Corinne D. Scown, Ph.D.

Offices & Contact

1 Cyclotron Road, 90-4126D
Lawrence Berkeley National Lab
Berkeley, CA 94720 USA

Phone: (510) 517-1628
E-mail: cdscown@lbl.gov
Website: profiles.lbl.gov/21746-corinne-scown/about

5885 Hollis Street, 978-4124
Joint BioEnergy Institute
Emeryville, CA 94608 USA

Phone: (510) 517-1628
E-mail: cscown@berkeley.edu
Website: lead.jbei.org

Positions

Senior Scientist & Deputy Division Director
Systems & Energy Technologies Analysis Dept.
Energy Analysis Division
Energy Technologies Area
Lawrence Berkeley National Laboratory

VP, Life-cycle, Economics, & Agronomy Div.
Joint BioEnergy Institute

Head of Sustainability Analysis
Energy & Biosci. Institute, UC Berkeley

Co-Founder & President, **Cyklos Materials**

Research Interests

Chemical process design and simulation, AI/ML approaches to automated design, carbon accounting and removal, data structures and predictive modeling for biomanufacturing, bioenergy and bioproducts, wastewater treatment and organic waste management systems, biodegradable and circular polymers, life-cycle assessment, technoeconomic modeling.

Education

University of California, Berkeley, USA

Ph.D., Civil Engineering, December 2010

- Dissertation Title: "Life-Cycle Water Impacts of U.S. Transportation Fuels"
- Advisor: Arpad Horvath

M.S., Civil Engineering, May 2008

Carnegie Mellon University, Pittsburgh, Pennsylvania USA

B.S., Civil Engineering, December, 2006
double major in Engineering and Public Policy

Peer-Reviewed Publications (H-Index: 49, Google Scholar)

148. Sarang S. Bhagwat*, Karthik Sankaranarayanan, Jay D. Keasling, Aindrila Mukhopadhyay, **Corinne D. Scown* (Expected 2027)**. "Coupling kinetic and techno-economic models reveals hidden biodesign targets." *Under review at Nature Chemical Engineering.* **Role: Major (Work Lead)**. ChemRxiv: https://chemrxiv.org/doi/full/10.26434/chemrxiv.15011481/v1
147. Brendan P. Harrison, Peter Tennessen, Allegra C. Mayer, Gavrielle Welbel, Noah J. Planavsky, Aarushi Jhatro, Ann Close, Patricia M. Fox, Sebastien C. Biraud, Peter S. Nico, **Corinne D. Scown**, Bhavna Arora, Evan Sherwin **(Expected 2027)**. "Quantifying the Cost of Accuracy in Agricultural Soil Carbon Enhancement." *Under review at Environmental Science & Technology.* **Role: Minor**
146. Gutierrez, Laura et al. **(Expected 2026)** "Co-Producing Novel Multi-Criteria Monitoring, Reporting, and Verification Standards for Direct Air Capture and Storage." Under review at *Energy Research & Social Science.* **Role: Minor**
145. Md Maksudur Rahman, Nawa Raj Baral, Hemant Choudhary, Thomas Eng, Xinyi Zhou, Carolina A. Barcelos, Matteo Ceriani, Steven D. Karlen, Emine A. Turumtay, Edward E.K. Baidoo, Joseph M. Palasz, Di Liu, Eric R. Sundstrom, **Corinne D. Scown**, Aindrila Mukhopadhyay, Blake A. Simmons, John M. Gladden, and Alberto Rodriguez* **(Expected 2026)**.

"Energy and cost benchmarking of solvent recycling approaches for effective amine-based pretreatment of lignocellulosic biomass." *Under review at Chem Circularity.* **Role: Minor**

144. Jin Fan, Seth Kane, Boon-Ling Yeo, **Corinne D. Scown**, Sabbie A. Miller **(Expected 2026)**. "Pathways for biomass residues to contribute to decarbonization of materials and energy." *Under review at Nature Sustainability.* **Role: Minor**

143. Jaya Tripathi, Aparajitha Srinivasan, Eric Sundstrom, Nawa Raj Baral, Aindrila Mukhopadhyay, **Corinne D. Scown* (Expected 2026)**. "Cost bottlenecks in aerobic bioproduction and impacts of low-oxygen conditions." *Under revision for ACS Sustainable Chemistry & Engineering.* **Role: Major (Lead PI)**

142. Sarah Nordahl, Evan Sherwin, Caspar Donnison, Kimberly Mayfield, Sarah Baker, **Corinne D. Scown* (Expected 2027)**. "Accounting Methods Dictate Carbon Removal Credit Integrity and Outcome." *Under revision for Nature Communications.* Preprint DOIs: 10.21203/rs.3.rs-9956382/v1 and 10.70212/cdrxiv.2026514.v1 **Role: Major (Lead PI)**

141. Carolina Barcelos, Xinyi Zhou, Ta-Hsuan Chang, Jenny Duong, Kirch Quijano, Bhaskar Veldurthy, Kalyani Ananthakrishnan, Nawa Raj Baral, David Carruthers, Taek Soon Lee, **Corinne D. Scown**, Eric Sundstrom* **(Expected 2027)**. "Scalable production of bio-isoprene via integrated fermentation, off-gas capture and catalytic conversion of isoprenyl acetate." *Under revision for Green Chemistry.* **Role: Minor**

140. Maryam Nematian, Tai-Yuan Huang, Tuhin K. Poddar, Kieran Heeley, Edward Spang, Sarah L. Nordahl, Andrea Bailey, and **Corinne D. Scown* (Expected 2027)**. "Life-Cycle Greenhouse Gas, Air Pollutant, and Waste Disposal Impacts of Managing Agricultural Residues in California." *Under revision for Environmental Science & Technology.* **Role: Major (PI)**

139. Tao Dai, Anaís Ostroski, Steven Singer, Aymerick Eudes, **Corinne D. Scown*** "Direct Soil Nitrous Oxide Emissions on United States Agricultural Lands." **(Expected 2027)**. *Under revision for One Earth.* Preprint DOI: 10.2139/ssrn.6434198 **Role: Major (Lead PI)**

138. Melissa Moore, Sarah L. Nordahl, Jacob G. Englander, Branden E. Leonhardt, Tyler Huntington, Tuhin Poddar, **Corinne D. Scown* (Expected 2026)**. "Potential for Scale-up of Renewable Natural Gas Production from Manure in the United States." *Resubmitted to Environmental Research: Infrastructure and Sustainability.* **Role: Major (Lead PI)**

137. Joseph Palasz, Xihui Kang, Nawa Raj Baral, Carolina Barcelos, Asun Oka, Xinyi Zhou, Anagha Krishnamoorthy, Xueli Chen, Ta-Hsuan Chang, Venkataramana Pidatala, Hemant Choudhary, Eric Sundstrom, **Corinne D. Scown**, Ning Sun, Blake A. Simmons **(Expected 2026)**. "A Green Dimethylamine Pretreatment Machine: An Integrated Low Temperature Approach for Cost-Competitive Cellulosic Sugar Production with Efficient Solvent Recovery and Recycling" *Resubmitted to Science Advances.* **Role: Minor**

136. Tuhin Poddar, Sarang Bhagwat, Jacob Kenny, Emmanuel Aboagye, Rui Shi, Nawa Baral, Christos Maravelias, John Field, Jeremy Guest, **Corinne D. Scown* (Expected 2026)**. "Technoeconomic analysis and design considerations for first-of-a-kind bioprocesses ." *In press at Nature Chemical Engineering.* **Role: Major (Lead PI)**

135. Ahmad Bin Thaneya*, Aysegul Petek Gursel, Seth Kane, Elisabeth Van Roijen, Baishakhi Bose, Thomas P. Hendrickson, **Corinne D. Scown**, Sabbie A. Miller, and Arpad Horvath **(Expected 2026)**. "Missed opportunities forgo one-third of mass timber's carbon storage potential." *In press at Environmental Science & Technology.* **Role: Minor**

134. Yang Tian, Christopher M. De Ben, Emine Akyuz Turumtay, Alexis H. Tan, Victoria Saini, Anna Tang, Anna Z. Su, Jutta Dalton, Edward E. K. Baidoo, Robert Hutmacher, Jackie Atim, Daniel H. Putnam, Henrik V. Scheller, **Corinne D. Scown**, Aymerick Eudes* **(2026)**. "Field testing of sorghum hybrids with stacked coproduct and low-lignin traits." *BioEnergy Research.* DOI: 10.1007/s12155-026-11065-5 **Role: Minor**

133. Mengyao Yuan, Nicholas R. Cross, Madi Lynch, Wilson H. McNeil, Nathan A. Fine, Chelsea V. Preble, **Corinne D. Scown**, Roger D. Aines, Erik Meuleman, Wenqin Li* **(2027)**. "Economic and Emissions Analysis of Natural Gas Power with High-Efficiency CO_2 Capture." *Applied Energy.* DOI: 10.1016/j.apenergy.2026.129139 **Role: Minor**

132. Yen Ning Chai, Jutta Dalton, Yang Tian, Rita Kuo, Christopher De Ben, Daniel H. Putnam, Suzanne Kosina, Monikaben Nimavat, Edward E.K. Baidoo, Thomas Hardwood, Katherine Louie, Benjamin Bowen, Christa Pennacchio, Robert Riley, Trent Northen, Aymerick Eudes, **Corinne D. Scown**, Henrik V. Scheller* **(2026)**. "Distinct Strategies for Engineering Bioenergy Traits in Sorghum Drive Divergent Functional Shifts in the Rhizosphere Microbiome." *ISME Communications.* DOI: 10.1093/ismeco/ycag305 **Role: Minor**

131. Bridgie Cawthon, Aidan E. Cowan, Zen Yoshikawa, Kenneth Low, Justin Baerwald, Nawa Raj Baral, Matthew Incha, Jennifer Gin, Yan Chen, Christopher J. Petzold, Edward E. K. Baidoo, Emine A. Turumtay, **Corinne D. Scown**, Adam M. Feist, Jay D. Keasling **(2026)**. "Growth-coupled reverse β-oxidation enables redox-balanced fatty-alcohol fermentation and strain evolution." *Nature Communications.* DOI: 10.1038/s41467-026-78481-1 **Role: Minor**

130. Tao Dai*, **Corinne D. Scown (2026)**. "An Uncertainty-Aware Framework for Iterative System Boundary Identification in Life Cycle Assessment." *Journal of Cleaner Production.* DOI: 10.1016/j.jclepro.2026.149453 **Role: Major**

129. Tai-Yuan Huang, Baishakhi Bose, Grace Gu, Brett A. Helms, Jay D. Keasling, **Corinne D. Scown* (2026)**. "Cost, Emissions, and Material Flow Implications of Designing Electric Vehicle Components for Recyclability." *Environmental Research: Infrastructure and Sustainability* DOI: 10.1088/2634-4505/aea641 **Role: Major**

128. Anais Ostroski, Vi Rapp, **Corinne D. Scown* (2026)**. "Air emissions impacts of fuel substitution in the United States cement industry." *Environmental Science & Technology.* DOI: 10.1021/acs.est.5c18471 **Role: Major (Lead PI)**

127. Brendan Harrison*, Rebecca Ryals, **Corinne D. Scown (2026)**. "Organic Waste Diversion in the United States Can Substantially Reduce Landfill Methane Emissions but Plays a Minor Role in Nutrient Recycling" *Earth's Future.* DOI: 10.1029/2025EF007326 **Role: Major (Lead PI)**

126. Zilong Wang, Seokjung Cheong, Hai Wang, Jeremy Demarteau, Alexander R. Epstein , Baishakhi Bose , Mei Zhao, Beibei Ge, Alberto Nava, Ramu Kakumanu, Edward E. K. Baidoo, Yan Chen, Christopher J. Petzold, Yifan Guo, Nawa Raj Baral, Nemi Chetanbhai Vora, Yuzhong Liu, Rithwik Ghanta, Robert Haushalter, Kristin A. Persson, **Corinne D. Scown**, Brett A. Helms, Jay D. Keasling* **(2026)**. "A microbial platform for recyclable plastics with customizable properties." *Nature Biotechnology.* DOI: 10.1038/s41587-026-03229-7 **Role: Moderate (Co-PI)**

125. Wilson McNeil, Chelsea V. Preble, Robert A. Harley, **Corinne D. Scown* (2026)**. "Human Health Effects of Deploying Amine-Based Carbon Capture and Storage in the U.S. Electric Power Sector" *Nature Sustainability.* DOI: 10.1038/s41893-026-01869-w **Role: Major**

124. Maximilian Baur, Susannah Scott, Ding Ma, Gregg T. Beckham, Soon Hyeok Hong, Rodney S. Ridley, Hal S. Alper, Kim Ragaert, Mara Silber, Bernhard von Vacano, **Corinne D. Scown**, Andrew P. Dove, Bert M. Weckhuysen **(2026)**. "How should reproducibility be approached in plastic recycling?" *Chem Circularity.* DOI: 10.1016/j.checir.2026.100046 **Role: Equal contributor with all authors**

123. Nawa Raj Baral*, Thomas Eng, Deepanwita Banerjee, Blake A. Simmons, Aindrila Mukhopadhyay, **Corinne D. Scown (2026)**. "Cost and Carbon Implications of Flexible Biomanufacturing to Produce Bio-Based Gasoline, Jet Fuel, and Platform Chemicals." *Chemical Engineering Journal.* DOI: 10.1016/j.cej.2026.177641 **Role: Major (Lead PI)**

122. Brendan Harrison*, Branden Leonhardt, Jacob Englander, **Corinne D. Scown (2026)**. "The Value of Better Manure Management." *Nature Food*. DOI: 10.1038/s43016-026-01356-7 **Role: Major**

121. Nawa Raj Baral, Minliang Yang, Deepanwita Banerjee, Aindrila Mukhopadhyay, Blake A. Simmons, Steven W. Singer, **Corinne D. Scown* (2026)**. "Influence of titer, rate, yield, and scale on the cost and life-cycle emissions of biomanufacturing." *Trends in Biotechnology*. DOI: 10.1016/j.tibtech.2026.03.023 **Role: Major (Lead PI)**

120. Rebecca J. Hanes*, Keju An, Wilson McNeil, Yijin Li, Isaias Marroquin, Soomin Chun, Sarah L. Nordahl, Kimberley K. Mayfield, Sarah E. Baker, **Corinne D. Scown**, Evan D. Sherwin **(2026)**. "Energy emissions accounting methods can determine whether direct air capture with storage achieves net removal." *Environmental Science & Technology*. DOI: 10.1021/acs.est.5c13494 **Role: Moderate**

119. Chang Dou, Minliang Yang, Nikhil Kumar, Rolin A. Aguilar, Addison Hitt, Griffen Gonzalez, **Corinne D. Scown**, Kenneth L. Sale, Hemant Choudhary, Aaron M. Socha*, Ning Sun* **(2026)**. "Functionalized benzylamines from commercial kraft lignin." *Chemical Engineering Journal*. DOI: 10.1016/j.cej.2026.174287 **Role: Minor**

118. Sangcheol Moon, Rhys Dickhudt, Casey Smith, Ting Xu, Emiko Zumbro*, **Corinne D. Scown* (2026)**. "Aligning Development and Deployment of Compostable Plastics for Meaningful Impact" *One Earth*. DOI: 10.1016/j.oneear.2026.101609 **Role: Major**

117. Elwin Hunter-Sellars, Tao Dai, Nathan Ellebracht, Helene Pilorge, Max Pisciotta, Alexander Bump, Edna Rodriguez Calzado, Susan Hovorka, **Corinne D. Scown***, Simon Pang* **(2026)**. "The potential and cost of carbon dioxide removal using direct air capture with land-based wind and utility-scale photovoltaics" *Environmental Science & Technology*. DOI: 10.1021/acs.est.5c14628 **Role: Major**

116. Wilson McNeil, Rafaella Canessa, **Corinne D. Scown**, Jannik Haas, Rebecca Peer **(2026)**. "Toward Lower-Emission Freight: Grid Infrastructure Tradeoffs of Battery-Electric vs Fuel Cell Trucks in New Zealand." *Transport Policy*. DOI: 10.1016/j.tranpol.2025.103974 **Role: Minor**

115. Jason Porzio, Wilson McNeil, Fan Tong, Scott Moura, Maximilian Auffhammer*, **Corinne D. Scown* (2026)**. "Battery-Electric Trucks are Projected to Lower the Societal Cost of Long-Haul Freight in the United States." *Nature Communications*. DOI: 10.1038/s41467-025-67161-1 **Role: Major (Lead PI)**

114. Md Tahmid Islam, Venkataramana Pidatala, Edward E.K. Baidoo, Paul Wolski, Hemant Choudhary, Daniel H. Putnam, **Corinne D. Scown**, Henrik V. Scheller, Blake A. Simmons, John M. Gladden, and Alberto Rodriguez* **(2026)**. "Enhancement of sorghum hydrolysis by addition of amylases to an ionic liquid-based deconstruction process." *BMC Research Notes*. DOI: 10.1186/s13104-025-07469-9 **Role: Moderate (Co-PI)**

113. Javier Menasalvas, Shawn Kulakowski, Yan Chen, Jennifer W. Gin, Emine Akyuz Turumtay, Nawa Raj Baral, Morgan A. Apolonio, Alex River, Ian S. Yunus, Megan E. Garber, **Corinne D. Scown**, Paul D. Adams, Taek Soon Lee, Ian K. Blaby, Edward E. K. Baidoo, Christopher J. Petzold, Thomas Eng*, Aindrila Mukhopadhyay* **(2025)**. "Biosensor-Driven Strain Engineering Reveals Key Cellular Processes for Maximizing Isoprenol Production in Pseudomonas putida" *Science Advances*. DOI: 10.1126/sciadv.ady2677 **Role: Minor**

112. Seth Kane, Baishakhi Bose, Jin Fan, Thomas Hendrickson, Sarah L. Nordahl, **Corinne D. Scown**, Sabbie Miller* **(2025)** "A framework for ground-up life cycle assessment of novel, carbon-storing building materials." *Energy & Environmental Science*. DOI: 10.1039/D5EE02728D **Role: Moderate (Co-PI)**

111. Sarah L. Nordahl, Melissa Moore, Nawa R. Baral, Wilson McNeil, Yan Wang, and **Corinne D. Scown* (2025)**. "Life-Cycle Air Pollution and Greenhouse Gas Impacts from Multi-Input,

Multi-Output Biorefineries." *Environmental Science & Technology.* DOI: 10.1021/acs.est.4c12920 **Role: Major**

110. Baishakhi Bose, Thomas Hendrickson, Sarah Nordahl, Seth Kane, Jin Fan, Sabbie Miller, **Corinne D. Scown* (2025)**. "Life-cycle carbon footprint of cross-laminated timber from mixed hardwood and softwood from fire-prone California forests." *Environmental Research Letters.* DOI: 10.1088/1748-9326/adf868 **Role: Major**

109. Nawa Baral*, Xueli Chen, Joseph Palasz, Ramkrishna Singh, Anagha Krishnamoorthy, Venkataramana Pidatala, Tyrell Lewis, Chang Dou, Ling Ding, Hemant Choudhary, Ning Sun, Blake Simmons, **Corinne D. Scown (2025)**. "Cost of Deconstruction Depots for Diversified, Waste-Based Lignocellulosic Sugars Using Distillable Solvents." *ACS Sustainable Chemistry & Engineering.* DOI: 10.1021/acssuschemeng.5c05029 **Role: Moderate**

108. Jaya Tripathi, Nawa Raj Baral, Eric Sundstrom, **Corinne D. Scown* (2025)**. "Cost Impact of Hexose-to-Pentose Sugar Ratios for Biomanufacturing." *Bioresource Technology.* DOI: 10.1016/j.biortech.2025.133051 **Role: Major**

107. Maryam Nematian, **Corinne D. Scown* (2025)**. "Advances and Emerging Issues in Life-Cycle Assessment for Biofuel Policy." *GCB Bioenergy.* DOI: 10.1111/gcbb.70061 **Role: Major**

106. Tao Dai, Nathan C. Ellebracht, Elwin Hunter-Sellars, Alvina Aui, Hannah M. Goldstein, Wenqin Li, Chad M. Hellwinckel, Lydia Price, Andrew A. Wong, Peter Nico, Bruno Basso, G. Philip Robertson, Jennifer Pett-Ridge, Matt Langholtz, Sarah E. Baker, Simon H. Pang, **Corinne D. Scown* (2025)**. "Land-Based Resources for Engineered Carbon Dioxide Removal in the United States Exceed the Expected Needs" *One Earth.* DOI: 10.1016/j.oneear.2025.101349 **Role: Major**

105. Sagar Gautam*, Umakant Mishra, **Corinne D. Scown (2025)**. "Machine learning based reduced-order models to predict spatiotemporal dynamics of soil carbon and biomass yield of different bioenergy crops." *Carbon Capture Science and Technology.* DOI: 10.1016/j.ccst.2025.100440 **Role: Major**

104. Sami Kazaz, Jaya Tripathi, Yang Tian, Dylan Chin, İrem Pamukçu, Monikaben Nimavat, Emine Akyuz Turumtay, Edward E. K. Baidoo, **Corinne D. Scown**, Aymerick Eudes* **(2025)**. "In planta production of the nylon precursor beta-ketoadipate." *Journal of Biotechnology.* DOI: 10.1016/j.jbiotec.2025.04.008 **Role: Moderate**

103. Nicolas Clauser, **Corinne D. Scown**, Jennifer Pett-Ridge, William Joe Sagues **(2025)**. "A techno-economic assessment of carbon dioxide removal pathways via biochemical conversion of lignocellulose to biofuels and bioplastics." *Renewable & Sustainable Energy Reviews.* DOI: 10.1016/j.rser.2025.115714 **Role: Minor**

102. Elisabeth Van Roijen, Seth Kane, Jin Fan, Josefine Olsson, Baishakhi Bose, Thomas Hendrickson, Sarah Nordahl, Alissa Kendall, **Corinne D. Scown**, Sabbie Miller* **(2025)**. "Dynamic accounting of carbon uptake in the built environment." DOI: 10.1021/acs.est.5c00080 *Environmental Science & Technology.* **Role: Minor**

101. Nawa Baral*, Deepanwita Banerjee, Thomas Eng, Blake Simmons, Aindrila Mukhopadhyay, **Corinne D. Scown (2025)**. "Microbial Pathways for Cost-Effective Low-Carbon Renewable Indigoidine." *ACS Sustainable Chemistry & Engineering.* DOI: 10.1021/acssuschemeng.4c09962 **Role: Major**

100. Wilson McNeil, Jason Porzio, Fan Tong, Robert A. Harley, Maximilian Auffhammer, **Corinne D. Scown* (2025)**. "Impact of Truck Electrification on Air Pollution Disparities in the U.S." *Nature Sustainability.* DOI: 10.1038/s41893-025-01515-x **Role: Major**

99. Tuhin K Poddar, **Corinne D. Scown* (2025)**. "Technoeconomic analysis for near-term scale-up of bioprocesses." *Current Opinion in Biotechnology.* DOI: 10.1016/j.copbio.2025.103258 **Role: Major**

98. Tao Dai*, **Corinne D. Scown (2025)**. "A Novel Approach for Large-Scale Wind Energy Potential Assessment." *Renewable & Sustainable Energy Reviews.* DOI: 10.1016/j.rser.2025.115333 **Role: Major**

97. Seth Kane, Ahmad Bin Thaneya, Aysegul Petek Gursel, Jin Fan, Baishakhi Bose, Thomas P. Hendrickson, Sarah L. Nordahl, **Corinne D. Scown**, Sabbie A. Miller, Arpad Horvath **(2024)**. "Uncertainty in carbon dioxide removal potential of biochar" *Environmental Research Letters.* DOI: 10.1088/1748-9326/ad99e9 **Role: Minor**

96. Brendan P. Harrison*, Wilson H. McNeil, Tao Dai, J. Elliott Campbell, **Corinne D. Scown (2024)**. "Site Suitability and Air Pollution Impacts of Composting Infrastructure for California's Organic Waste Diversion Law." *Environmental Science & Technology.* DOI: 10.1021/acs.est.4c06371 **Role: Lead PI**

95. Yang Tian, Yu Gao, Halbay Turumtay, Emine Akyuz Turumtay, Yen Ning Chai, Hemant Choudhary, Joon-Hyun Park, Chuan-Yin Wu, Christopher M. De Ben, Jutta Dalton, Katherine B. Louie, Thomas Harwood, Dylan Chin, Khanh M. Vuu, Benjamin P. Bowen, Patrick M. Shih, Edward E. K. Baidoo, Stephen Temple, Trent R. Northen, Blake A. Simmons, Jackie Atim, Daniel H. Putnam, **Corinne D. Scown**, Jenny C. Mortimer, Henrik V. Scheller, Aymerick Eudes* **(2024)**. "Engineered reduction of S-adenosylmethionine alters lignin in sorghum." *Biotechnology for Biofuels and Bioproducts.* DOI: 10.1186/s13068-024-02572-8 **Role: Minor**

94. Jutta C. Dalton, Tyler Huntington, Venkataramana Pidatala, Mengziang Lei, Cayci Hill, Jorge Angeles, Daniel Putnam, Jeff Dahlberg, John Gladden, Blake A. Simmons, Bob Hutmacher, **Corinne D. Scown***, Henrik V. Scheller* **(2024)** "Impact of Drought Stress on Sorghum bicolor Yield, Deconstruction, and Microbial Conversion." *ACS Sustainable Chemistry & Engineering.* DOI: 10.1021/acssuschemeng.4c05826 **Role: Major (Co-PI)**

93. Sarah L. Nordahl, Rebecca J. Hanes, Kimberley K. Mayfield, Corey Myers, Sarah E. Baker*, **Corinne D. Scown* (2024)**. "Carbon Accounting for Carbon Dioxide Removal." *One Earth.* DOI: 10.1016/j.oneear.2024.08.012 **Role: Lead PI**

92. Nora Hennessy, **Corinne D. Scown***, Ines Azevedo* **(2024)**. "The Health, Climate, and Equity Benefits of Freight Truck Electrification in the United States" *Environmental Research Letters.* DOI: 10.1088/1748-9326/ad75a9 **Role: Moderate**

91. Sarah L. Nordahl, **Corinne D. Scown* (2024)**. "Recommendations for Life-Cycle Assessment of Circular Plastics." *Chemical Science.* DOI:10.1039/D4SC01340A **Role: Major (Lead PI)**

90. Nawa Raj Baral*, Deepanwita Banerjee, Aindrila Mukhopadhyay, Blake A. Simmons, Steven W. Singer, **Corinne D. Scown (2024)**. "A Roadmap to Sustainable Bioproducts: Microbial Engineering and Beyond." *BioResources.* DOI: 10.15376/biores.19.3.4056-4086 **Role: Moderate (Lead PI)**

89. **Corinne D. Scown* (2024)** "The Short- and Long-Run Environmental Value of Waste Conversion." *Nature Chemical Engineering.* DOI: 10.1038/s44286-024-00060-2 **Role: Sole Author**

88. Tommy Hendrickson, Baishakhi Bose, Nemi Vora, Tyler Huntington, Sarah Nordahl, Brett A. Helms, **Corinne D. Scown* (2024)**. "Paths to Circularity for Plastics in the United States" *One Earth.* DOI: 10.1016/j.oneear.2024.02.005 **Role: Major (Lead PI)**

87. Ezinne C. Achinivu, Brian W. Blankenship, Nawa Raj Baral, Hemant Choudhary, Ramu Kakumanu, Mood Mohan, Edward E. K. Baidoo, **Corinne D. Scown**, Anthe George, Blake A. Simmons, and John Gladden **(2024)**. "Biomass Pretreatment with Distillable Ionic Liquids for an Effective Recycling and Recovery Approach." *Chemical Engineering Journal.* DOI: 10.1016/j.cej.2023.147824 **Role: Minor**

86. Aurelia Juncqua, Galen Dods, Nicole Crain, James Diggans, David Dodds, Steve Evans, Nick Fackler, Kevin Flyangolts, Kathleen Gibson, Margaret Kosal, Aditya Kunjapur, Russ Read, Brian Renda, **Corinne D. Scown**, Kissaou Tchedre, Krista Ternus, Beth Vitalis,

Gigi Gronvall **(2023)** "The US Bioeconomy: Shaping our Future through Safety, Security, Sustainability, and Social Responsibility Considerations." *Trends in Biotechnology.* DOI: 10.1016/j.tibtech.2023.11.015 **Role: Minor**

85. Nawa Raj Baral* Deepanwita Banerjee, Aindrila Mukhopadhyay, Blake A. Simmons, Steven W. Singer, **Corinne D. Scown (2023)**. "Economic and Environmental Tradeoffs of Simultaneous Sugar and Lignin Utilization for Bio-based Fuels and Chemicals." *ACS Sustainable Chemistry & Engineering.* DOI: 10.1021/acssuschemeng.3c05541 **Role: Major (Lead PI)**
84. Wilson McNeil, Fan Tong, Robert Harley, Maximilian Auffhammer, **Corinne D. Scown* (2023)**. "Corridor-Level Impacts of Battery-Electric Heavy-Duty Trucks and the Effects of Policy in the United States." *Environmental Science & Technology.* DOI: 10.1021/acs.est.3c05139 **Role: Major (Lead PI)**
83. Sagar Gautam*, Nawa Baral, Umakant Mishra, **Corinne D. Scown (2023)**. "Impact of bioenergy feedstock carbon farming on sustainable aviation fuel viability in the United States." *Proceedings of the National Academy of Sciences.* DOI: 10.1073/pnas.2312667120 **Role: Major (Lead PI)**
82. Sagar Gautam*, Umakant Mishra, **Corinne D. Scown**, Erika Sung, Kamal Nyupane **(2023)**. "Increased drought and extreme events over continental United States under high emission scenario." *Scientific Reports.* DOI: 10.1038/s41598-023-48650-z **Role: Minor**
81. Chang Dou, Hemant Choudhary*, Zilong Wang, Nawa R. Baral, Mood Mohan, Rolin A. Aguilar, Shenyue Huang, Alexander Holiday, D. Rey Banatao, Seema Singh, **Corinne D. Scown**, Jay D. Keasling, Blake A. Simmons, Ning Sun* **(2023)** "Hybrid upcycling of mixed polyester plastics with potential low cost and carbon footprint" *One Earth.* DOI: 10.1016/j.oneear.2023.10.015 **Role: Moderate**
80. Sarah L. Nordahl, Nawa Raj Baral, Brett A. Helms*, **Corinne D. Scown* (2023)**."Dual Roles for Mechanical and Solvent-Based Recycling in Low-Carbon, Circular Polypropylene" *Proceedings of the National Academy of Sciences.* DOI: 10.1073/pnas.2306902120 **Role: Major (Lead PI)**
79. **Corinne D. Scown***, Nawa Raj Baral, Deepti Tanjore, Vi Rapp **(2023)**. "Matching Diverse Feedstocks to Conversion Processes for the Future Bioeconomy." *Current Opinions in Biotechnology.* DOI: 10.1016/j.copbio.2023.103017 **Role: Major (Lead PI)**
78. Shawn Kulakowski; Deepanwita Banerjee; **Corinne D. Scown**, Aindrila Mukhopadhyay* **(2023)**. "Improving microbial bioproduction under low oxygen conditions." *Current Opinions in Biotechnology.* DOI: 10.1016/j.copbio.2023.103016 **Role: Minor**
77. Jeremy Demarteau, Benjamin Cousineau, Zilong Wang, Baishakhi Bose, Seokjung Cheong, Guangxu Lan, Nawa R. Baral, Simon J. Teat, **Corinne D. Scown**, Jay D. Keasling, Brett A. Helms* **(2023)**. "Biorenewable Circularity in Polydiketoenamine Plastics." *Nature Sustainability.* DOI: 10.1038/s41893-023-01160-2 **Role: Moderate (Co-PI)**.
76. Aymerick Eudes, Chien-Yuan Lin, Christopher De Ben, Jasmine Ortega, Mi Yeon Lee, Yi-Chun Chen, Guotian Li, Daniel H Putnam, Jenny C Mortimer, Pamela C Ronald, **Corinne D. Scown**, Henrik V Scheller* **(2023)**."Field Performance of Switchgrass Plants Engineered for Reduced Recalcitrance" *Frontiers in Plant Science.* **Role: Minor (Co-PI)**. DOI: 10.3389/fpls.2023.1181035 **Role: Minor**
75. Dion Hubble, Sarah Nordahl, Tianyu Zhu, Nawa Raj Baral, **Corinne D. Scown***, Gao Liu* **(2023)**. "Solvent-assisted poly(lactic acid) upcycling under mild conditions." *ACS Sustainable Chemistry & Engineering.* DOI: 10.1021/acssuschemeng.2c06500 **Role: Major (Lead PI)**
74. Jason Porzio, Derek Wolfson, Maximilian Auffhammer*, **Corinne D. Scown* (2023)**. "Private and External Costs and Benefits of Replacing High-Emitting Peaker Plants with Batteries." *Environmental Science & Technology.* DOI: 10.1021/acs.est.2c09319 **Role: Major (Lead PI)**

73. Yan Wang, Nawa Raj Baral, Minliang Yang, **Corinne D. Scown* (2023)**. "Co-processing agricultural residues and wet organic waste can produce lower-cost carbon-negative fuels and bioplastics" *Environmental Science & Technology.* DOI: 10.1021/acs.est.2c06674 **Role: Major (Lead PI)**

72. Peng Liu, Nawa Raj Baral, Ling Liang, **Corinne D. Scown**, Ning Sun* **(2023)**. "Torrefaction of Almond Shell as a Renewable Reinforcing Agent for Plastics: Techno-economic Analyses and Comparison to Bioethanol process." *Environmental Research: Infrastructure and Sustainability.* DOI: 10.1088/2634-4505/acb5c0 **Role: Minor**

71. Sarah L. Nordahl, Chelsea V. Preble, Thomas W. Kirchstetter, **Corinne D. Scown* (2023)**. "Greenhouse gas and air pollutant emissions from composting." *Environmental Science & Technology.* DOI: 10.1021/acs.est.2c05846. **Role: Major (Lead PI)**

70. Tyler Huntington, Nawa Baral, Minliang Yang, Eric Sundstrom, **Corinne D. Scown* (2023)**. "Machine Learning for Surrogate Process Models of Bioproduction Pathways." *Bioresource Technology.* DOI: 10.1016/j.biortech.2022.128528 **Role: Major (Lead PI)**

69. Kevin Orner*, Sarah Smith, Sarah Nordahl, Alicia Chakrabarti, Hanna Breunig, **Corinne D. Scown**, HL Leverenz, Kara Nelson, Arpad Horvath **(2022)**. "Environmental and Economic Impacts of Managing Nutrients in Digestate Derived from Sewage Sludge and High-Strength Organic Waste." *Environmental Science & Technology.* DOI: 10.1021/acs.est.2c04020 **Role: Major (Co-PI)**

68. **Corinne D. Scown* (2022)**. "Prospects for carbon-negative biomanufacturing." *Trends in Biotechnology.* DOI: 10.1016/j.tibtech.2022.09.004. **Role: Sole author**

67. 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 **(2022)**. "Engineering sorghum for higher 4-hydroxybenzoic acid content." *Metabolic Engineering Communications.* DOI: 10.1016/j.mec.2022.e00207. **Role: Minor**

66. Ezinne C. Achinivu, Mica Cabrera, Athiyya Shaheen Umar Malick, Minliang Yang, Nawa Raj Baral, **Corinne D. Scown**, Blake A. Simmons, John Gladden*, **(2022)**. "In Situ Synthesis of Protic Ionic Liquids for Biomass Pretreatment." *ACS Sustainable Chemistry & Engineering.* DOI: 10.1021/acssuschemeng.2c01211. **Role: Minor**

65. Yang Tian, Minliang Yang, Chien-Yuan Lin, Joon-Hyun Park, Chuan-Yin Wu, Ramu Kakumanu, 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* **(2022)**. "Expression of dehydroshikimate dehydratase in sorghum improves biomass yield, accumulation of protocatechuate, and biorefinery economics" *ACS Sustainable Chemistry & Engineering.* DOI: 10.1021/acssuschemeng.2c01160 **Role: Major**

64. Nawa Raj Baral*, Shruti K. Mishra, Anthe George, Sagar Gautam, Umakant Mishra, **Corinne D. Scown (2022)**. "Multifunctional Landscapes for Dedicated Bioenergy Crops Lead to Low-Carbon Market-Competitive Biofuels." *Renewable & Sustainable Energy Reviews.* DOI: 10.1016/j.rser.2022.112857 **Role: Minor**

63. Jérémy Demarteau, Alexander R. Epstein, Peter R. Christiansen, Mark Abubekerov, 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* **(2022)**. "Circularity in Mixed Plastics Chemical Recycling Enabled by Variable Rates of Polydiketoenamine Hydrolysis." *Science Advances.* 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" *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, Weihan 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/acsenergylett.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) First Joint Winner, ES&T 2021 Best Policy Paper**

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)**. "Nanoscopic 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, Jérémy Demarteau, 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 Isopentenol 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: 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. Sankaranarayanapillai Shylesh, Amit A. Gokhale, **Corinne D. Scown**, Daeyoup 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 Strogen, 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 Strogen, 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)

Major Technical Reports and Book Chapters

U.S. Department of Energy (2026). *Resilient Crop Production for the Bioeconomy.* Writing team: Felix B. Fritschi, Wendy H. Yang, Sharon L. Doty, Thomas Juenger, Matias Kirst, Jennifer Pett-Ridge, Corinne Scown, John Sedbrook.
`https://tinyurl.com/4k7xnc64`
Role: Workshop organizing committee, member of writing team

U.S. Department of Energy (2025). *Guidelines To Determine Life Cycle Greenhouse Gas Emissions of Clean Transportation Fuel Production Pathways Using 45ZCF-GREET.* `https://www.energy.gov/sites/default/files/2025-01/45zcf-greet_user-manual.pdf` **Role: Lead in drafting and revising manual as part of detail to DOE as senior advisor on clean fuels**.

U.S. Department of Energy (2025). *A Generic Counterfactual Greenhouse Gas Emission Factor for Life-Cycle Assessment of Manure-Derived Biogas and Renewable Natural Gas.* `tinyurl.com/mtwwtcbe` **Role: Lead in drafting white paper as part of detail to DOE as senior advisor on clean fuels**.

Peter Agbo, Keju An, Sarah E. Baker, Jessica Cross, Wenqin Li, Corey Myers, Simon H. Pang, H. Todd Schaef, Joshua A. Schaidle, Corinne D. Scown, Evan Sherwin, Chinmayee Subban, Matt Villante, Geetanjali Yadav (2024) *Technological Innovation Opportunities for CO_2 Removal*, National Renewable Energy Laboratory. `shorturl.at/55ysp` **Role: LBNL PI, BiCRS chapter lead author**.

U.S. Department of Energy (2024). *Guidelines To Determine Life Cycle Greenhouse Gas Emissions of Clean Transportation Fuel Production Pathways Using 40BSAF-GREET.* `https://www.energy.gov/sites/default/files/2024-04/40bsaf-greet_user-manual.pdf` **Role: Lead in drafting and revising manual as part of detail to DOE as senior advisor on clean fuels**.

Ling Jin, Yuhan Wang, Sarah Smith, Sarah Nordahl, Tin Ho, **Corinne Scown** (2024). *High-Resolution Source Mapping to Minimize Impacts of Waste Biomass Distributed Generation on Ozone*

Air Quality in Disadvantaged Communities in the San Joaquin Valley. California Energy Commission, Sacramento, CA, CEC-500-2024-066
energy.ca.gov/sites/default/files/2024-06/CEC-500-2024-066.pdf **Role: Minor**

Jennifer Pett-Ridge, Hamed Ziad Ammar, Alvina Aui, Mark Ashton, Sarah E. Baker, Bruno Basso, Mark Bradford, Alexander P. Bump, Ingrid Busch, Edna Rodriguez Calzado, Jackson W. Chirigotis, Nicolas Clauser, Sinéad Crotty, Nicholas Dahl, Tao Dai, Mark Ducey, Jerome Dumortier, Nathan C. Ellebracht, Ramon Gil Egui, Ames Fowler, Katerina Georgiou, Diamantoula Giannopoulos, Hannah Goldstein, Thomas Harris, Dermot Hayes, Chad Hellwinckel, Alina Ho, Mu Hong, Susan Hovorka, Elwin Hunter-Sellars, Whitney Kirkendall, Sara Kuebbing, Matthew Langholtz, Mark Layer, Ian Lee, Reid Lewis, Wenqin Li, Weier Liu, Jimena Terrazas Lozano, Abby Lunstrum, Allegra C. Mayer, Kimberley K. Mayfield, Wilson McNeil, Peter Nico, Anastasia O'Rourke, Simon H. Pang, Keith Paustian, George Peridas, Helene Pilorge, Maxwell Pisciotta, Lydia Price, Peter Psarras, G. Philip Robertson, William Joe Sagues, Daniel L. Sanchez, **Corinne D. Scown**, Briana Mordick Schmidt, Eric W. Slessarev, Noah Sokol, Alexander J. Stanley, Amy Swan, Crystal Toureene, Andrew A. Wong, Mark Mba Wright, Yuan Yao, Bingquan Zhang, Yao Zhang, and Roger D. Aines. *Roads to Removal: Options for Carbon Dioxide Removal in the United States* (2023), Lawrence Livermore National Laboratory, LLNL-TR-852901. DOI: 10.2172/2301853 **Role: Lead for Chapter 8: "Cross-Cutting Resource Requirements and Environmental Impacts"**.

The White House (2023). *Bold Goals for U.S. Biotechnology and Biomanufacturing.*
fnih.org/wp-content/uploads/2023/05/Bold-Goals-for-U.S.-Biotechnology-and-Biomanufacturing-Harnessing-Research-and-Development-To-Further-Societal-Goals-FINAL.pdf **Role: Major contributor to chapter "Biotechnology and Biomanufacturing R&D to Further Climate Change Solutions"**

David Sandalow, Roger Aines, Zhiyuan Fan, Julio Friendmann, Colin McCormick, Ann-Kathrin Merz, **Corinne Scown** (2022). *Low-Carbon Ammonia Roadmap.* Innovation for Cool Earth Forum (ICEF) Roadmap Series. Final report released at COP27. icef.go.jp/wp-content/uploads/2024/02/icef2022_roadmap_Low-Carbon_Ammonia.pdf **Role: Lead for Chapter 6: "Safety and Local Environmental Impacts of Ammonia"**

National Academy of Sciences, Engineering, and Medicine (2022). *Current Methods for Life-Cycle Analyses of Low-Carbon Transportation Fuels in the United States.* Washington, DC: The National Academies Press. DOI: 10.17226/26402 **Role: Lead for Chapters 2 and 3**

Thomas W. Kirchstetter, **Corinne D. Scown**, Andy Satchwell, Ling Jin, Sarah J. Smith, Chelsea V. Preble, Jahon Amirebrahimi, Michael D. Sohn, Nancy J. Brown, Sarah Nordahl, Jay Devkota, Yijun He, Tin Ho, Randy L. Maddalena, Nicholas W. Tang, Wei Zhou, Sharon S. Chen, Toshifumi Hotchi (2020). *Enabling Anaerobic Digestion Deployment to Convert Municipal Solid Waste to Energy.* California Energy Commission, Sacramento, CA, CEC-500-2020-011.
energy.ca.gov/sites/default/files/2021-05/CEC-500-2020-011.pdf **Role: Major, Co-PI**

Corinne D. Scown, Alastair Robinson, Hanna Breunig, Ling Jin, Tyler Huntington, Sarah Smith, Jay Devkota, Sarah Nordahl, Nawa Baral (2020). *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.
energy.ca.gov/sites/default/files/2021-05/CEC-500-2020-061.pdf **Role: Major, Lead PI**

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. **Role: Major, Wrote proposal, led project**

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. **Role: Minor**

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. **Role: Major, Lead PI**

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. **Role: Minor**

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

Intellectual Property, Major Datasets, & Startups

Huntington, T., Chen, Y., Bhagwat, S., Gong, M., Baral, N., Nordahl, S., Smith, P., Horvath, S., Rajgarhia, A., **Scown, C.** Project PISCES: Process Integration & Synthesis using Chemical Engineering Standards [Computer software]. Zenodo. `https://doi.org/10.5281/zenodo.23124935` **2026**

Software Disclosure: Bio Cradle-to-Grave (BioC2G)
TEA and LCA Webtool **Approved 2024, Updated 2025**
Software Disclosure: Biositing Tool
Geospatial Biorefinery Siting Webtool **Approved 2024, Updated 2025**
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

TRAITS-Bio: Transparent, Rapid, AI-enabled Identification of Targets for a Secure Bioeconomy **2026-present**
Amount: $1.575M, Sponsor: U.S. Department of Energy AFFO
Role: Lead PI

Inflation Reduction Act Tax Credit Support: 45Z, 45Y/48E, and 45V **2026-present**
Amount: $6.8M, Sponsor: Internal Revenue Service
Role: Lead PI

Biochar-amended Compost for Erosion Control and Stormwater Pollution Prevention **2026-present**
Amount: $500K, Sponsor: CalTrans
Role: Lead PI

Evaluating the Risk of PFAS and Microplastic Contamination of Agricultural Soils from Large-Scale Organic Waste Diversion Across the United States **2026-present**
Amount: $225.6K, Sponsor: Environmental Research & Education Foundation (EREF)
Role: Lead PI

Waste to Weave: From Byproducts to Breakthrough Materials **2026-present**
Amount: $450K, Sponsor: Bezos Earth Fund
Role: Co-PI

Life-cycle assessment of bioenergy crops and agricultural systems **2026-present**
Amount: $298.482K, Sponsor: Sorghum Checkoff
Role: Lead PI

Life-cycle assessment of bioenergy crops and agricultural systems **2026-present**
Amount: $210.146K, Sponsor: Arva
Role: Lead PI

Switch DARPA Program Process Development & Modeling **2025-present**
Amount: $3M, Agency: DARPA
Role: Lead PI

Life-Cycle Assessment Support for IRA 45Z Tax Credit **2025-present**
Amount: $497K, Agency: DOE EERE BETO
Role: Lead PI

Ideas Lab: USPRD: Programmable Small Molecule Biosynthesis **2025-present**
Amount: $655K, Agency: NSF
Role: Co-PI

Building the Circular Bioeconomy with Future Feedstocks in the North San Joaquin Valley: Supplemental Funding **2025-present**
Amount: $170K, Agency: Schmidt Sciences
Role: Lead PI

Availability and Emissions Associated with Non-Traditional Fuels for Industrial Decarbonization **2024-present**
Amount: $500K, Agency: DOE EERE IEDO
Role: Lead PI

Switch DARPA Program TEA/LCA & Process Development **2024-present**
Amount: $342.456K, Agency: DARPA
Role: Lead PI

Bio-C2G Model for Rapid, Agile Assessment of Biofuel and Co-product Routes **2024-present**
Amount: $900K, Agency: DOE EERE BETO
Role: Lead PI

Building the Circular Bioeconomy with Future Feedstocks in the North San Joaquin Valley **2024-present**
Amount: $6.79M, Agency: Schmidt Sciences
Role: Lead PI

Sustainable Circular Manufacturing of Automotive Composites **2024-present**
Amount: $2M, Agency: DOE Vehicle Technologies Office
Role: Co-PI

RESTOR-C: RESTORation of soil Carbon by precision biological strategies **2023-present**

Amount: $5M, Agency: DOE Office of Science
Role: Co-PI

Rapid decision support for optimal carbon-nutrient-water benefits from California's methane policy **2023-present**
Amount: $2M ($200K to UCB), Agency: University of California Office of the President
Role: Co-PI (UCB PI) Role: Co-PI

Future of Biomethane Availability and Costs in California **2023-2024**
Amount: $150K, Agency: CPUC via California Institute for Energy and Environment (CIEE)
Role: Lead PI

Near-Zero Impact Biorefining Strategies for Just and Equitable Decarbonization 2023-2025
Amount: $600K, Agency: DOE EERE BETO
Role: Lead PI

Measurement, Reporting, & Verification: Umbrella Framework **2023-2025**
Amount: $ 3.42 M ($1.14M to LBNL), Agency: DOE Office of Technology Transitions
Role: Co-PI (LBNL PI)

Carbon Dioxide Removal Innovation Roadmap and Summit Support **2023-2024**
Amount: $500K ($115K to LBNL), Agency: DOE Fossil Energy & Carbon Management
Role: Co-PI (LBNL PI)

Technoeconomic Analysis of Mongstad CCS Facility **2023-2025**
Amount: $100K, Agency: DOE Fossil Energy & Carbon Management
Role: LBNL PI

Carbon Negative Materials Assessment (CaNMA) **2022-2024**
Amount: $1.5M, Agency: ARPA-E
Role: Co-PI

Performance Targets for Economically and Environmentally Sustainable Heavy-Duty Truck Electrification **2022-present**
Amount: $500K, Agency: Shell International Exploration and Production Inc.
Role: Lead PI

Roads to Removal Report **2022-2024**
Amount: $200K, Agency: DOE EERE BETO & DOE FECM
Role: LBNL PI

Joint BioEnergy Institute (JBEI) **2022-2026**
Amount: $150M, Agency: DOE Office of Science
Role: Co-PI

Bio-C2G Model for Rapid, Agile Assessment of Biofuel and Co-product Routes **2021-2024**
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 **2020-2024**
Amount: $200K/year for 3 years, Agency: LBNL LDRD
Role: Lead PI

Systems-Level Strategy to Improve the Re-X Potential of Conventional and Novel Polymers **2020-2022**
Amount: $250K, Agency: DOE EERE AMO & SPIA
Role: Lead PI

Multi-Input, Multi-Output Biorefineries to Reduce Greenhouse Gas and Air Pollutant Emissions **2020-2024**
Amount: $1M, Agency: DOE EERE BETO
Role: Lead PI

Technoeconomic Analysis and Life-Cycle Assessment of Stationary Grid-Connected Battery Storage Systems **2019-2022**
Amount: $350K, Agency: Shell International Exploration and Production Inc.
Role: Lead PI

LBNL Feedstock to Function Tool: Improving biobased product and fuel development through adaptive technoeconomic and performance modeling **2018-present**
Amount: $900K, Agency: DOE EERE BETO
Role: Co-PI

LBNL LDRD: Emerging TechnoEconomic Analysis **2018-2020**
Amount: $450K, Agency: LBNL LDRD
Role: Lead PI

Bio-C2G Model for Rapid, Agile Assessment of Biofuel and Co-product Routes **2018-2021**
Amount: $900K, Agency: DOE EERE BETO
Role: Lead PI

Design and Development of Bio-Advantaged Vitrimers as Closed-Loop Bioproducts **2018-2024**
Amount: $2M, Agency: DOE EERE BETO
Role: Co-PI

Joint BioEnergy Institute (JBEI) **2017-2021**
Amount: $125M, Agency: DOE Office of Science
Role: Co-PI

Technoeconomic Analysis of Microbial Sulfate Reduction Inhibition Using Perchlorate Treatment **2017-2019**
Amount: $230K, Agency: AMPAC
Role: Lead PI

Paths to Sustainable Distributed Generation through 2050: Matching Local Waste Biomass Resources with Grid, Industrial, and Community Needs **2015-2019**
Amount: $1.5M, Agency: California Energy Commission

Role: Lead PI

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

Work Experience

U.S. Department of Energy, Washington, DC USA

Senior Advisor - Clean Fuels **2023-2025**
50% time detail (remote). Core contributor to model development and policy decisions required to implement Inflation Reduction Act (IRA) tax credits for clean fuels. Interfacing directly with multiple teams in DOE, EPA, USDA, U.S. Treasury/IRS, and Executive Office of the President.

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

Senior Scientist **2024-present**
Leading a research group of 20+ scientists and serving as PI and Co-PI on 15+ ongoing projects. Participating in service to LBNL, including committees, outward-facing communications, and mentorship of early career staff.

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. Responsibilties 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 biofuels 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.

Peer Reviewed 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.

Graduate Advising & Committees

Wilson McNeil, UC Berkeley, Primary PhD Advisor (Co-Advised with Rob Harley) (Graduated May 2025)

Jason Porzio, UC Berkeley, Primary PhD Advisor (Co-Advised by Scott Moura) (Graduated May 2024)

Sarah Nordahl, UC Berkeley, Primary PhD Advisor (Co-Advised by Rob Harley) (Graduated December 2023)

Monique Klaver, Stellenbosch University (South Africa), Masters Thesis Defense Committee (Advised by Johann Gorgens) (Graduated Fall 2023)

Nora Hennessy, Stanford University, PhD Defense Committee (Advised by Ines Azevedo & Sally Benson) (Graduated Spring 2023)

Sarah Smith, UC Berkeley, PhD Qual & Dissertation Committee (Advised by Arpad Horvath) (Graduated Fall 2020)

Conference/ Workshop Organizing

Co-Convener, Session on System Optimization and Integration for Bioconversion, 48th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, May 2026.

Organizing Committee member, Coordinating Research Council (CRC) Transportation Fuels LCA Workshop, Argonne, IL, October 2025.

Co-Convener: Convening on the Geophysical Framework for High Integrity CDR Standards, Livermore, CA, September 2024.

Host: Inter-Bioenergy Research Center TEA/LCA/Land Use Workshop, Emeryville, CA, August 2024.

Host: DOE Bioenergy Technologies Office "Biorefinery Siting Listening Day", Emeryville, CA, January 2024.

Session Co-convener: "Large-Scale Carbon Dioxide Removal: Potentials, Considerations, and Challenges", American Geophysical Union Annual Meeting, San Francisco, CA, December, 2023.

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.

Invited Talks

"Informing Hybrid Critical Materials Recovery Through Chemical Process Modeling" Molecular Foundry Annual User Meeting, Berkeley, CA, August 21, 2026.

"Renewable Fuels Lunch & Learn" Pacific Gas & Electric, Oakland, CA, August 19, 2026.

"Technoeconomic Analysis & Life-Cycle Assessment for Biomanufacturing" NSF USPRD and CFIRE Meeting, Washington, DC, July 27-29, 2026.

"Quantifying the Life-Cycle Emissions and Carbon Removal Potential of Bio-Based Systems" Gordon Research Conference: Industrial Ecology, Newry, ME, June 29, 2026.

"Navigating the Path to SAF at Scale" (Keynote Talk), 2nd Annual Israeli SAF Conference, Tel Aviv, Israel, June 23, 2026.

"ILUC and Related Issues in Policy Applications of LCA," Revisiting Indirect Land Use Change in Biofuel Policies, Berkeley, CA, May 28, 2026.

"Lunch & Learn: Technoeconomic Analysis," BEAM Circular Accelerator, Modesto, CA, May 27, 2026.

"Building a Database of Machine-Readable Process Designs for Automated Bioprocess Design," SIMB Symposium on Biomaterials, Fuels and Chemicals, New Orleans, LA, May 4, 2026.

"Building a More Diversified Carbon Economy: Factoring Cost and Emissions into Design of Better Bioprocesses," University of California-Berkeley Environmental Engineering Seminar, Berkeley, CA, February 14, 2026.

"The Future of Biofuels: Emissions Accounting and Modeling," Resources for the Future (RFF) Webinar, Washington, DC, November 21, 2025. `ttps://www.youtube.com/watc`?v=jBblJqPoiVk

"A Zero-Waste Future: The Good, The Bad, and The Ugly," UC Berkeley E93 Guest Lecture, Berkeley, CA, November 12, 2025.

—No public talks given during 2025 government shutdown—

"Technoeconomic analysis beyond the nth plant: cost and design implications for earlier-stage scale-up," Society for Industrial Microbiology and Biotechnology (SIMB) Annual Meeting, San Francisco, CA, July 28, 2025.

"Implementing IRA Tax Credits for Fuels," DOE Bioenergy Technologies Office Staff Meeting, July 22, 2025.

"Availability and Emissions Associated with Non-Traditional Fuels for Industrial Decarbonization," Portland Cement Association Virtual Summer 2025 E&E Committee Meeting, Virtual, July 8, 2025.

"Breakthrough Biotechnology and Sustainability Science for the Bioeconomy," session at Sustainability Research and Innovation Congress 2025, Chicago, IL, June 19, 2025.

"Carbon Accounting Options for CDR," NIST Carbon Dioxide Removal Consortium Meeting, June 4, 2025.

"Rebuilding a More Diversified Carbon Economy," Lawrence Livermore National Laboratory Carbon

Initiative Seminar Series, May 21, 2025.

"Bioenergy Development in California: Fireside Chat with Jennifer Pett-Ridge & Corinne Scown," Half Moon Bay, San Francisco Climate Week, April 23, 2025.

"Clean Technology in STEM: Introduction to Technoeconomic Analysis & Life Cycle Assessment," Science Leadership & Management (SLAM) Seminar Series, UC Berkeley, April 10, 2025.

"Types of Carbon Dioxide Removal," CA State Legislative Briefing, Sacramento, CA, March 27, 2025.

"Paths to Circularity for Plastics in the United States," ACS Spring Meeting, San Diego, CA, March 23, 2025.

"Availability and Emissions Associated with Non-Traditional Fuels for Industrial Decarbonization," Portland Cement Association Winter E&E Meeting, February 25, 2025.

"Opportunities and Constraints in a Carbon-Negative Bioeconomy," Invited Talk, UC Davis Energy Graduate Group Seminar, October 25, 2024.

"Life-cycle emissions and cost implications of the paths to zero-waste," SES: Society for Standardization Professionals (SES) Standards and Innovation Forum Session, October 10, 2024

"Implementing IRA Tax Credits for Clean Fuels," DOE BETO Staff Meeting, September 3, 2024.

"Rebuilding a More Diversified Carbon Economy with Biology," (Keynote) Biochemical and Molecular Engineering XXIII: Accelerating Biotech Solutions to aid a Changing World, July 24, 2024. Dublin, Ireland.

"Life-cycle emissions and cost implications of the paths to zero-waste," NIST Circular Economy Program Seminar, July 8, 2024.

"Packaging and the Path to Zero-Waste," Deloitte All-Hands Meeting, June 20, 2024.

"Biomass Resource Availability & Siting Considerations," Clean Air Task Force Decarb-Recarb Ag with Bioenergy Learning Session, June 6, 2024.

"Biomass Resource Availability & Siting Considerations," ASCENT 93 Lecture Series (sponsored by Federal Aviation Administration), May 16, 2024.

"Technoeconomic Analysis & Life-Cycle Assessment for Decarbonization," Modeling Seminar Series, (Google) X, February 27, 2024.

"Life-cycle emissions and cost implications of the paths to zero-waste," Sustainable Packaging Conference 2024: Navigating the Pathways to Zero-Waste Solutions, February 12, 2024.

"Life-cycle assessment and technoeconomic analysis," University of Hawai'i Hilo Tropical Bioeconomy Class, November 16, 2023.

"Life-cycle environmental implications of bio-based building materials," Environmental Research 2023 (IOPP Publishing), November 15, 2023.

"Converting Wet, Stinky Waste into Usable Energy", Guest Lecture for UC Berkeley E93, October 27, 2023.

"Innovations on the Menu", Moderator for "Topic 3: Predictable Environmental, Social, Economics, and Health Impacts: The Good and the Bad ", Innovations on the Menu: Food Science Revolutions, Event hosted by UC Berkeley Rausser College of Natural Resources & Baker BioEnginuity Hub, Berkeley, CA, Sept. 12, 2023.

"Social Sustainability & Siting Considerations", IEA Bioenergy Task 36 Regional Sustainability Workshop Series: North America, Organic and Plastic Waste Resource and Energy Recovery, July 25, 2023.

"Market Analysis Community of Practice: Low Carbon Ammonia", Invited Talk, U.S. Department of Energy Market Analysis Community of Practice, July 20, 2023.

"Opportunities and Constraints in a Carbon-Negative Bioeconomy", Invited Talk, Yale University Center for Industrial Ecology (CIE) Seminar Series, New Haven, CT, May 5, 2023.

"Engineering Microbes and Bioenergy Crops for the Next Generation of Sustainable Aviation Fuels & Bioproducts", Invited Plenary Talk, DOE Genomic Sciences Program PI Meeting, Rockville, MD, April 18, 2023.

"Prospects for carbon negative biomanufacturing", Invited Talk, ACS Spring Meeting: Closing the Carbon Cycle, Indianapolis, IN, March 27, 2023.

"Biomanufacturing to Address Near-Term Climate Goals", Invited Panel Discussion, National Academies Biomanufacturing Workshop, Washington, DC, March 3, 2023.

"Cost and greenhouse gas implications of advanced bio-jet fuel production", Invited Talk, Advanced Bioeconomy Leadership Conference (ABLC) Next 2022, San Francisco, CA, October 27, 2022.

"Challenges in Biomanufacturing Contributing to a Circular Bioeconomy", Invited Panel Discussion, National Academies Biomanufacturing Workshop, Washington, DC, October 24, 2022.

"Waste-Based Materials for Carbon Sequestration & a Circular Economy", Invited Talk, EBI-Shell Net Zero Emission Materials Workshop, University of California, Berkeley, October 13, 2022.

"The roles of *in planta* accumulation and microbial production for cost-competitive bioproducts", Invited Talk, High Value Biorenewables Network (HVB) Annual Meeting, University of York, September 21, 2022.

"Costs and environmental impacts of stationary Li-ion batteries", Invited Talk, 2nd Annual International Shell Battery Conference, September 20, 2022.

"Designing the bioeconomy for deep decarbonization", Keynote Talk, Annual Green Chemistry & Engineering Conference, June 3, 2022.

"Influence of TRY and lignin-derived aromatic utilization on the cost and carbon footprint of biofuels", Invited Talk, 44th Symposium on Biomaterials, Fuels and Chemicals, May 2, 2022.

"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.

"Overcoming the Engineering and Environmental Challenges of Achieving a More Circular Economy", Invited Talk, CUWP Seminar Series, University of Wisconsin-Madison, April 14, 2022.

"Overcoming the Engineering and Environmental Challenges of Achieving a More Circular Econ-

omy", Invited Talk, Ezra's Systems Roundtable Seminar, Cornell University, February 4, 2022.

"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.

"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.

"Designing the Bioeconomy for Deep Decarbonization: Opportunities and impacts for the agricultural sector", Invited Conference Presentation, Society for Industrial Microbiology and Biotechnology Annual Meeting, Austin, TX, August 9, 2021.

"Opportunities and impacts for the agricultural sector", Invited Plenary Talk, Designing the Bioeconomy for Deep Decarbonization, DOE Multi-Lab Workshop, April 30, 2021.

"Cost and greenhouse gas implications of advanced bio-jet fuel production", Invited Conference Presentation, SIMB Symposium on Biomaterials, Fuels and Chemicals, April 27, 2021.

"Weighing life-cycle climate and public health tradeoffs in organic waste management", Invited Keynote Talk, AIChE Food-Energy-Water Conference, Berkeley, CA, February 2021.

"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.

"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.

"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.

"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 BioEnergy 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 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.

"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.

Other Delivered Conference Presentations

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

"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 Impacts of Transportation Fuels", International Society for Industrial Ecology 2011 Conference, Berkeley, CA, June 2011.

Peer Review & Editorial Activities

Editorial Advisory Board, Environmental Science & Technology (IF = 11.3)

Advisory Board, Trends in Biotechnology (IF = 14.3)

Advisory Board, One Earth (IF = 15)

Reviewer for National Academies report: "Carbon Utilization Markets, Infrastructure, Research and

Development"

Selection Committee Member, ACS Sustainable Chemistry & Engineering Lectureship

Search Committee Member, Editor-in-Chief search for 2 ACS journals

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

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

(Resigned) 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

DOE Genesis ModCon Common Agentic Framework (CAF) Agent of the Week (AotW) for Project PISCES, 2026

Top Agri-food Pioneers (World Food Prize), 2026

Environmental Science & Technology Excellence in Review Award, 2023 (Awarded in 2024)

Gizmodo Science Fair Award for Bacteria-Created Plastic That Can Be Recycled Forever, 2024

Energy & Environmental Science Outstanding Reviewer, 2022 (Awarded in 2023)

Environmental Science & Technology Best Paper Award for 2021 (Tong et al., First Joint Winner,

Best Policy Article in 2021), 2022

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, American Society of Agricultural and Biological Engineers (ASABE), Circular Bioeconomy Systems Institute (CBSI) Working Group 2

Technical Review Committee, 45Y/48E Tech-Neutral Tax Credit (Convened by White House OSTP)

Clean Air Task Force BiCRS Protocol Assessment Technical Expert Committee

Member, American Association for the Advancement of Science

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

Former 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

Former 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. I drew from material provided by 2 other faculty who teach the course (very differently) and created new lectures and assignments based on my intended scope.

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 & Mentorship

PAWS: Careers at National Labs **2022**
Topic(s): Careers opportunities at National Labs
Sat on invited panel to discuss career options at national labs with junior scientific staff at NASA.

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.

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 & Mentorship

Mentorship Programs in ETA & Biosciences, LBNL **Ongoing**
I serve as the formal mentor for several early-career female scientists in the Energy Technologies Area & Biosciences Area at LBNL. I meet with these scientists on a regular basis and offer advice and other resources as needed.

Graduate Women Engineering (GWE) Speaker Series **2023**
Topic(s): Dinner discussion on career paths in Berkeley, CA
Presented at a dinner event to GWE, discussing my career path and work-life balance.

Energy & Biosciences Institute Women in STEM Series **2022**
Topic(s): Achieving Zero Waste
Filmed a 1:1 discussion on my career path and what it means to achieve zero waste.

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.

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.