

Michael Carbajales-Dale

PERSONAL DATA Associate Professor *email:* madale@clemson.edu
Energy-Economy-Environment *web:* https://e3sa.sites.clemson.edu
Systems Analysis (E³SA) group *tel:* (864) 656-0523
Department of Environmental *h-index:* 27
Engineering & Earth Sciences *ORCID:* 0000-0002-1568-384X
334 Brackett Hall, *Scopus:* 56703480100
Clemson University, *Web of Science:* I-7914-2015
Clemson, SC 29634 *Google Scholar:* DLXrYLQAAAAJ

TOP ACHIEVEMENTS

- Associate Professor with an established reputation of attracting and managing large grants from federal agencies
- PI or Co-PI on over \$30M of sponsored research.
- Highly motivated researcher with extensive knowledge of modeling the coupled energy-economy-environment systems.
- Expert with over fifteen years experience in energy systems analysis, life cycle assessment, net energy analysis and sustainability.
- Over fifty publications which have received over 2700 citations. Current h-index of 27 (25 since 2018), i10-index of 35 (34 since 2018)
- Exceptional communicator with advanced problem-solving and teaching skills.
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EDUCATION

- **PhD** in Mechanical Engineering Aug 2007 to Jan 2011
Advance Energy & Materials Lab, *University of Canterbury*, New Zealand
Thesis: *Global Energy Modeling - a Biophysical Approach*
- **MSci** in Physics & Philosophy (First class honors) Oct 2001 to Jun 2006
University of Bristol, Bristol, United Kingdom

CURRENT POSITION **Associate Professor** Aug 2020 to Present
Environmental Engineering & Earth Sciences, *Clemson University*, USA

PROFESSIONAL EXPERIENCE

- **Assistant Professor** Aug 2014 to Jul 2020
Environmental Engineering & Earth Sciences, *Clemson University*, USA
- **Research Associate** Jan 2014 to Jun 2014
Energy Resources Engineering, *Stanford University*, USA
- **Teaching Fellow** Aug 2013 to Dec 2013
Thinking Matters, *Stanford University*, USA
- **Post-doc** in Energy Resources Engineering Feb 2011 to Jul 2013
Global Climate & Energy Project, *Stanford University*, USA

SPONSORED RESEARCH

Principal investigator (PI) on **\$2M USD** of funding from US Dept. of Energy (DOE) and US Environmental Protection Agency (EPA) and Co-PI on a further **\$30M USD** of funding from US National Science Foundation (NSF), US DoE, US EPA, US NOAA, and US Department of Education.

- 2023-2027: *NRT-AI: Harnessing AI for Inverse Design Training in Advanced and Sustainable Composites (IDeAS Composites)*,
US National Science Foundation (NSF) 3,000,000 USD (7% credit)

- 2023-2027: *From blue-gray to blue-green: facilitating the transition to non-plastic natural material use within the coastal zone economy*,
US National Oceanic and Atmospheric Administration (NOAA) Sea Grant 2,619,856 USD (10%)
- 2023-2027: *A Controlled Environment Agriculture Platform for Cultivation of Salt-Tolerant Crops with Integrated Saline Water Irrigation and Salinity Management*,
US Dept. of Agriculture (USDA) 9,999,987 USD (8%)
- 2023-2025: *Climate Resilient Sustainable Food Production: Controlled Environment Hydroponic Agriculture with Novel Wastewater Treatment & Reuse*,
US NSF 1,500,000 USD (12.5%)
- 2022-2026: *Artificially Intelligent Manufacturing Paradigm for Composites (AIM for Composites)*,
US Dept. of Energy (DOE) 9,309,115 USD (13%)
- 2022-2024: *Pollution Prevention in South Carolina Chemicals Industries*,
US Environmental Protection Agency (EPA) 350,000 USD (33%)
- 2022-2025: *An Entirely Wood Floor System Designed for Biogenic Carbon Storage, Adaptability, and End of Life De/Re/Construction*,
US Dept. of Energy 1,042,932 USD (10%)
- 2022-2025: *An Inverse Design Methodology to Fabricate Low-Cost Agile Tools for Manufacturing Lightweight Automotive Components*,
US Dept. of Energy 4,000,000 USD (15%)
- 2021-2022: *Methane as a Source of Income for South Carolina Agribusinesses and Farmers: Technical and Economic Feasibility Study*,
SC Agribusiness Center for Research and Entrepreneurship (SC ACRE) 50,000 USD (49%)
- 2021-2024: *Coupling Life-Cycle Impact Assessment and Risk Assessment for Sustainability-Informed Decision Making*,
US Nuclear Regulatory Commission (NRC) 499,859 USD (30%)
- 2020-2022: *Pollution Prevention in South Carolina Metals Industries*,
US Environmental Protection Agency 100,000 USD (33%)
- 2019-2022: *Peroxide-Producing Microbial Fuel Cells for Space Life Support Systems Applications*,
US National Aeronautics and Space Administration (NASA) 750,000 USD (10%)
- 2018-2020: *Source Reduction Training for South Carolina Manufacturers*,
US Environmental Protection Agency 123,043 USD (33%)
- 2018-2019: *Enabling Industry 4.0 for Multi-tiered Quality and Process Control in Precision Manufacturing of Composites*,
South Carolina Research Authority (SCRA) 100,000 USD (5%)
- 2017-2020: *Graduate Research Fellowship: John Sherwood*,
US National Science Foundation 138,000 USD (100%)
- 2016-2021: *Industrial Assessment Center: Energy efficiency for the growing South Carolina manufacturing industries*,
US Dept. of Energy 1,511,076 USD (25%)
- 2016-2021: *NRT-DESE: Preparing Resilient + Operationally Adaptive Communities through an Interdisciplinary Venture-based Education (PROACTIVE)*,
US National Science Foundation 2,999,965 USD (22%)
- 2017-2019: *Pollution Prevention (P2) through an Economy-Energy-Environment (E3) Partnership in South Carolina*,
US Environmental Protection Agency 196,596 USD (33%)
- 2016-2019: *Energize! An interactive evaluation tool for disseminating complex systems information to the general public*,
US Dept. of Energy 799,999 USD (30%)
- 2015-2018: *Model Validation Analytics in Support of High-Consequence Decision Making*,

- US Dept. of Education, GAANN 1,229,816 USD (4%)
- 2015-2017: *Pollution Prevention (P2) through an Economy-Energy-Environment (E3) Partnership in South Carolina*,
US Environmental Protection Agency 160,000 USD (33%)
- 2014-2015: *A Net Energy Analysis Toolkit*,
Institute of Integrated Economic Research 100,000 USD
- 2007-2010: *Keith Laugesen Scholarship*,
University of Canterbury 75,000 NZD
- 2007-2010: *International Doctoral Scholarship*,
University of Canterbury 30,000 NZD

TEACHING
EXPERIENCE

Clemson University

Undergraduate and Graduate Courses 2014 to Present

- Environmental Sustainability - EES 4860/6860
- Environmental Systems Analysis - EES 8200
- Process and Facility Design for Environmental Control Systems - EES 8060
- Critical Resilient Infrastructure Systems - RIES 8730
- *Creative Inquiry: Sustainability Assessments* - EES 4900:014
- *Creative Inquiry: Industrial Assessments* - EES 4900:022

Stanford University

Undergraduate Courses 2012 to 2013

- Energy? Understanding the challenge, developing solutions - Think 39 - 2013
- Quantitative environmental assessment of energy systems - Energy 295 - 2013
- Energy and the Environment - Energy 101 - 2012

SUPERVISING
EXPERIENCE

Postdoc and staff

2014 to Present

- *Current:*
 - Serife Elif Can Şener (2020-Present) - Postdoc: Critical minerals for energy transitions
- *Previous:*
 - Phil Litherland (2018-2021) - Assistant Director: Clemson Industrial Assessment Center technology assessment

PhD

2014 to Present

- *Current as committee chair:*
 - Shohreb Kamyab (2027) - LCA of desalinated water use in controlled environment agriculture
 - Hao Chen (2026) - Energy-economy-environmental analysis of fiber-reinforced composites
 - Muzan Ijeoma (2026) - Life cycle assessment of mass-timber building systems
 - Jacob Arnold (2023) - Resilience analysis of energy infrastructure systems
- *Current as committee member:*
 - Sofia Paz (2026) - Climate Resilient Sustainable Food Production
 - Bryanna Wattier (2026) - Coupling Life Cycle Impact Assessment and Risk Assessment for Sustainability-Informed Decision Making
 - Jianing Bao (2025) - Indoor air quality modeling
- *Graduated as committee chair:*
 - Roksana Mahmud (2022) - PhD co-chair: An integrated techno-economic-environmental assessment tool
 - Sheikh Moni (2020) - PhD co-chair: Life cycle assessment for early-stage technologies
 - John Sherwood (2020) - PhD chair: Agent-based models of adaptive resource management strategies

- *Graduated as committee member:*
 - Snowil Lopes (2023) - Computer-aided decision-making
 - Rakesh Iyer (2020) - Life cycle assessment of thermoelectric generators
 - Ao Xie (2019) - Microbial fuel cells for wastewater treatment
 - Watcharapol Pumkaew (2019) - Modeling biofuel potential for Thailand
 - Hadi Karimi (2018) - Optimizing supply chains for biomass co-firing
 - Kitiluk Thanomboonchai (2017) - Sustainable solar energy development in Thailand

Masters

2014 to Present

- *Current as committee chair:*
 - Harish Lakshmi Srinivasan (2023) - Wastewater treatment strategies using algae
- *Current as committee member:*
 - Thomas Merritt (2024) - MS Non-thesis
 - Tristan Cabrera (2024) - MS Non-thesis
- *Graduated as committee chair:*
 - Yash Srivastava (2022) - MYSTERIO - multi-regional, environmentally-extended input-output
 - Cole Roberts (2020) - Analysis of toxic chromium releases in South Carolina
 - Satvik Dhumal (2020) - Critical infrastructure in coastal resilience
 - Henry Busch (2018) - Measuring Clemson's building utility use
 - Ted Langlois (2018) - Impact assessment of US toxic releases
 - Robert Bickhart (2017) - Hydrogeology of Western Pennsylvania
 - Raeanne Clabeaux (2017) - Carbon footprint of Clemson University
 - Zikai Zhou (2016) - Efficiency vs. EROI—a photovoltaic technology assessment
 - Ben Douglass (2016) - Human-powered electricity generation
- *Graduated as committee member:*
 - Danielle Larsen (2022) - An Evaluation of Energy Consumption Comparing Conventional Water Treatment Plants to Microfiltration and Ultrafiltration Water Treatment Plants
 - Vikas Garg (2020) - Bilevel and Multi-objective Optimization of Electricity Price Setting with Carbon Emission Consideration
 - Chakara Madhusudanan (2019) - Machine learning models for industrial electricity demand
 - Elizabeth Miller (2017) - Climate impacts on Florida's mangrove ecosystems
 - Kayla Quinter (2016) - Water withdrawals for thermoelectric power in the Eastern Interconnect
- *Graduated as supervisor:*
 - Karthikeyan Karunanithi (2021) - Industrial Assessment Center
 - Akshay Shah (2021) - Industrial Assessment Center
 - Akash Ramdas Katkar (2021) - Industrial Assessment Center
 - Sanjana Narayana (2021) - Industrial Assessment Center
 - Akhil Gopireddy (2021) - Industrial Assessment Center
 - Lingyun Peng (2021) - Industrial Assessment Center
 - Manil Shah (2021) - Industrial Assessment Center
 - Meet Malkan (2021) - Industrial Assessment Center
 - Ankit Shah (2021) - Industrial Assessment Center
 - Akshita Patlolla (2021) - Industrial Assessment Center
 - Ishan Doshi (2021) - Industrial Assessment Center
 - Sankeerthana Panicker (2020) - Industrial Assessment Center
 - Prina Diddee (2020) - Industrial Assessment Center
 - Prachi Muttha (2020) - Industrial Assessment Center
 - Parthiva Mondrety (2020) - Industrial Assessment Center
 - Deeksha Narayan (2020) - Industrial Assessment Center
 - Rohith Varma Nandimandalam (2020) - Industrial Assessment Center
 - Murgesh Awati (2020) - Industrial Assessment Center

- Harsh Shah (2019) - Industrial Assessment Center
- Aashay Mahesh Mehta (2019) - Industrial Assessment Center
- Ashley Martin (2019) - Industrial Assessment Center
- Digvijay Redekar (2019) - Industrial Assessment Center
- Shangarab Bera (2019) - Industrial Assessment Center
- Lakshana Nagaraj (2019) - Industrial Assessment Center

Undergraduate

2008 to Present

- *Current:*
 - Cole Van Emberg (2024) - LCA of electric vehicles
 - Miles Jones (2024) - LCA of electric vehicles
- *Graduated:*
 - Taylor Bogucki (2023) - LCA of electric vehicles
 - Julia Feresin (2021) - Industrial Assessment Center
 - Polina Stasevych (2021) - Industrial Assessment Center
 - Will Arrington (2021) - Industrial Assessment Center
 - Johnson Vo (2021) - Industrial Assessment Center
 - Shaiane Tran (2021) - Industrial Assessment Center
 - Andy Le (2021) - Industrial Assessment Center
 - Zachary Hermann (2021) - Industrial Assessment Center
 - Ehitohan Iyile (2021) - Industrial Assessment Center
 - Jack Crocker (2021) - Industrial Assessment Center
 - Jake Parker (2021) - Industrial Assessment Center
 - Tom Browning Love (2021) - Industrial Assessment Center
 - Meg Oterson (2020) - Industrial Assessment Center
 - Jacob Wortkoetter (2020) - Industrial Assessment Center
 - Brittney Tsui (2019) - Industrial Assessment Center
 - Jushawn Macon (2019) - Industrial Assessment Center
 - Sophia Lanham (2019) - Industrial Assessment Center
 - Andrew Dugan (2019) - Industrial Assessment Center
 - Rachella Mariano (2019) - Industrial Assessment Center
 - Jacob Patterson (2019) - Industrial Assessment Center
 - Ben Snelson (2019) - Industrial Assessment Center
 - Alexis Chickoree (2019) - Industrial Assessment Center
 - Kevin Scrimoungchan (2018) - Industrial Assessment Center
 - Mitchell Hullihen (2018) - Industrial Assessment Center
 - Matthew Dayton (2018) - Industrial Assessment Center
 - Kelsey Stuhn (2018) - Industrial Assessment Center
 - Amanda Farthing (2017) - Honors Research: Solar electricity potential for South Carolina technology assessment
 - Elizabeth Marrs (2017) - Industrial Assessment Center
 - Thomas Garrigan (2017) - Industrial Assessment Center
 - Autumn Brown (2017) - Industrial Assessment Center
 - Mary Boken (2017) - Industrial Assessment Center
 - Barbara Astmann (2017) - Industrial Assessment Center
 - Grace Wachowski (2017) - Industrial Assessment Center
 - Aaron Shephard (2017) - Industrial Assessment Center
 - Pierre Queyras and Laurent Lefort (2009) Feasibility of renewable powered transportation system for Canterbury
 - Julie Ginestet (2008) Adaptation of travel behavior to constrained energy resources

SERVICE &
OTHER
EXPERIENCE

Department/School	2014 to Present
<ul style="list-style-type: none"> • Research Integration Committee <i>Civil & Environmental Engineering & Earth Science (CEEES), Clemson University</i> 2022 to Present • Undergraduate Advisor <i>Environmental Engineering & Earth Science (EEES), Clemson University</i> 2017 to Present • Graduate Admissions Committee <i>EEES, Clemson University</i> 2015 to Present • Departmental Faculty Committee <i>EEES, Clemson University</i> 2014 to Present • Curriculum and Assessment Committee (WEAVE & ABET) <i>EEES, Clemson University</i> 2014 to Present 	
College	2015 to Present
<ul style="list-style-type: none"> • Faculty Senate <i>CECAS, Clemson University</i> 2022 to Present • Dean’s Advisory Committee <i>CECAS, Clemson University</i> 2019 to Present • Search Committee, Hash Chair for Sustainable Development <i>CECAS, Clemson University</i> 2015 and 2018 	
University	2015 to Present
<ul style="list-style-type: none"> • Session Chair <i>Research Symposium, Clemson University</i> 2023 • Faculty Senate <i>Clemson University</i> 2022 to Present • Faculty Senate Policy Committee <i>Clemson University</i> 2022 to Present • Organizing Committee Chair <i>TigerSphere Environmental Justice Workshop, Clemson University</i> 2022 • Program Director <i>Resilient Infrastructure and Environmental Systems Engineering & Science (RIES), Clemson University</i> 2020 to 2023 • Chair; Junior Faculty Development Committee <i>Resilient Infrastructure and Environmental Systems (RIES), Clemson University</i> 2017 to 2018 • Director <i>Clemson University Industrial Assessment Center</i> 2017 to present • Seminar Series Committee <i>RIESES, Clemson University</i> 2017 to 2018 • Tigers Advance Advocate <i>Clemson University - university program to advocate for gender equality among faculty</i> 2017 to Present • Steering Committee Member <i>RIES, Clemson University</i> 2017 to Present • Deputy Director <i>Clemson University Industrial Assessment Center</i> 2016 to 2017 	

- **Founding member and Faculty Chair of Advisory Board** 2015 to Present
Sustainable Energy Fund, Clemson University
- External** 2014 to Present
- **Member** 2019 to Present
SETAC/ACLCA Working Group on Life Cycle Assessment for Emerging Technologies
- **Member** 2018 to Present
SETAC North America Life Cycle Assessment Interest Group Steering Committee
- **Scientific Advisory Board** 2017 to Present
Responsible Battery Coalition
- **Organizing Committee** 2017
University of Calgary, Workshop on LCA of Emerging Technologies
- **Scientific Advisory Board** 2017 to Present
International Society for Biophysical Economics
- **Member** 2016 to Present
Education Committee - American Center for Life Cycle Assessment
- **Organizing Committee** 2016
LCA XVI Conference 2016
- **Managing Editor** 2015 to Present
Springer - Journal of Biophysical Economics & Resource Quality
- **Organizing Committee** 2014 to 2015
Global Climate & Energy Project (GCEP) Workshop on Net Energy Analysis 2015
- **Reviewer** Ongoing
 - **Academic journals:** *Energies; Energy Policy; Energy & Environmental Science; Environmental Research Letters; Environmental Science & Technology; Frontiers Energy Systems and Policy International Journal of Life Cycle Assessment; Journal of Cleaner Production Philosophical Transactions; Proceedings of the ASME; Science of the Total Environment; Sustainable Production & Consumption; Sustainability; The Energy Journal*
 - **External graduate theses:** *University of Bilbao, Spain; UT Austin; Lincoln University, New Zealand*
 - **Books:** *CRC Press; Post Carbon Institute*
 - **Funding agencies:** *NSF Environmental Sustainability; NSF SBIR/STTR; Masdar Institute*
 - **Reports:** *UK Department for International Development; International Energy Agency, PVPS Task 12*

PUBLICATIONS

Over fifty publications in top-tier journals. Over 2900 citations (over 2000 since 2018), with one paper having over 300 citations, one paper with over 200 citations, eight papers with over 100 citations, and twelve papers with over 50 citations. **h-index:** 28 (26 since 2018). **i10-index:** 38 (37 since 2018).

2023

1. Murdoch, L.; Germanovich, L.; Slack, W.; **Carbajales-Dale, M.**; Knight, D.; Moak, R.; Laffaille, C.; DeWolf, S.; Roudini, S. (2023) Shallow Geologic Storage of Carbon to Remove Atmospheric CO₂ and Reduce Flood Risk, *Environmental Science & Technology* DOI: 10.1021/acs.est.3c00600, **Impact factor: 11.4**

2. **Carbajales-Dale, M.** (2023) Life cycle assessment: meta-analysis of cumulative energy demand and greenhouse gas emissions for wind energy technologies, in Letcher, T. ed., *Wind Energy Engineering: a Handbook on On-shore Turbines*, 2nd Edition, Elsevier
- 2022
3. Dal Pozzo, A.; Björklund, A.; **Carbajales-Dale, M.**; Hischier, R.; Ravikumar, D. and Righi, S. (2022) Editorial: Early-stage Quantitative Sustainability Assessment: Approaches for Policy, Processes and Materials, *Frontiers in Sustainability, section Quantitative Sustainability Assessment*, DOI:10.3389/frsus.2023.1125016, **Impact factor: 2.1**
 4. **Carbajales-Dale, M.** and Murphy, T. (2022) The environmental and moral implications of human space travel, *Science of the Total Environment*, DOI:10.1016/j.scitotenv.2022.159222, **Impact factor: 10.8**
 5. Murphy, D.; Raugei, M.; **Carbajales-Dale, M.** and Rubio Estrada, B. (2022) Energy Return on Investment of major energy carriers: review and harmonization, *Sustainability*, DOI:10.3390/su14127098, **Impact factor: 3.9**
 6. Fthenakis, V. M.; Raugei, M.; Breyer, C.; Bhattacharya, S.; Ginsberg, M.; Jaeger-Waldau, A.; Lecissi, E.; Lincot, D.; Murphy, D.; Perez, M. R.; Sinha, P.; Rockett, A.; Sadewasser, S.; Stanbery, B. J.; Swanson, R. and **Carbajales-Dale, M.**; (2022) Critique of the paper: “Through the Eye of a Needle: An Eco-Heterodox Perspective on the Renewable Energy Transition”, *Energies*, 15(3), 974, **Impact factor: 3.3**
 7. Khoshnevisan, B.; He, L.; Xu, M.; Valverde-Perez, B.; Sillman, J.; Mitraka, G-C.; Kougiyas, P. G.; Zhang, Y.; Yan, S.; Long, J.; **Carbajales-Dale, M.**; Nashmin Elyasi, S.; Marami, H.; Tsapekos, P.; Liu, H.; and Angelidaki, I. (2022) From renewable energy to sustainable protein sources: Advancement, challenges, and future roadmaps, *Renewable and Sustainable Energy Reviews*, DOI:10.1016/j.rser.2021.112041, **Impact factor: 16.8**
- 2021
8. Can Şener, Şerife; Thomas, Valerie; Hogan, David; Maier, Raina; **Carbajales-Dale, M.**; Barton, Mark; Karanfil, Tanju; Crittenden, John; and Amy, Gary L. (2021) Recovery of Critical Metals from Aqueous Sources, *Sustainable Chemistry & Engineering*, DOI:10.1021/acssuschemeng.1c03005 **Impact factor: 9.2**
 9. Nashmin Elyasi, S.; He, L.; Tsapekos, P.; Rafiee, S.; Khoshnevisan, B.; Saeid Mohtasebi, S.; Liu, H.; Angelidaki, I. and **Carbajales-Dale, M.** (2021) Could biological biogas upgrading be a sustainable substitution for water scrubbing technology? A case study in Denmark, *Energy Conversion and Management*, DOI:10.1016/j.enconman.2021.114550, **Impact factor: 11.5**
 - Mahmud, R., Moni, S. High, K. and **Carbajales-Dale, M.** (2021) Techno-Economic Analysis and Life Cycle Assessment for Technology Appraisal - A Review, *Journal of Cleaner Production*, DOI:10.1016/j.jclepro.2021.128247, **Impact factor: 11.1**
 10. Brandt, A. R.; Teichgräber, H.; Kang, C. A.; Barnhart, C. J.; Sgouridis, S. and **Carbajales-Dale, M.** (2021) Blow wind blow: Capital deployment in variable energy systems, *Energy*, DOI:10.1016/j.energy.2021.120198, **Impact factor: 8.9**
- 2020
11. Clabeaux, R.; Ladner, D.; Walker, T. and **Carbajales-Dale, M.** (2019) Assessing the carbon footprint of a university campus using a life cycle assessment approach, *Journal of Cleaner Production*, DOI: 10.1016/j.jclepro.2020.122600, **Impact factor: 6.395. Cited: N/A.**
 12. **Carbajales-Dale, M.** and King, C. (2019) Metrics in Saundry, P. and Ruddell, B. (eds.) Introduction to the Food-Energy-Water Nexus, *Springer*
 13. **Carbajales-Dale, M.**;Eftelioglu, E.; King, C. Miralles-Wilhelm, F. R. and Ruddell, B. (2020) Questions and Scales in Saundry, P. and Ruddell, B. (eds.) Introduction to the Food-Energy-Water Nexus, *Springer*

14. Sherwood, J.; Haney, B. R. and **Carbajales-Dale, M.** (2019) Putting the Biophysical (back) in Economics: a taxonomic review of modelling the earth-bound economy, *Biophysical Economics and Sustainability*, DOI:10.1007/s41247-020-00069-0 **Impact factor: N/A.**
15. Sherwood, J.; Bickhart Jr., R.; Murawski, E.; Dhanani, Z.; Lytle, B.; Carbajales-Dale, P. and **Carbajales-Dale, M.** (2020) Rolling Coal: The Greenhouse Gas Emissions of Coal Rail Transport for Electricity Generation, *Journal of Cleaner Production*, DOI:10.1016/j.jclepro.2020.120770. **Impact factor: 6.395**

2019

16. Koffler, C.; Amor, B. M.; **Carbajales-Dale, M.**, Cascio, J.; Conroy, A.; Fava, J.; Goudreault, C.; Gloria, T.; Hensler, C.; Horvath, A.; Humbert, S.; Manzardo, A.; Margni, M.; Osset, P. Prox, M.; Sinistore, J.; Wallace, M.; Vigon, B. and Wang, M. (2019) On the reporting and review requirements of ISO 14044, *The International Journal of Life Cycle Assessment*, DOI:10.1007/s11367-019-01706-7, **Impact factor: 4.195**
17. **Carbajales-Dale, M.** (2019) When is EROI not EROI?, *Biophysical Economics and Resource Quality*, DOI:10.1007/s41247-019-0065-8. **Impact factor: 46.9**
18. Moni, S.; Mahmud, R.; High, K. and **Carbajales-Dale, M.** (2019) Life Cycle Assessment of Emerging Technologies: A Review, *Journal of Industrial Ecology*, DOI:10.1111/jiec.12965. **Impact factor: 4.365**
19. Bergerson, J.; Brandt, A.; Cresko, J.; **Carbajales-Dale, M.**; MacLean, H.; Matthews, H. S.; McCoy, S.; Mcmanus, M.; Miller, S.; Morrow III, W.; Posen, D.; Seager, T.; Skone, T.; Sleep, S. (2019) Life Cycle Assessment of Emerging Technologies: Evaluation Techniques at Different Stages of Market and Technical Maturity, *Journal of Industrial Ecology*, DOI:10.1111/jiec.12954. **Impact factor: 4.365**
20. Levi, P.; Davidsson Kurland, S., Carbajales-Dale, M.; Weyant, J. P.; Brandt, A.; and Benson, S. M. (2019) Macro-Energy Systems: Toward a New Discipline, *Joule*, DOI: 10.1016/j.joule.2019.07.017. **Impact factor: 46.0**
21. Karimi, H.; **Carbajales-Dale, M.** and Ekşioğlu, S. D. (2019) A Biobjective Chance Constrained Optimization Model to Evaluate the Economic and Environmental Impacts of Biopower Supply Chains, *Annals of Operations Research*, DOI: 10.1007/s10479-019-03331-x. **Impact factor: 2.284**
22. Sgouridis, S., **Carbajales-Dale, M.**, Csala, D., Chiesa, M., and Bardi, U. (2019) Comparative net energy analysis of renewable electricity and carbon capture and storage, *Nature Energy*, DOI:10.1038/s41560-019-0365-7. **Impact factor: 46.9**

2018

23. Langlois, T., **Carbajales-Dale, M.**, and Carraway, E. (2018). Visualizing Relative Potential for Aquatic Ecosystem Toxicity Using the EPA Toxics Release Inventory and Life Cycle Assessment Methods. *Journal of South Carolina Water Resources*, 5(1), 2. **Impact factor: N/A**
24. **Carbajales-Dale, M.**, and Douglass, B. (2018). Human-Powered Electricity Generation as a Renewable Resource. *BioPhysical Economics and Resource Quality*, 3(1), 3. **Impact factor: N/A**
25. Zhou, Z. and **Carbajales-Dale, M.** (2018) Assessing the photovoltaic technology landscape: efficiency and energy return on investment, *Energy & Environmental Science*, DOI: 10.1039/C7EE01806A. **Impact factor: 30.1**

2017

26. Sherwood, J., Clabeaux, R. and **Carbajales-Dale, M.** (2017) An Extended Environmental-Input-Output Lifecycle Assessment Model to Study the Urban Food-Energy-Water Nexus, *Environmental Research Letters*, 12(10), 105003. **Impact factor: 4.5**

27. Sherwood, J., Ditta, A., Haney, B. Haarsma, L. and **Carbajales-Dale, M.** (2017) Resource Criticality in Modern Economies: Agent-based model demonstrates vulnerabilities from technological interdependence, *Biophysical Economics and Resource Quality*, 2:9. **Impact factor: N/A**
28. **Carbajales-Dale, M.** (2017) Life cycle assessment: meta-analysis of cumulative energy demand for wind energy technologies, in Letcher, T. ed., *Wind Energy Engineering: a Handbook on On-shore Turbines*, Elsevier.
29. Raugai, M., Sgouridis, S., Murphy, D., Fthenakis, V., Frischknecht, R., Breyer, C., Bardi, U., Barnhart, C., Brandt, A., Buckley, A., **Carbajales-Dale, M.**, Csala, D., de Wild-Scholten, M., Heath, G., Jaeger-Waldau, A., Jones, C., Keller, A., Leccisi, E., Mancarella, P., Pearsall, N., Siegel, A., Sinke, W., and Stolz, P. (2017) Energy Return on Energy Invested (ERoEI) for photovoltaic solar systems in regions of moderate insolation: A comprehensive response. *Energy Policy*, 102, 377-384. **Impact factor: 4.0**
- 2016
30. Farthing A, **Carbajales-Dale M.**, Mason, S., Carbajales-Dale, P. and Matta, P. (2016) Utility-Scale Solar PV in South Carolina: Analysis of Suitable Lands and Geographical Potential. *Biophysical Economics & Resource Quality*, 1(2). **Impact factor: N/A**
31. Murphy, D. and **Carbajales-Dale M.** (2016) Comparing Apples to Apples: Why the Net Energy Analysis community needs to adopt the LCA framework. *Energies*, 9(11), 917. **Impact factor: 2.7**
32. King, C. W. and **Carbajales-Dale, M.** (2016) Food-energy-water metrics across scales: project to system level, *Journal of Environmental Studies and Sciences*, 6(1), 39-49. **Impact factor: N/A**
- 2015
33. Salkeld, D. J., Nieto, N. C., Carbajales-Dale, P., **Carbajales-Dale, M.**, Cinkovich, S. S., and Lambin, E. F. (2015). Disease Risk & Landscape Attributes of Tick-Borne Borrelia Pathogens in the San Francisco Bay Area, California. *PLoS one*, 10(8), e0134812. **Impact factor: 2.8**
34. **Carbajales-Dale, M.**; Raugai, M.; Fthenakis, V. and Barnhart, C. J. (2015) Energy return on investment (EROI) of solar PV: an attempt at reconciliation, *[Point of View]. Proceedings of the IEEE*, 103(7), 995-999. **Impact factor: 9.1**
35. Heun, M. K.; **Carbajales-Dale, M.** and Haney, B. R. (2015) *Beyond GDP: National Accounting in the Age of Resource Depletion*, Springer.
36. Raugai, M.; **Carbajales-Dale, M.**; Barnhart, C. J. and Fthenakis, V. (2015) Rebuttal: “Comments on ‘Energy intensities, EROIs (energy returned on invested), and energy payback times of electricity generating power plants’ — Making clear of quite some confusion” *Energy*, dx.doi.org/10.1016/j.energy.2014.12.060. **Impact factor: 5.0**
- 2014
37. **Carbajales-Dale, M.** (2014). Investing in a sustainable future. *International Innovation*, 159, 84-86.
38. **Carbajales-Dale, M.**; Barnhart, C. J.; Brandt, A. R. and Benson, S. M. (2014). A better currency for investing in a sustainable future. *Nature Climate Change*, 4(7), 524-527. **Impact factor: 19.3**
39. **Carbajales-Dale, M.**; Barnhart, C. J. and Benson, S. M. (2014) Can we afford storage? A dynamic net energy analysis of renewable electricity generation firming by energy storage, *Energy and Environmental Science*, 7(5), 1538–1544. **Impact factor: 30.1**
- 2013

40. Barnhart, C. J.; **Dale, M.**; Brandt, A. R. and Benson, S. M. (2013) The energetic implications of curtailing or storing wind and solar generated electricity, *Energy and Environmental Science*, 6(10), 2804–2810. **Impact factor: 30.1**
41. Brandt, A.R.; **Dale, M.** and Barnhart, C. (2013) Calculating systems-scale energy efficiency and energy returns: a bottom-up matrix-based approach *Energy*, 62, 235–247. **Impact factor: 5.0**
42. Barnhart, C. and **Dale, M.** (2013) Informing the transition to low-carbon energy systems through energy systems analysis of energy storage for the power grid, *Stanford Energy Journal*, June 2013
43. **Dale, M.** (2013) A comparative analysis of energy of photovoltaic, solar thermal, and wind electricity generation technologies *Applied Sciences*, 3(2), 325-337. **Impact factor: 1.7**
44. **Dale, M.** and Benson, S. M. (2013) The Energy Balance of the Photovoltaic (PV) Industry - Is the PV Industry a Net Energy Provider? *Environmental Science & Technology*, 47(7), 3482-3489. **Impact factor: 6.2**
- 2012
45. **Dale, M.** and Barnhart, C. (2012) Fundamentals of Energy, *Encyclopedia of Energy*, Golson Publishing
46. Krumdieck, S.; **Dale, M.** and Page, S. (2012) Design and Implementation of a Community-based Sustainable Development Action Research Method *Social Business*, 2, 291-337. **Impact factor: N/A**
47. Murphy, D.; Nelder, C.; Jefferson, M.; Hall, C.; Laherrere, J.; Baldauf, J.; Kuperus-Heun, M. and **Dale, M.** (2012). Peak Oil is Affecting the Economy Already. *Nature* 483 (541), Correspondence. **Impact factor: 41.6.**
48. **Dale, M.** (2012) Meta-Analysis of Non-Renewable Energy Resource Estimates, *Energy Policy*, 43, 102-122. **Impact factor: 4.0**
49. **Dale, M.**; Krumdieck, S. and Bodger, P. (2012) Global Energy Modelling - a Biophysical Approach (GEMBA) Part 1: An overview of biophysical economics, *Ecological Economics*, 73, 152-157. **Impact factor: 2.7**
50. **Dale, M.**; Krumdieck, S. and Bodger, P. (2012) Global Energy Modelling - a Biophysical Approach (GEMBA) Part 2: Methodology and Results, *Ecological Economics*, 73, 158-167. **Impact factor: 2.7**
- 2011
51. **Dale, M.**; Krumdieck, S. and Bodger, P. (2011) Net Energy Yield from Production of Conventional Oil. *Energy Policy*, 39 (11), 7095-7102. **Impact factor: 2.7**
52. **Dale, M.**; Krumdieck, S. and Bodger, P. (2011) A Dynamic Function for EROI, *Sustainability*, 3 (10), 1972-1985. **Impact factor: 2.1**
53. Murphy, D. J.; Hall, C. A. S.; **Dale, M.** and Cleveland, C. (2011) Order from Chaos: A Preliminary Protocol for Determining the EROI of Fuels, *Sustainability*, 3 (10), 1888-1907. **Impact factor: 2.1**
54. Brandt, A.R.; **Dale, M.** (2011) A General Mathematical Framework for Calculating Systems-Scale Efficiency of Energy Extraction and Conversion: Energy Return on Investment (EROI) and Other Energy Return Ratios. *Energies*, 4, 1211-1245. **Impact factor: 2.7**
55. **Dale, M.**; Krumdieck, S. and Bodger, P. (2010) Global Energy Modelling - a Biophysical Approach, *World Energy Congress XXI*
56. **Dale, M.**; Krumdieck, S.; Page, S.; Mulligan, K. and Rendall, S. (2008) An Ecological Approach to Community-Based Sustainable Development, *3rd International Conference on Sustainability Engineering and Science*

57. **Dale, M.**; Krumdieck, S.; Page, S.; and Mulligan, K. (2008) TransitionScape: Generating Community-Based Sustainable Transport Initiatives, *NERI Energy Transport and Sustainability Symposium*

PAPERS UNDER
REVIEW

1. Delannoy, L.; Auzanneau, M.; Andrieu, B.; Vidal, O.; Longaretti, P-Y; Prados, E.; Murphy, D.; Bentley, R.; **Carbajales-Dale, M.** Raugei, M.; Höök; Court, V.; King, C.; Fizaine, F.; Jacques, P.; Heun, M.; Jackson, A.; Guay-Boutet, C.; Aramendia, E.; Wang, J. and Hall, C. (2022) Emerging consensus on net energy paves the way for improved integrated assessment modeling; *Energy & Environmental Science*; *IN REVIEW*
2. Wattier, B.; Shuller-Nickles, L.; **Carbajales-Dale, M.** and Martinez, N. (2018) Use of life cycle impact assessment (LCIA) to advance holistic optimisation of radiological protection and safety, *Journal of Radiological Protection*, *IN REVIEW*.

CONFERENCE
SESSION
CHAIR

2022

1. Bergerson, Joule; **Carbajales-Dale, Michael**; Moni, Sheikh; Kirchofer, Abby; Shah, Ketan; Liddell, Heather; Posen, Daniel; MacLean, Heather; Miller, Shelie; Vipparla, Naveen; Cresko, Joe (2022) Special Session: Life Cycle Assessment of Emerging Technologies: Update on the SETAC/ACLCA Working Group Progress, *American Center for Life Cycle Assessment (ACLCA) 2022 Conference*, Virtual, November 7-11, 2022
2. Bergerson, Joule; **Carbajales-Dale, Michael**; Moni, Sheikh; Kirchofer, Abby; Shah, Ketan; Liddell, Heather; Posen, Daniel; MacLean, Heather; Miller, Shelie; Vipparla, Naveen; Cresko, Joe (2022) Special Session: Life Cycle Assessment of Emerging Technologies: Update on the SETAC/ACLCA Working Group Progress, *International Symposium on Sustainable Systems and Technologies (ISSST) 2022*, Pittsburgh, PA, June 21-23, 2022
3. Bergerson, Joule; **Carbajales-Dale, Michael**; Moni, Sheikh; Kirchofer, Abby; Shah, Ketan; Liddell, Heather; Posen, Daniel; MacLean, Heather; Miller, Shelie; Vipparla, Naveen; Cresko, Joe (2022) Special Session: Life Cycle Assessment of Emerging Technologies: Update on the SETAC/ACLCA Working Group Progress, *Global CO2 initiative Carbon Capture Use and Storage (CCUS) Workshop 2022*, Ann Arbor, MI, May 19-20, 2022

2021

4. **Carbajales-Dale, Michael**; Bergerson, Joule; Moni, Sheikh; Kirchofer, Abby; Shah, Ketan; Liddell, Heather; Posen, Daniel; MacLean, Heather; Miller, Shelie; Vipparla, Naveen; Cresko, Joe (2021) Life Cycle Assessment of Emerging Technologies: Current State, Challenges and Recommendations, *American Center for Life Cycle Assessment (ACLCA) 2021 Conference*, Virtual, September 21-24, 2021.

2020

5. Bergerson, Joule; **Carbajales-Dale, Michael**; Sleep, Sylvia; MacLean, Heather; Miller, Shelie; Posen, Daniel; Morrow, William; McCoy, Sean; Jaramillo, Paulina; Cresko, Joe (2020) Life Cycle Assessment of Emerging Technologies: The case for a sub-discipline research network, *American Center for Life Cycle Assessment (ACLCA) 2020 Conference*, Virtual, September 22-24, 2020.

2019

6. **Carbajales-Dale, M.**; Bergerson, J.; Johnson, J.; Seager, T.; Morrow III, W.; Cresko, J.; McManus, M.; McCoy, S.; Williams, E.; Posen, D.; Maclean, H.; Heath, G.; Skone, T.; Brandt, A.; Matthews, S.; Miller, S.; Cucurachi, S.; Prado, V.; Carlson, D.; Wang, M.; Shehabi, A. and Carpenter, A. (2019) Building a Community for LCA of Emerging Technologies, *International Symposium on Sustainable Systems and Technologies (ISSST) 2019*, Portland, OR, June 25-28th, 2019

2018

7. Bergerson, J.; Skone, T.; Cresko, J.; McCoy, S.; Morrow, W.; **Carbajales-Dale, M.**; MacLean, H. and Shehabi, A. (2018) The Intersection of Life Cycle Assessment and Techno-Economic Analysis of Emerging Technologies, *International Symposium on Sustainable Systems and Technologies (ISSST) 2018*, Buffalo, NY, June 26-28th, 2018
8. McManus, M.; Seager, T.; Williams, E.; Bergerson, J.; Morrow, W.; MacLean, H.; **Carbajales-Dale, M.**; Skone, T.; Wang, M.; Posen, D.; Cresko, J.; Miler, S.; Matthews, S.; Brandt, A.; McCoy, S.; Marriott, J. and Heath, G. (2018) Life Cycle Assessment of Emerging Technologies: The case for a sub-discipline research network, *International Symposium on Sustainable Systems and Technologies (ISSST) 2018*, Buffalo, NY, June 26-28th, 2018

2017

9. SS-08: Special Session: Case Studies on the Prospective Analysis of Emerging Technologies (2017) *LCA XVII*, Portsmouth NH, October 3rd-5th, 2017
10. SS-13: Special Session: Towards a framework for LCA of Emerging Technologies (2017) *LCA XVII*, Portsmouth NH, October 3rd-5th, 2017

2016

11. Developing Robust Methods for Prospective Life Cycle Assessment for Early-Stage Technologies (2016) *LCA XVI*, Charleston, SC, September 27th-29th, 2016
12. Wealth Dynamics - Statistical/Mathematical Economics (2016) *ISEE 2016. Transforming the Economy: Sustaining Food, Water, Energy and Justice*, Washington DC, June 26th-29th, 2016
13. WC-1 Models, Metrics and Data (2016) *16th National Conference and Global Forum on Science, Policy and the Environment: The Food-Energy-Water Nexus*, Washington DC, January 19th-21st, 2016

2015

14. Biophysical Economics - Measurement (2015) *CANUSSEE 2015. Pathways for Change: Towards a Just and Sustainable Economy*, Vancouver, BC, October 1st-4st, 2015
15. Modeling for Biophysical and Ecological Economics (2015) *CANUSSEE 2015. Pathways for Change: Towards a Just and Sustainable Economy*, Vancouver, BC, October 1st-4st, 2015

INVITED
LECTURES

2023

1. **Carbajales-Dale, M.** (2023) Energy-Economy-Environment (E3) Systems Analysis, *KAUST Sustainability of Energy and Industrial Systems*, Virtual Meeting, July 12th, 2023
2. **Carbajales-Dale, M.** (2023) Energy-Economy-Environment (E3) Systems Analysis, *Battelle Savannah River Alliance Collaboration Exchange*, Georgia Cyber Center, Augusta GA, June 22nd, 2023
3. **Carbajales-Dale, M.** (2023) Energy-Economy-Environment (E3) Systems Analysis, *Battelle Savannah River Alliance Board Meeting*, Clemson University, Clemson SC, May 23rd, 2023
4. **Carbajales-Dale, M.** and Bergerson, J. (2023) LCA for Emerging Technologies Working Group Status Update, *SETAC/ACLCA North-American LCA Interest Group Working Groups Status Updates*, Virtual Meeting, April 2023, <https://www.youtube.com/watch?v=3X2fmTeAfck&list=PL1v8g7CqkgIJq-pJYTPCXyFugK4PCPQme&index=4>
5. **Carbajales-Dale, M.** (2023) Energy-Economy-Environment (E3) Systems Analysis, *Battelle Savannah River Alliance Computing Exchange*, Virtual Meeting, March 30th, 2023

2022

6. **Carbajales-Dale, M.** (2022) LCA for Emerging Technologies, *EarthShift Global Webinars*, Virtual Meeting, December 1st 2022, <https://www.youtube.com/watch?v=9VbtGXnjfrU>

2021

7. **Carbajales-Dale, M.** and Bergerson, J. (2021) LCA for Emerging Technologies Working Group Status Update, *SETAC/ACLCA North-American LCA Interest Group Working Groups Status Updates*, Virtual Meeting, December 2021, <https://www.youtube.com/watch?v=3X2fmTeAfck&list=PL1v8g7CqkgIJq-pJYTPCXyFugK4PCPQme&index=4>
8. **Carbajales-Dale, M.** and Sherwood, J. (2021) BaSKET: Building a Strategy for Key Energy Transitions, *University of Texas Energy Symposium*, Virtual Meeting, September 7th 2021, <https://www.youtube.com/watch?v=nLuRcbwDd4E>
9. **Carbajales-Dale, M.** and Bergerson, J. (2021) LCA for Emerging Technologies Working Group Status Update, *SETAC/ACLCA North-American LCA Interest Group Working Groups Status Updates*, Virtual Meeting, April 2021, <https://www.youtube.com/watch?v=JdbvrRsmnRY&list=PL1v8g7CqkgIJq-pJYTPCXyFugK4PCPQme&index=2>

2018

10. High, K.; **Carbajales-Dale, M.**; Smith, J.; Moni, S. and Mahmud, R. (2018) Sustainability Evaluation and Sustainable Process Design, *Eastman Chemical*, Kingsport, TN, April 23rd, 2018
11. Carbajales-Dale, M. (2018) Energy-Economy-Environment Systems Analysis, *Sierra Club Upstate Chapter Meeting*, March 7th, 2018

2017

12. **Carbajales-Dale, M.** (2017) Beyond GDP: National Accounting in the Age of Resource Depletion, *INFORMS Annual Meeting*, Houston TX, October 23rd, 2017

2016

13. **Carbajales-Dale, M.** (2016) An overview of energy-economy-environment (E3) systems analysis, *Basque Centre for Climate Change (BC3)*, June 2nd, 2016

2015

14. **Carbajales-Dale, M.**; Barnhart, C. J.; Brandt, A. R. and Benson, S. M. (2015) A better currency for investing in a sustainable future, *GCEP Net Energy Analysis Workshop*, Stanford CA, March 31st-April 1st
15. **Carbajales-Dale, M.**; Barnhart, C. J. and Benson, S. M. (2015) Fueling the energy transition: the net energy perspective, *GCEP Net Energy Analysis Workshop*, Stanford CA, March 31st-April 1st
16. Heun, M. K.; **Carbajales-Dale, M.** and Haney, B. R. (2015) Beyond GDP: National Accounting in the Age of Resource Depletion, *Calvin College*, February 27th 2015

2014

17. **Carbajales-Dale, M.**; Barnhart, C. J. and Benson, S. M. (2014) Fueling the energy transition: the net energy perspective, *UC Berkeley*, May 22nd 2014
18. **Carbajales-Dale, M.**; Barnhart, C. J. and Benson, S. M. (2014) Fueling the energy transition: the net energy perspective, *Environmental Engineering & Earth Sciences departmental seminar*, Clemson University, April 10th 2014
19. **Carbajales-Dale, M.**; Barnhart, C. J. and Benson, S. M. (2014) Fueling the energy transition: the net energy perspective, *Institute of Environmental Sciences (CML)*, Leiden University, Holland, March 17th 2014

2013

20. **Carbajales-Dale, M.**; Barnhart, C. J. and Benson, S. M. (2013) Fueling the energy transition: the net energy perspective, *Tesla Motors*, Palo Alto, CA, October 4th 2013

21. **Carbajales-Dale, M.**; Barnhart, C. J. and Benson, S. M. (2013) Fueling the energy transition: the net energy perspective, *Global Energy Systems 2013*, Edinburgh, Scotland, June 26th-28th, 2013 http://glocast.com/webcasts/global_energy_systems_conference_2013/3.5_Michael_Dale.html

2012

22. **Dale, M.** and Benson, S. M. (2012) The Energy Balance of the Photovoltaic (PV) Industry - Is the PV Industry a Net Energy Provider? *GCEP Annual Symposium*, October 11th 2012, <http://gcep.stanford.edu/events/symposium2012/presentations.html>
23. **Dale, M.** and Benson, S. M. (2012) The Energy Balance of the Photovoltaic (PV) Industry - Is the PV Industry a Net Energy Provider? *Stanford Student Energy Lectures*, July 23rd 2012
24. **Dale, M.** and Benson, S. M. (2012) The Energy Balance of the Photovoltaic (PV) Industry - Is the PV Industry a Net Energy Provider? *GCEP Management Committee Meeting*, May 15th 2012
25. **Dale, M.** and Benson, S. M. (2012) The Energy Balance of the Photovoltaic (PV) Industry - Is the PV Industry a Net Energy Provider? *Stanford Energy Seminar*, April 2nd 2012, <http://energyseminar.stanford.edu/node/431>
26. **Dale, M.** and Benson, S. M. (2012) The Energy Balance of the Photovoltaic (PV) Industry - Is the PV Industry a Net Energy Provider? *Energy Resources Engineering departmental seminar*, Stanford University, January 17th 2012

2010

27. **Dale, M.**; Krumdieck, S. and Bodger, P. (2010) Global Energy Modelling - a Biophysical Approach, *Mechanical Engineering departmental seminar*, Canterbury University, New Zealand, June 16th 2010

2008

28. **Dale, M.**; Krumdieck, S. and Bodger, P. (2008) Global Energy Modelling - a Biophysical Approach, *Mechanical Engineering departmental seminar*, Canterbury University, New Zealand, November 12th 2008

CONFERENCE
PRESENTATIONS

2023

1. Ijeoma, M.; **Carbajales-Dale, M.**; Ross, B.; Layton, P. and Stoner, M. (2023) Poster: Life cycle assessment of an entirely wood floor mass timber building, *International Mass Timber Conference 2023*, Portland, OR. March 27-29, 2023

2019

2. Moni, S.; High, K.; and **Carbajales-Dale, M.** (2019) Poster: A general LCA framework for prospective environmental evaluation of emerging technologies: a case study of perovskite PV cells, *International Symposium for Sustainable Systems and Technology (ISSST) 2019*, Portland, OR. June 25-27th, 2019
3. Mahmud, R., **Carbajales-Dale, M.**, High, K. (2019) Integration of TEA and LCA - A Case Study of wastewater treatment using anaerobic membrane bioreactor (AnMBR), *ISSST*, Portland, Oregon, June 25-27th, 2019
4. Sherwood, J. (2019) 3MT: Building a Strategy for Key Energy Transitions, *Resilient Infrastructure & Environmental Systems Fall Research Summit*, Clemson, SC, April 24th, 2019
5. Moni, S.; High, K.; and **Carbajales-Dale, M.** (2019) Poster: Think before you design: A framework for life cycle assessment (LCA) of emerging technologies at early development stages, *Graduate Research and Discovery Symposium*, Clemson University, Clemson, SC. April 3rd, 2019

6. Sherwood, J. (2019) 3MT: Building a Strategy for Key Energy Transitions, *Department of Environmental Engineering & Earth Sciences seminar series*, Clemson, SC, January 11th, 2019
- 2018
7. Sherwood, J. and **Carbajales-Dale, M.** (2018) Rolling Coal: The Environmental Impacts of Coal Rail Transport for Electricity Generation, *American Geophysical Union Fall Meeting*, Washington, D.C. December 10-14th, 2018
 8. Boyer, D. M., Shuller-Nickles, L., **Carbajales-Dale; M.**, Smith, F. N., Hanna, A., Hoover, M., Godsey, K., . . . Moysey, S. M. (2018) Navigating Design Bias in the Research and Development of an Energy Management Game-Based Simulation. Poster session presented at the *Annual Convention of the Association for Educational Communications and Technology*, Kansas City MO, October 23rd-27th, 2018
 9. Moni, S.; High, K., and **Carbajales-Dale, M.** (2018) A Scale-up Framework for Life Cycle Assessment (LCA) of Emerging Technologies, *International Symposium on Sustainable Systems and Technologies (ISSST) 2018*, Buffalo, NY, June 26-28th, 2018
- 2017
10. Karimi, H.; Eksioglu, S. D.; and **Carbajales-Dale; M.** (2017) A Stochastic Multiobjective Optimization Model to Analyze the Economic and Environmental Impacts of Biopower Supply Chains, *INFORMS Annual Meeting*, Houston TX, October 23rd, 2017
 11. Sherwood, J.; Bickhart, R.; and **Carbajales-Dale, M.** (2017) The Thermal Coal Transportation Story: A Processed Based Supply Chain LCA, *LCA XVII*, Portsmouth, NH, October 3rd-5th, 2017
 12. Karimi, H., Eksioglu, Sandra D., and **Carbajales-Dale, M.** (2017) A Biobjective Optimization Model for Analyzing the Environmental and Economic Impacts of Biopower Supply Chains. *IISE Annual Conference & Expo*, Pittsburgh, PA, May 20th, 2017
- 2016
13. **Carbajales-Dale, M** (2016) Lifecycle Assessment and Net Energy Analysis: birds of a feather or uncomfortable bedfellows?, *ISEE 2016. Transforming the Economy: Sustaining Food, Water, Energy and Justice*, Washington DC, June 29th, 2016
 14. Panelist: S-A5 Metrics for Food-Energy-Water Projects (2016) *16th National Conference and Global Forum on Science, Policy and the Environment: The Food-Energy-Water Nexus*, Washington DC, January 19th-21st, 2016
- 2015
15. **Carbajales-Dale, M** (2015) Lifecycle Assessment and Net Energy Analysis: birds of a feather or uncomfortable bedfellows?, *LCA XV 2015*, Vancouver, BC, October 6th-8th, 2015
 16. **Carbajales-Dale, M** (2015) Beyond GDP: National Accounting in the Age of Resource Depletion, *CANUSSEE 2015. Pathways for Change: Towards a Just and Sustainable Economy*, Vancouver, BC, October 1st-4th, 2015
 17. **Carbajales-Dale, M** (2015) Beyond GDP: National Accounting in the Age of Resource Depletion, *Engineering Sustainability 2015: Innovation and the Triple Bottom Line*, Pittsburg, PA, April 19th-21st, 2015
- 2013
18. **Carbajales-Dale, M** (2013) Net Energy Analysis & Energy Return on Investment, *World Future Conference*, Chicago, IL ,July 20th-21st, 2013
 19. **Dale, M** (2012) The Energy Balance of the Photovoltaic (PV) Industry - Is the PV Industry a Net Energy Provider? *EcoSummit*, Columbus, OH, September 30th-October 5th, 2012
- 2012

20. **Dale, M** (2012) The Energy Balance of the Photovoltaic (PV) Industry - Is the PV Industry a Net Energy Provider? *34th International Geological Congress*, Brisbane, Australia, August 5th-10th, 2012
- 2011
21. **Dale, M** (2011) Net energy yield of renewable energy resources. *Biophysical Economics Conference* (3rd), April 15th-16th 2011
- 2010
22. **Dale, M.**; Krumdieck, S. and Bodger, P. (2010) Global Energy Modelling - a Biophysical Approach, *World Energy Congress XXI*, Montreal, Canada, September 12th-16th, 2010
- 2009
23. **Dale, M.**; Krumdieck, S. and Bodger, P. (2009) Global Energy Modelling - a Biophysical Approach, *Massey University Centre for Energy Research (MUCER) Conference*, Massey University, Wellington, New Zealand, November 26th-27th, 2009
- 2008
24. **Dale, M.**; Krumdieck, S.; Page, S.; Mulligan, K. and Rendall, S. (2008) An Ecological Approach to Community-Based Sustainable Development, *3rd International Conference on Sustainability Engineering and Science*, Auckland, New Zealand, December 9th-12th, 2008
25. **Dale, M.**; Krumdieck, S.; Page, S.; and Mulligan, K. (2008) TransitionScape: Generating Community-Based Sustainable Transport Initiatives, *NERI Energy Transport and Sustainability Symposium*, Wellington, New Zealand, June 26th-27th, 2008
26. **Dale, M.**; Krumdieck, S.; Page, S.; Mulligan, K. and Rendall, S. (2008) An Ecological Approach to Community-Based Sustainable Development, *MUCER Conference*, Massey University, Wellington, New Zealand, June 3rd-5th, 2008

MEDIA ATTENTION

1. Alongi, P. (2022) Clemson University extends leadership in mass-timber research, *ClemsonNews*, Dec 5, 2022, <https://news.clemson.edu/clemson-university-extends-leadership-in-mass-timber-research/>
2. Alongi, P. (2020) Manufacturers and students connect at sustainability forum in Greenville, *ClemsonNews*, Feb 24, 2020, <https://news.clemson.edu/manufacturers-and-students-to-connect-at-sustainability-forum-in-greenville/>
3. Alongi, P. (2019) Astronauts could turn waste into hydrogen peroxide with help of Clemson University research, *ClemsonNews*, July 15, 2019, <https://news.clemson.edu/astronauts-could-turn-waste-into-hydrogen-peroxide-with-help-of-clemson-university-research/>
4. Lancaster University (2019) Renewables are a better investment than carbon capture for tackling climate change, *EurekAlert!*, https://eurekalert.org/pub_releases/2019-04/lu-raa040519.php
5. Alongi, P. (2019) Students connect with manufacturers through Industrial Assessment Center, *ClemsonNews*, May 8, 2019, <https://news.clemson.edu/students-connect-with-manufacturers-through-industrial-assessment-center/>
6. Le Page (2018) Coal power emissions in the US are even higher than we thought, *New Scientist*, <https://www.newscientist.com/article/2188214-coal-power-emissions-in-the-us-are-even-higher-than-we-thought/>
7. Conca, J. (2016) Batteries Or Train-Pumped Energy For Grid-Scale Power Storage, *Forbes*, May 26, 2016, <https://www.forbes.com/sites/jamesconca/2016/05/26/batteries-or-train-pumped-energy-for-grid-scale-power-storage/?sh=2d9405c33eed>
8. Alongi, P. (2016) New maps show where to generate solar energy in South Carolina, *Clemson Newstand*, <http://newsstand.clemson.edu/mediarelations/new-maps-show-where-to-generate-solar-energy-in-south-carolina/>

9. Conca, J. (2015) EROI - A tool to predict the best energy mix, *Forbes*, Feb 11, 2015 <https://www.forbes.com/a-tool-to-predict-the-best-energy-mix/?sh=5d92739aa027>
10. Heun, M. K.; **Carbajales-Dale, M.** and Haney, B. R. (2015) Time to replace the GDP with a measure that accounts for natural resources, *Upstate Business Journal*, <http://upstatebusinessjournal.com/innovate/time-to-replace-the-gdp-with-a-measure-that-accounts-for-natural-resources>
11. **Carbajales-Dale, M.** (2015) Managing the transition to a sustainable energy future, *Adjacent Government*, 7, 306-308, <http://edition.pagesuite-professional.co.uk//launch.aspx?eid=b90ebf25-2861-48d5-a11a-14dfc69c988a>
12. **Carbajales-Dale, M.** (2014) Investing in a sustainable future, *International Innovation*, 159, 84-86, <http://www.internationalinnovation.com/investing-in-a-sustainable-future/>
13. Shwartz, M (2014) Net energy analysis should become a standard policy tool, *GCEP News*, June 25, 2014, <http://gcep.stanford.edu/news/NetEnergy.html>
14. Shwartz, M (2014) Wind farms can provide a surplus of reliable clean energy to society, Stanford study finds, *GCEP News*, March 20, 2014, <http://gcep.stanford.edu/news/windfarms.html>
15. Shwartz, M (2013) Stanford scientists calculate the energy required to store wind and solar power on the grid, *GCEP News*, September 9, 2013, <http://gcep.stanford.edu/news/windsolaronthegrid.htm>
16. Golden, M (2013) Global solar photovoltaic industry is likely now a net energy producer, Stanford researchers find, *GCEP News*, April 2, 2013, <http://gcep.stanford.edu/news/photovoltaic-industry.html>
17. Wayne Freedman (2013) Stanford students build net zero home with solar panels, *ABC 7 News San Francisco*, April 2, 2013, <http://abc7news.com/archive/9050661/>

MEMBERSHIP

- Society of Environmental Toxicology & Chemistry Sept 2018 - Present
- Association of Environmental Engineering & Science Professors Aug 2016 - Present
- American Center for Life Cycle Assessment Aug 2014 - Present
- International Society for Industrial Ecology Nov 2016 - Present
- International Society for Ecological Economics Jun 2013 - Present
- New Zealand Society for Sustainability Engineering & Science Jan 2008 - Jul 2010

COMPUTER SKILLS

- Mathematical Packages: MATLAB, Maple
- Programming Languages: Python, R, MATLAB, VBA
- LCA packages: OpenLCA, GaBi, Simapro
- Other applications: LaTeX, Microsoft Office, Tableau, ArcGIS



August 2, 2023