 55)

Manuscript Reviewer for Nature Energy (IF = 46)

Manuscript Reviewer for Energy & Environmental Science (IF = 30)

Manuscript Reviewer for Advanced Energy Materials (IF = 25)

Manuscript Reviewer for Nature Climate Change (IF = 22)

Manuscript Reviewer for Proceedings of the National Academy of Sciences (IF = 9.5)

Manuscript Reviewer for Green Chemistry (IF = 10)

Manuscript Reviewer for Current Opinion in Biotechnology (IF = 9.7)

Manuscript Reviewer for Environmental Science & Technology (IF = 9)

Manuscript Reviewer for Resources, Conservation & Recycling (IF = 8)

Manuscript Reviewer for Environmental Research Letters (IF = 6.1)

Manuscript Reviewer for GCB Bioenergy (IF = 5.3)

Manuscript Reviewer for International Journal of Life Cycle Assessment (IF = 4.8)

Manuscript Reviewer for BioEnergy Research (IF = 2.5)

Manuscript Reviewer for Biofuels, Bioproducts, and Biorefining (IF = 4.5)

Manuscript Reviewer for Energy Policy (IF = 4)

Manuscript Reviewer for Water Resources Research (IF = 4.4)

Manuscript Reviewer for 2007 ASCE Conference on Computing in Civil Engineering

HONORS AND AWARDS

ACS Sustainable Chemistry & Engineering Lectureship, 2022

Environmental Science & Technology Best Paper Award for 2020 (Nordahl et al., First runner up, Best Policy Article in 2020), 2021

DOE Secretary's Achievement Award (awarded as part of 8-person Pretreatment and Process Development Team), 2018

LBNL SPOT Award for Identifying Opportunities to Improve Maternity Leave Coverage, 2017

LBNL Director's Award for Exceptional Achievement: Early Scientific Career, 2015

Invited to join the Balaton Group as a Donella Meadows Fellow, 2015

Carnegie Mellon University Civil & Environmental Engineering Dept. Recent Alumni Achievement Award, 2014

Environmental Science & Technology Best Paper Award for 2011 (McKone et al., Second Runner-up,

Best Feature Article), 2012
 National Science Foundation Graduate Research Fellow, 2007
 Carnegie Mellon University Honors and College of Engineering Honors, 2006
 UC Berkeley Bears Breaking Boundaries: Energy and Environmental Innovation, 3rd Place, 2008
 Carnegie Mellon Stephen Omer Lee Outstanding Engineering & Public Policy Project Award, 2007
 Carnegie Mellon Tom Johnson Fellowship, 2006
 Carnegie Mellon Advani Memorial Scholarship, 2006
 Carnegie Mellon Andrew Carnegie Society Scholarship, 2006
 Carnegie Mellon, Civil Engineering H.A. Thomas, Sr. Distinguished Service Award, 2007

PROFESSIONAL
 REGISTRATION,
 ORGANIZATIONS
 AND COMMITTEES

Member (UC Berkeley representative) BioMADE 4S Committee
 Member, National Academies of Sciences, Engineering, and Medicine's Committee on Current Methods for Life Cycle Analyses of Low-Carbon Transportation Fuels in the United States (2021-2022)
 Member, Center for Bioenergy Innovation (CBI) Science Advisory Board
 LBNL Women Scientists & Engineers Council
 Member, Society of Environmental Toxicology and Chemistry
 Engineer-in-Training, State of Pennsylvania
 Former President, Associated General Contractors of America, UC Berkeley Chapter
 Former President, American Society of Civil Engineers, Carnegie Mellon Chapter
 Former Vice President, Chi Epsilon Society, Carnegie Mellon Chapter
 Member, Society of Women Engineers, Carnegie Mellon Chapter
 Former Co-President, UC Berkeley Civil & Environmental Engineering Grad Student Society
 Former Executive Board Member, UC Berkeley Graduate Assembly (Graduate Student Government)
 Former Grad Student Representative, UC Berkeley Academic Senate (Supreme Governing Body at Berkeley) Graduate Council
 Former Graduate Student Representative, UC Berkeley Chancellor's Advisory Committee on Sustainability
 Former President, Carnegie Mellon Engineering and Public Policy Student Advisor Committee
 Former Chair, Carnegie Mellon Civil & Environmental Engineering Student Advisory Committee
 Member, Andrew Carnegie Society Scholars

TEACHING
 EXPERIENCE

UC Berkeley, USA

Lecturer

Fall 2021

Course Title: CE 11 Engineered Systems & Sustainability

Required undergraduate course for civil & environmental engineering majors. Covers fundamentals behind engineered systems and their impact on the environment.

UC Berkeley Extension, USA

Lecturer

2011

Course Title: Energy Use and Climate Change

Course comprised of five three-hour meetings, including weekly homework and a large project.

Lecturer

2011

Course Title: Transportation Sustainability: Life Cycle Assessment
 Course comprised of one six-hour meeting.

Carnegie Mellon University, Pittsburgh, Pennsylvania USA

Head Teaching Assistant

2004-2007

Course Title: Introduction to Civil and Environmental Engineering

The job of a head teaching assistant includes teaching a discussion section, managing the graders, holding office hours, and leading one of three major course projects.

Course Advisor

2005-2006

Course Title: Introductory/Intermediate Programming

This course served as the introductory Java programming course in the School of Computer Science. Course advisors are required to hold office hours, grade assignments, and attend all lectures.

OUTREACH

Sustainability-Related Outreach

Ethics in Research

2022

Topic(s): Ethics in environmental research at LBNL

Prepared slides and answered questions in a panel discussion for high school interns studying ethics in research at LBNL.

Electricity Markets & Policy, Early Career Cohort

2020

Topic(s): Career pathways at LBNL

Gave an invited talk to early career scientists in the Electricity Markets & Policy Department at LBNL on my own career path, what is required to be successful at the Lab, and tradeoffs between national lab and traditional academic careers.

Energy & Biosciences Institute Project Feature Videos

2018

Topic(s): Highlights of new projects in the EBI, including material science and energy storage

Planned and conducted filmed interviews with EBI PIs on their projects, geared toward general public.

Joint BioEnergy Institute "Science 101" Videos

2016

Topic(s): Explaining technoeconomic analysis

Filmed introductory video on technoeconomic analysis in a bioenergy context for JBEI YouTube channel geared toward general public.

Carnegie Science Center National Engineers' Week

2006-2007

Topic(s): Life-cycle assessment mapping and buoyancy demonstrations Created and managed two display booths for children K-8.

SEED Educational Program

2008

Topic(s): Introduction to climate and energy

Helped develop the curriculum for this after-school educational program aimed at teaching junior high students about energy and climate change.

7th Annual UC Berkeley Sustainability Summit

2010

Topic(s): Campus-wide discussion about sustainability

Sat on a four-member panel including Vice Chancellor Ed Denton and Vice Provost Cathy Koshland, and answered questions about how the graduate student community is involved in campus sustainability at UC Berkeley. Video of the panel discussion can be found here: <http://sustainability.berkeley.edu/cacs/pages/summits/overview.shtml>

Matching Grad School Choices with Environmental Career Goals

2008

Topic(s): Panel discussion on how to choose grad schools and degree programs for students interested in sustainability

Organized and sat on this panel discussion for undergraduates interested in attending grad school in areas related to energy and the environment.

Female-Focused Engineering Outreach

Engineering Your Future

2003-2006

Topic(s): Basic engineering concepts and demonstrations for high school girls in Pittsburgh, PA
Helped organize and led groups of girls through laboratory demonstrations for this day-long program.

Summer Engineering Experience

2007

Topic(s): Basic engineering concepts and demonstrations for high school girls in Pittsburgh, PA
Lectured for this two week summer program for 8th and 9th grade girls in Pittsburgh, PA.

High School Day

2004-2007

Topic(s): Basic engineering concepts and demonstrations for high school girls in Pittsburgh, PA
Lectured for this two week summer program for 8th and 9th grade girls in Pittsburgh, PA.