#### **BENJAMIN D. LEIBOWICZ, PH.D.**

### Associate Professor Banks McLaurin Fellowship in Engineering Graduate Program in Operations Research and Industrial Engineering Walker Department of Mechanical Engineering The University of Texas at Austin

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### CONTENTS

| ACADEMIC POSITIONS                    | 2  |
|---------------------------------------|----|
| EDUCATION                             | 2  |
| RESEARCH INTERESTS                    | 2  |
| OTHER PROFESSIONAL EXPERIENCE         | 2  |
| HONORS AND AWARDS                     | 3  |
| PUBLICATIONS                          | 3  |
| PRESENTATIONS                         |    |
| GRANTS AND CONTRACTS                  | 14 |
| SERVICE TO THE PROFESSION             | 15 |
| SERVICE TO THE UNIVERSITY             | 19 |
| STUDENT AND POSTDOCTORAL SUPERVISIONS | -  |
| TEACHING                              |    |
| CONSULTING                            | 23 |
| VITA                                  | 23 |

### ACADEMIC POSITIONS

| The University of Texas at Austin Associate Professor (with tenure) |  | 2022 – Present |
|---|--|----------------|
|   | Banks McLaurin Fellowship in Engineering | 2023 – Present |
|   | Assistant Professor                      | 2016 – 2022    |
| • Primary appointment:  |  |                |

- Graduate Program in Operations Research and Industrial Engineering
- Walker Department of Mechanical Engineering
- Other appointments:
  - Lyndon B. Johnson School of Public Affairs (by courtesy)
  - Energy and Earth Resources Graduate Program

#### **Visiting Positions**

| Visiting Scholar | University of Chicago, Institute for Mathematical and Statistical | June – July 2024 |
|------------------|---|------------------|
|                  | Innovation  |                  |

### EDUCATION

| Stanford University | Management Science and Engineering         | Ph.D. | June 2016 |
|---------------------|--|-------|-----------|
| Stanford University | Management Science and Engineering         | M.S.  | June 2013 |
| Harvard University  | Physics (magna cum laude, Economics minor) | А.В.  | May 2011  |

### **RESEARCH INTERESTS**

**Applications:** energy and environment, energy systems, public policy, technological change, sustainable cities, infrastructure resilience

**Methods:** optimization, systems analysis, economic modeling, game theory, equilibrium modeling, stochastic control

#### **OTHER PROFESSIONAL EXPERIENCE**

| Research Assistant  | Stanford University Energy Modeling Forum  | Stanford, CA          | 2012 – 2016 |
|---|--|-----------------------|-------------|
| Peccei Award Fellow                                       | International Institute for Applied Systems Analysis   | Laxenburg,<br>Austria | 2014 – 2015 |
| Young Scientists<br>Summer Program<br>Fellow              | International Institute for Applied Systems Analysis<br>(fellowship from National Academy of Sciences) | Laxenburg,<br>Austria | 2013        |
| Research Assistant  | Harvard University Center for the Environment  | Cambridge, MA         | 2008 – 2010 |
| Research in Industrial<br>Projects for Students<br>Fellow | Zuse Institute Berlin<br>(fellowship from Institute for Pure and Applied<br>Mathematics)               | Berlin, Germany       | 2010        |
| Research Experience<br>for Undergraduates<br>Fellow       | Dalian University of Technology<br>(fellowship from National Science Foundation)                       | Dalian, China         | 2009        |
| Simons Summer<br>Research Fellow                          | Stony Brook University   | Stony Brook, NY       | 2006        |

### HONORS AND AWARDS

#### Individual Awards

| Best Advisor  | Mechanical Engineering Graduate Student Board<br>(MEGSB), The University of Texas at Austin   | 2023 |
|---|---|------|
| Banks McLaurin Fellowship in<br>Engineering (endowed faculty<br>fellowship) | The University of Texas at Austin   | 2023 |
| Runner Up, Early Career Best<br>Paper Award                                 | Section on Energy, Natural Resources, and the<br>Environment (ENRE), Institute for Operations Research<br>and the Management Sciences (INFORMS) | 2021 |
| Outstanding Young Investigator<br>Award                                     | Energy Systems Division, Institute of Industrial and Systems Engineers (IISE)   | 2020 |
| Walker Scholar  | Walker Department of Mechanical Engineering, The<br>University of Texas at Austin   | 2019 |
| Peccei Award  | International Institute for Applied Systems Analysis  | 2014 |
| Young Scientists Summer<br>Program Fellowship                               | National Academy of Sciences  | 2013 |
| School of Engineering<br>Fellowship   | Stanford University   | 2011 |
| Research in Industrial Projects<br>for Students Fellowship                  | Institute for Pure and Applied Mathematics  | 2010 |
| Research Experience for<br>Undergraduates Fellowship                        | National Science Foundation   | 2009 |
| Simons Summer Research<br>Fellowship  | Stony Brook University  | 2006 |

### Selected Awards Won by Supervised Students

| Dennis J. O'Brien USAEE Best<br>Student Paper Award            | United States Association for Energy Economics<br>(USAEE) (student: Connor Colombe)       | 2023 |
|--|---|------|
| P.E.O. Scholar Award   | P.E.O. Sisterhood (student: Rachel Moglen)  | 2023 |
| Mickey Leland Energy Fellowship                                | Department of Energy, Office of Fossil Energy<br>(student: Erick Jones)                   | 2020 |
| Runner Up, Dennis J. O'Brien<br>USAEE Best Student Paper Award | United States Association for Energy Economics<br>(USAEE) (student: Baturay Calci)        | 2019 |
| Full Fellowship  | The National Graduate Education for Minorities (GEM)<br>Consortium (student: Erick Jones) | 2018 |

# PUBLICATIONS

Notes: <u>Underlined author name</u> = supervised UT Austin student.  $^{P}$  = supervised postdoctoral researcher.

# A. Refereed Journal Papers (52)

- [52] <u>Moglen, R.L.</u>, Leibowicz, B.D., Kwasinski, A., Cruse, G., 2024. Optimal restoration of power infrastructure following a disaster with environmental hazards. *Socio-Economic Planning Sciences*, accepted. DOI: <u>10.1016/j.seps.2024.101974</u>
- [51] <u>Colombe, C.</u>, Leibowicz, B.D., <u>Mendoza, B.R.</u>, 2024. The effects of policy uncertainty and risk aversion on carbon capture, utilization, and storage investments. *Energy Policy* 192, 114212. DOI: <u>10.1016/j.enpol.2024.114212</u>
  - Dennis J. O'Brien USAEE Best Student Paper Award, 2023
- [50] <u>Calci, B.</u>, Leibowicz, B.D., Bard, J.F., <u>Jayadev, G.G.</u>, 2024. A bilevel approach to multi-period natural gas pricing and investment in gas-consuming infrastructure. *Energy* 303, 131754. DOI: <u>10.1016/j.energy.2024.131754</u>
- [49] Sambasivam, B.<sup>P</sup>, <u>Colombe, C.</u>, Hasenbein, J., Leibowicz, B.D., 2024. Optimal resource placement for electric grid resilience via network topology. *Reliability Engineering & System Safety* 245, 110010. DOI: <u>10.1016/j.ress.2024.110010</u>
- [48] Leibowicz, B.D., <u>Zhang, N.</u>, Carvallo, J.P., Larsen, P.H., Carr, T., Baik, S., 2024. The importance of capturing power system operational details in resource adequacy assessments. *Electric Power Systems Research* 228, 110057. DOI: <u>10.1016/j.epsr.2023.110057</u>
- [47] Moglen, R.L., Chawla, K.P., Levi, P., Sun, Y., Phillips, O., Leibowicz, B.D., Jenkins, J.D., Grubert, E.A., 2023. The state of macro-energy systems research: Common critiques, current progress, and research priorities. *iScience* 26, 106325. DOI: <u>10.1016/j.isci.2023.106325</u>
- [46] Leibowicz, B.D., Sanstad, A.H., <u>Zhu, Q.</u>, Larsen, P.H., Eto, J.H., 2023. Electric utility valuations of investments to reduce the risks of long-duration, widespread power interruptions, part II: Case studies. *Sustainable and Resilient Infrastructure* 8, 203-222. DOI: <u>10.1080/23789689.2022.2138163</u>
- [45] Sanstad, A.H., Leibowicz, B.D., <u>Zhu, Q.</u>, Larsen, P.H., Eto, J.H., 2023. Electric utility valuations of investments to reduce the risks of long-duration, widespread power interruptions, part I: Background. *Sustainable and Resilient Infrastructure* 8, 311-322. DOI: 10.1080/23789689.2022.2148450
- [44] Moglen, R.L., Barth, J., Gupta, S., <u>Kawai, E.</u>, Klise, K., Leibowicz, B.D., 2023. A nexus approach to infrastructure resilience planning under uncertainty. *Reliability Engineering & System Safety* 230, 108931. DOI: <u>10.1016/j.ress.2022.108931</u>
- [43] Rueda, V., Young, M.H., Faust, K., Rateb, A.M., Leibowicz, B.D., 2022. System dynamics modeling in local water management: Assessing strategies for the city of Boerne, Texas. Water 14, 3682. DOI: <u>10.3390/w14223682</u>
- [42] Kawai, E., Ozawa, A., Leibowicz, B.D., 2022. Role of carbon capture and utilization (CCU) for decarbonization of industrial sector: A case study of Japan. *Applied Energy* 328, 120183. DOI: <u>10.1016/j.apenergy.2022.120183</u>
- [41] Jayadev, G., Leibowicz, B.D., Bard, J.F., <u>Calci, B.</u>, 2022. Risk-averse stochastic bilevel programming: An application to natural gas markets. *Computers & Industrial Engineering* 169, 108151. DOI: <u>10.1016/j.cie.2022.108151</u>
- [40] Jayadev, G., Leibowicz, B.D., Bard, J.F., <u>Calci, B.</u>, 2022. Strategic interactions between liquefied natural gas and domestic gas markets: A bilevel model. *Computers & Operations Research* 144, 105807. DOI: <u>10.1016/j.cor.2022.105807</u>
- [39] Motalebi, S., Barnes, T., <u>Lu, L.</u>, Leibowicz, B.D., Niet, T., 2022. The role of U.S.-Canada electricity trade in North American decarbonization pathways. *Energy Strategy Reviews* 41, 100827. DOI: <u>10.1016/j.esr.2022.100827</u>
- [38] <u>Bourque, C.M.</u>, Clarno, K.T., Leibowicz, B.D., 2022. High-level fuel fabrication facility designs from discreteevent simulation. *Annals of Nuclear Energy* 168, 108893. DOI: <u>10.1016/j.anucene.2021.108893</u>
- [37] <u>Zhu, Q.</u>, Leibowicz, B.D., Busby, J.W., Shidore, S., Adelman, D.E., Olmstead, S.M., 2022. Enhancing policy realism in energy system optimization models: Politically feasible decarbonization pathways for the United States. *Energy Policy* 161, 112754. DOI: <u>10.1016/j.enpol.2021.112754</u>

- [36] Jones, E.C., Leibowicz, B.D., 2022. Climate risk management in agriculture using alternative electricity and water resources: A stochastic programming framework. *Environment Systems and Decisions* 42, 117-135. DOI: <u>10.1007/s10669-021-09838-8</u>
- [35] <u>Brozynski, M.T.</u>, Leibowicz, B.D., 2022. A multi-level optimization model of infrastructure-dependent technology adoption: Overcoming the chicken-and-egg problem. *European Journal of Operational Research* 300, 755-770. DOI: <u>10.1016/j.ejor.2021.10.026</u>
- [34] <u>Zhu, Q.</u>, Leibowicz, B.D., 2022. A Markov decision process approach for cost-benefit analysis of infrastructure resilience upgrades. *Risk Analysis* 42(7), 1585-1602. DOI: <u>10.1111/risa.13838</u>
- [33] Waxman, A.R., <u>Corcoran, S.</u>, Robison, A., Leibowicz, B.D., Olmstead, S.M., 2021. Leveraging scale economies and policy incentives: Carbon capture, utilization & storage in Gulf clusters. *Energy Policy* 156, 112452. DOI: <u>10.1016/j.enpol.2021.112452</u>
- [32] <u>Calci, B.</u>, Leibowicz, B.D., Bard, J.F., <u>Jayadev, G.</u>, 2021. Incorporating learning-by-doing into mixed complementarity equilibrium models. *Computers & Industrial Engineering* 159, 107472. DOI: <u>10.1016/j.cie.2021.107472</u>
- [31] Carvallo, J.P., <u>Zhang, N.</u>, Leibowicz, B.D., Carr, T., Galbraith, M., Larsen, P.H., 2021. Implications of a regional resource adequacy program for utility integrated resource planning. *The Electricity Journal* 34, 106960. DOI: <u>10.1016/j.tej.2021.106960</u>
- [30] <u>Bandyopadhyay, A.</u>, Leibowicz, B.D., Webber, M.E., 2021. Solar panels and smart thermostats: The power duo of the residential sector? *Applied Energy* 290, 116747. DOI: <u>10.1016/j.apenergy.2021.116747</u>
- [29] <u>Calci, B.</u>, Leibowicz, B.D., Bard, J.F., 2022. North American natural gas markets under LNG demand growth and infrastructure restrictions. *The Energy Journal* 43 (2), 17-40. DOI: <u>https://doi.org/10.5547/01956574.43.2.bcal</u>
  - Runner Up, Dennis J. O'Brien USAEE Best Student Paper Award, 2019
- [28] Kamei, M., Wangmo, T., Leibowicz, B.D., Nishioka, S., 2021. Urbanization, carbon neutrality, and Gross National Happiness: Sustainable development pathways for Bhutan. *Cities* 111, 102972. DOI: <u>10.1016/j.cities.2020.102972</u>
- [27] Jones, E.C., Leibowicz, B.D., 2021. Co-optimization and community: Maximizing the benefits of distributed electricity and water technologies. *Sustainable Cities and Society* 64, 102515. DOI: <u>10.1016/j.scs.2020.102515</u>
- [26] <u>Naeini, M.E.</u>, Leibowicz, B.D., Bickel, J.E., 2020. Can you trust a model whose output keeps changing? Interpreting changes in the social cost of carbon produced by the DICE model. *Environment Systems and Decisions* 40, 301-320. DOI: <u>10.1007/s10669-020-09783-y</u>
- [25] Carvallo, J.P., <u>Zhang, N.</u>, Murphy, S.P., Leibowicz, B.D., Larsen, P.H., 2020. The economic value of a centralized approach to distributed resource investment and operation. *Applied Energy* 269, 115071. DOI: <u>10.1016/j.apenergy.2020.115071</u>
- [24] <u>Bandyopadhyay, A.</u>, Leibowicz, B.D., Beagle, E.A., Webber, M.E., 2020. As one falls, another rises? Residential peak load reduction through electricity rate structures. *Sustainable Cities and Society* 60, 102191. DOI: <u>10.1016/j.scs.2020.102191</u>
- [23] <u>Brozynski, M.T.</u>, Leibowicz, B.D., 2020. Markov models of policy support for technology transitions. *European Journal of Operational Research* 286, 1052-1069. DOI: <u>10.1016/j.ejor.2020.03.066</u>
- [22] Leibowicz, B.D., 2020. Urban land use and transportation planning for climate change mitigation: A theoretical framework. *European Journal of Operational Research* 284, 604-616. DOI: <u>10.1016/j.ejor.2019.12.034</u>
  - Runner Up, INFORMS ENRE Early Career Best Paper Award, 2021
- [21] Waxman, A.R., Khomaini, A., Leibowicz, B.D., Olmstead, S.M., 2020. Emissions in the stream: Estimating the greenhouse gas impacts of an oil and gas boom. *Environmental Research Letters* 15, 014004. DOI: <u>10.1088/1748-9326/ab5e6f</u>

- [20] <u>Jayadev, G.</u>, Leibowicz, B.D., Kutanoglu, E., 2020. U.S. electricity infrastructure of the future: Generation and transmission pathways through 2050. *Applied Energy* 260, 114267. DOI: <u>10.1016/j.apenergy.2019.114267</u>
- [19] <u>Zhu, Q.</u>, Leibowicz, B.D., 2020. Vehicle efficiency improvements, urban form, and energy use impacts. *Cities* 97, 102486. DOI: <u>10.1016/j.cities.2019.102486</u>
- [18] <u>Phathanapirom, U.B.</u>, Haas, D.A., Leibowicz, B.D., 2020. A game-theoretic approach to nuclear fuel cycle transition analysis under uncertainty. *Annals of Nuclear Energy* 137, 107112. DOI: <u>10.1016/j.anucene.2019.107112</u>
- [17] <u>Zhang, N.</u>, Leibowicz, B.D., Hanasusanto, G.A., 2020. Optimal residential battery storage operations using robust data-driven dynamic programming. *IEEE Transactions on Smart Grid* 11, 1771-1780. DOI: <u>10.1109/TSG.2019.2942932</u>
- [16] Jones, E.C., Leibowicz, B.D., 2019. Contributions of shared autonomous vehicles to climate change mitigation. *Transportation Research Part D: Transport and Environment* 72, 279-298. DOI: <u>10.1016/j.trd.2019.05.005</u>
- [15] Leibowicz, B.D., <u>Punjabi, K.</u>, O'Shaughnessy, E., Margolis, R., 2019. Rules of the rooftop: Platform design and price reductions in an online solar photovoltaic marketplace in the United States. *Energy Research & Social Science* 48, 194-204. DOI: <u>10.1016/j.erss.2018.10.010</u>
- [14] Leibowicz, B.D., <u>Lanham, C.M.</u>, <u>Brozynski, M.T.</u>, Vázquez-Canteli, J.R., Castillo Castejón, N., Nagy, Z.,
  2018. Optimal decarbonization pathways for urban residential building energy services. *Applied Energy* 230, 1311-1325. DOI: <u>10.1016/j.apenergy.2018.09.046</u>
- [13] <u>Brozynski, M.T.</u>, Leibowicz, B.D., 2018. Decarbonizing power and transportation at the urban scale: An analysis of the Austin, Texas Community Climate Plan. *Sustainable Cities and Society* 43, 41-54. DOI: <u>10.1016/j.scs.2018.08.005</u>
- [12] Deetjen, T.A., Conger, J.P., Leibowicz, B.D., Webber, M.E., 2018. Review of climate action plans in 29 major U.S. cities: Comparing current policies to research recommendations. *Sustainable Cities and Society* 41, 711-727. DOI: <u>10.1016/j.scs.2018.06.023</u>
- [11] Leibowicz, B.D., 2018. Policy recommendations for a transition to sustainable mobility based on historical diffusion dynamics of transport systems. *Energy Policy* 119, 357-366. DOI: <u>10.1016/j.enpol.2018.04.066</u>
- [10] Vitter, J.S., Berhanu, B., Deetjen, T.A., Leibowicz, B.D., Webber, M.E., 2018. Optimal sizing and dispatch for a community-scale potable water recycling facility. *Sustainable Cities and Society* 39, 225-240. DOI: <u>10.1016/j.scs.2018.02.023</u>
- [9] Leibowicz, B.D., 2018. Welfare improvement windows for innovation policy. *Research Policy* 47, 390-398. DOI: 10.1016/j.respol.2017.12.009
- [8] Leibowicz, B.D., 2018. The cost of policy uncertainty in electric sector capacity planning: Implications for instrument choice. *The Electricity Journal* 31, 33-41. DOI: <u>10.1016/j.tej.2017.12.001</u>
- [7] Leibowicz, B.D., 2017. Effects of urban land-use regulations on greenhouse gas emissions. *Cities* 70, 135-152.
  DOI: <u>10.1016/j.cities.2017.07.016</u>
- [6] Leibowicz, B.D., Krey, V., Grubler, A., 2016. Representing spatial technology diffusion in an energy system optimization model. *Technological Forecasting and Social Change* 103, 350-363. DOI: <u>10.1016/j.techfore.2015.06.001</u>
- [5] Leibowicz, B.D., 2015. Growth and competition in renewable energy industries: Insights from an integrated assessment model with strategic firms. *Energy Economics* 52, 13-25. DOI: <u>10.1016/j.eneco.2015.09.010</u>
- [4] Wilkerson, J.T., Leibowicz, B.D., Turner, D.D., Weyant, J.P., 2015. Comparison of integrated assessment models: Carbon price impacts on U.S. energy. *Energy Policy* 76, 18-31. DOI: <u>10.1016/j.enpol.2014.10.011</u>

- [3] Leibowicz, B.D., 2014. Evaluation of post-Fukushima Japanese electricity strategies: A stochastic simulation model. *International Journal of Energy Research* 38, 1578-1598. DOI: <u>10.1002/er.3181</u>
- [2] Leibowicz, B.D., Roumpani, M., Larsen, P.H., 2013. Carbon emissions caps and the impact of a radical change in nuclear electricity costs. *International Journal of Energy Economics and Policy* 3, 60-74.
- [1] Leibowicz, B.D., Abbot, D.S., Emanuel, K., Tziperman, E., 2012. Correlation between present-day model simulation of Arctic cloud radiative forcing and sea ice consistent with positive winter convective cloud feedback. *Journal of Advances in Modeling Earth Systems* 4, M07002. DOI: <u>10.1029/2012MS000153</u>

#### B. Refereed Journal Papers Submitted and Under Revision (8)

- [8] <u>Albeladi, A.</u>, Leibowicz, B.D. Coordination problems and incentive pass-through in carbon capture, utilization, and storage development. Submitted.
- [7] <u>Bourque, C.M.</u>, Leibowicz, B.D., Clarno, K.T. Nuclear fuel fabrication facility design optimization through simulation. Submitted.
- [6] Leibowicz, B.D. Optimal technology adoption subsidies with consumer switching costs and strategic firms. Submitted.
- [5] <u>Liu, D.</u>, Leibowicz, B.D., Bard, J.F., Zhu, Y., Guo, Y., Shao, Y. Optimal investment planning for production networks with fixed production profiles. Under revision at *Computers & Operations Research*.
- [4] <u>Ma, Huidi</u>, Leibowicz, B.D., Hasenbein, J.J. Optimal sampling strategy for probability estimation: An application to the Agricultural Quarantine Inspection Monitoring program. Submitted.
- [3] <u>Moglen, R.L.</u>, Leibowicz, B.D., Kwasinski, A. The value of coordination for restoring power and wireless networks. Submitted.
- [2] Olmstead, S.M., Leibowicz, B.D., Mason, C.F., Waxman, A.R., Huber-Rodriguez, H.R., Stemmler, J. Ambiguous climate policy: A tax credit will increase the use of carbon capture technology, but will it reduce carbon dioxide emissions? Submitted.
- [1] <u>Zhang, N.</u>, Leibowicz, B.D. Co-optimization of utility capacity planning and rate design with demand-side resources. Submitted.

### C. Refereed Conference Proceedings (10)

- [10] <u>Bandyopadhyay, A.</u>, Conger, J.P., Beagle, E.A., Webber, M.E., Leibowicz, B.D., 2020. Energetic and economic potential for load control for residential customers in Austin, TX. *Proceedings of the ASME 2020 International Mechanical Engineering Congress & Exposition*. DOI: <u>10.1115/IMECE2020-23114</u>
- [9] <u>Bourque, C.M.</u>, Thompson, C.J., Clarno, K.T., Leibowicz, B.D., 2020. Coupling simulation technologies to assist nuclear fuel fabrication facility design. *Proceedings of the 2020 American Nuclear Society Winter Meeting*. DOI: <u>10.13182/T123-33395</u>
- [8] <u>Jayadev, G.</u>, Leibowicz, B.D., Kutanoglu, E., 2019. U.S. electricity infrastructure of the future: Generation and transmission pathways through 2050. *Proceedings of the 37<sup>th</sup> USAEE/IAEE North American Conference*.
- [7] <u>Bandyopadhyay, A.</u>, Conger, J.P., Webber, M.E., Leibowicz, B.D., 2019. A decision support tool for distributed solar and storage investments: A case study in Austin, TX. *Proceedings of the ASME 2019 International Mechanical Engineering Congress & Exposition*. DOI: <u>10.1115/IMECE2019-11068</u>
- [6] <u>Bandyopadhyay, A.</u>, Ramirez-Meyers, K., Wikramanayake, E.D., Leibowicz, B.D., Webber, M.E., Bahadur, V., 2019. A capacity planning model for microgrids in rural India. *Proceedings of the ASME 2019 International Mechanical Engineering Congress & Exposition*. DOI: <u>10.1115/IMECE2019-11707</u>
- [5] Leibowicz, B.D., 2017. The cost of policy uncertainty in electric sector capacity planning: Implications for instrument choice. *Proceedings of the 35<sup>th</sup> USAEE/IAEE North American Conference*.

- [4] Leibowicz, B.D., 2017. Effects of urban land-use regulations on greenhouse gas emissions. *Proceedings of the 2017 International Energy Workshop*.
- [3] Leibowicz, B.D., 2016. Technology-push, demand-pull, and strategic R&D investment. *Proceedings of the 34th* USAEE/IAEE North American Conference.
- [2] Leibowicz, B.D., 2015. Growth and competition in renewable energy industries: Insights from an integrated assessment model with strategic firms. *Proceedings of the 33rd USAEE/IAEE North American Conference*.
- [1] Leibowicz, B.D., 2013. Representing international technology spillovers in a computable general equilibrium energy-economic model. *Proceedings of the 2013 International Energy Workshop*.

### D. Technical Reports (7)

- [7] Carvallo, J.P., <u>Zhang, N.</u>, Leibowicz, B.D., Carr, T., Baik, S., Larsen, P.H., 2023. A guide for improved resource adequacy assessments in evolving power systems: Institutional and technical dimensions. *Lawrence Berkeley National Laboratory Technical Report*.
- [6] King, C.W., Rhodes, J.D., Zarnikau, J., Lin, N., Kutanoglu, E., Leibowicz, B.D., Niyogi, D., Rai, V., Santoso, S., Spence, D., Tompaidis, S., Zhu, H., Funkhouser, E., Austgen, B., 2021. The Timeline and Events of the February 2021 Texas Electric Grid Blackouts. *The University of Texas at Austin Energy Institute*.
- [5] Carvallo, J.P., <u>Zhang, N.</u>, Leibowicz, B.D., Carr, T., Galbraith, M., Larsen, P.H., 2020. Implications of a regional resource adequacy program on utility integrated resource planning: Study for the Western United States. *Lawrence Berkeley National Laboratory Technical Report*.
- [4] Sanstad, A.H., <u>Zhu, Q.</u>, Leibowicz, B.D., Larsen, P.H., Eto, J.H., 2020. Case studies of the economic impacts of power interruptions and damage to electricity system infrastructure from extreme events. *Lawrence Berkeley National Laboratory Technical Report*.
- [3] Hall, J., Kuo, S., Ruiz-Juri, N., Machemehl, R., Baumanis, C., Leibowicz, B.D., Olmstead, T., 2019. An overview of methods for safety improvement project selection. *The University of Texas at Austin Center for Transportation Research*, Strategic Safety Improvements project, final report to City of Austin.
- [2] Leibowicz, B.D., <u>Punjabi, K.</u>, O'Shaughnessy, E., Margolis, R., 2018. Effects of platform design on the customer experience in an online solar PV marketplace. *National Renewable Energy Laboratory Technical Report* 6A20– 71178.
- [1] Grubler, A., Leibowicz, B.D., Krey, V., Bento, N., Riahi, K., 2014. Lessons learned from technology diffusion in the past for future scenarios — integrating the influence of costs, size, and market characteristics into integrated assessment models. *RITE-IIASA* collaborative study, Alternative pathways toward sustainable development and climate stabilization (ALPS) II project, final report.

### E. Op-Eds (11)

- [11] Leibowicz, B.D. Bipartisan infra plan not perfect, but it's a good start on climate change. *Infrastructure Investor*, June 30, 2021.
- [10] Leibowicz, B.D. Wind power reliability low expectations are OK. *Austin American-Statesman*, February 25, 2021.
- [9] Leibowicz, B.D. Don't blame wind energy for the crisis. San Antonio Express-News, February 23, 2021.
- [8] Leibowicz, B.D., Farhat, K. How Amazon can use its HQ2 search to boost clean energy. *Dallas Morning News*, March 15, 2018.
- [7] Leibowicz, B.D., Farhat, K. How Amazon's HQ2 could advance the clean energy economy. *Austin American-Statesman*, March 13, 2018.
- [6] Farhat, K., Leibowicz, B.D. Can Amazon make us greener? Houston Chronicle, March 7, 2018.
- [5] Leibowicz, B.D. Uncertain effects with driverless vehicles. San Antonio Express-News, December 9, 2017.

- [4] Leibowicz, B.D. Shared autonomous vehicles could do more harm than good. *Austin American-Statesman*, November 29, 2017.
- [3] Leibowicz, B.D. With right policies, cities can curb climate change. Houston Chronicle, June 28, 2017.
- [2] Leibowicz, B.D. Cities can work on climate change with the right policies. *Austin American-Statesman*, June 19, 2017.
- [1] Leibowicz, B.D. U.S. Cities Don't Need the Paris Accord to Fight Climate Change. Fortune, June 13, 2017.

#### PRESENTATIONS

#### A. Invited Lectures, Seminars, and Panels

- [27] Leibowicz, B.D., 2024. Sampling design for random inspections. *Cross-Border Threat Screening and Supply Chain Defense DHS Center of Excellence Biennial Review Meeting*, Washington, D.C.
- [26] Leibowicz, B.D., 2023. Sampling design for random inspections. *Cross-Border Threat Screening and Supply Chain Defense DHS Center of Excellence Annual Meeting*, Washington, D.C.
- [25] Leibowicz, B.D., 2022. Multi-agent optimization models of natural gas markets. *ExxonMobil Modeling, Optimization, and Data Science (MODS) Group*, virtual seminar.
- [24] Leibowicz, B.D., 2022. My climate change mitigation research at IIASA: Past and present. International Cooperation for Global Challenges: 50 Years of Building Research Bridges at IIASA, hosted by the International Institute for Applied Systems Analysis and the National Academy of Sciences, Boston, MA.
- [23] Leibowicz, B.D., 2022. Panel Moderator: Beyond the Least Cost Paradigm. *Macro-Energy Systems Speaker Series*, virtual panel.
- [22] Leibowicz, B.D., Busby, J.W., 2022. Sectoral feasibility of greenhouse gas mitigation and clean energy transitions. *UT Energy Week*, virtual conference.
- [21] Leibowicz, B.D., 2021. Cost-benefit analysis of infrastructure resilience upgrades: Theoretical, computational, and empirical advances. *Department of Engineering Systems and Environment, University of Virginia*, Charlottesville, VA.
- [20] Leibowicz, B.D., 2021. **Panelist:** Getting Started in Public Sector Operations Research. *INFORMS Section on Public Sector Operations Research*, INFORMS Annual Meeting, Anaheim, CA.
- [19] Leibowicz, B.D., 2021. **Panel Moderator:** Technology Pathways: Fork in the Road? *UT Energy Week*, Austin, TX (virtual due to COVID-19).
- [18] Leibowicz, B.D., 2020. Panelist: "Smart" is the Word of the Hour Let's Talk Smart Homes, Smart Buildings and Smart Communities. *Electrification 2020: International Conference & Exposition*, hosted by the *Electric Power Research Institute*, Charlotte, NC (canceled due to COVID-19).
- [17] Leibowicz, B.D., Carvallo, J.P., Carr, T., Galbraith, M., 2020. Implications of a regional resource adequacy program on utility integrated resource planning (team presentation). Western Interstate Energy Board, public webinar.
- [16] Leibowicz, B.D., 2020. The economic value of a centralized approach to distributed resource investment and operation. *Georgia Tech Energy Systems and Optimization Workshop*, Atlanta, GA (virtual due to COVID-19).
- [15] Leibowicz, B.D., 2020. **Panelist:** Macro-Energy Systems: Toward a New Discipline. *Stanford University Energy Seminar*, Stanford, CA (virtual due to COVID-19).
- [14] Leibowicz, B.D., 2020. **Panel Moderator:** Critiques of Macro-Energy Systems Research and Our Responses as a Field. *Stanford University Macro-Energy Systems Workshop*, Stanford, CA (virtual due to COVID-19).
- [13] Leibowicz, B.D., 2020. Optimal U.S. electricity infrastructure investment pathways through 2050. *Asia Pacific Energy Research Center Annual Conference*, Tokyo, Japan (virtual due to COVID-19).

- [12] Leibowicz, B.D., 2020. U.S. electricity infrastructure of the future: Generation and transmission pathways through 2050. *Strategic Energy Analysis Center, National Renewable Energy Laboratory*, Golden, CO (virtual seminar).
- [11] Leibowicz, B.D., 2020. Decarbonizing the U.S. energy economy: Importance of the demand side. **Panelist:** Policy and Business Implications of a Green New Deal. *UT Energy Week*, Austin, TX.
- [10] Leibowicz, B.D., 2020. Urban land use and transportation planning for climate change mitigation: A theoretical framework. *Department of Industrial and Systems Engineering Graduate Seminar, University of Tennessee, Knoxville*, Knoxville, TN.
- [9] Leibowicz, B.D., 2020. Urban land use and transportation planning for climate change mitigation: A theoretical framework. *IIASA-RITE International Workshop Towards Improved Understanding, Concepts, Policies, and Models of Energy Demand, International Institute for Applied Systems Analysis,* Laxenburg, Austria.
- [8] Leibowicz, B.D., 2019. Beyond the building: Residential electrification and affordable housing in their broader energy and urban contexts. **Panelist:** The Customer Experience. *The Electrification Experience*, hosted by the *Electric Power Research Institute* and *CPS Energy*, San Antonio, TX.
- [7] Leibowicz, B.D., 2019. Sustainable Development Goals 7 and 11: Affordable and clean energy in a context of rapid urbanization. Panelist: Sustainable Development Goals for Cities. Sustainable Built Environment Conference, Tokyo, Japan.
- [6] Leibowicz, B.D., 2019. Urban land use and transportation planning for climate change mitigation: A theoretical framework. *Institute for Global Environmental Strategies*, Hayama, Japan.
- [5] Leibowicz, B.D., 2019. Robust data-driven dynamic programming and applications in energy storage. *Idaho National Laboratory*, Idaho Falls, ID.
- [4] Leibowicz, B.D., 2018. Cities and global change: Trends, policy developments, and research directions. *International Institute for Applied Systems Analysis*, Laxenburg, Austria.
- [3] Leibowicz, B.D., 2017. Integrated systems modeling of energy, the economy, and the environment. *Sandia National Laboratories*, Albuquerque, NM.
- [2] Leibowicz, B.D., 2017. Effects of urban land-use regulations on greenhouse gas emissions. U.S. Green Building Council, Central Texas Chapter, Austin, TX.
- [1] Leibowicz, B.D., 2015. Technology-push, demand-pull, and strategic R&D investment. *Stanford University Environmental and Energy Policy Analysis Center*, Stanford, CA.

### **B.** Technical Presentations at Conferences

- [64] <u>Colombe, C.</u>, Leibowicz, B.D., <u>Mendoza, B.</u>, 2024. The effects of policy uncertainty and risk aversion on carbon capture, utilization, and storage investments. *Assessing Policy Strategies for Scaling Carbon Capture and Storage in the United States*, Austin, TX.
- [63] <u>Colombe, C.</u>, Leibowicz, B.D., <u>Mendoza, B.</u>, 2023. The effects of policy uncertainty and risk aversion on carbon capture, utilization, and storage investments. 40<sup>th</sup> USAEE/IAEE North American Conference, Chicago, IL. Winner of the 2023 Dennis J. O'Brien USAEE Best Student Paper Award.
- [62] <u>Albeladi, A.</u>, Leibowicz, B.D., 2023. Coordination problems and incentive pass-through in carbon capture, utilization, and storage development. *INFORMS Annual Meeting*, Phoenix, AZ.
- [61] <u>Moglen, R.</u>, Leibowicz, B.D., Kwasinski, A., Cruse, G., 2023. Optimal restoration of power infrastructure following a disaster with environmental hazards. *INFORMS Annual Meeting*, Phoenix, AZ.
- [60] Sambasivam, B.<sup>P</sup>, <u>Colombe, C.</u>, Hasenbein, J., Leibowicz, B.D., 2023. Optimal resource placement for electric grid resilience via network topology. *INFORMS Annual Meeting*, Phoenix, AZ.

- [59] Leibowicz, B.D., <u>Colombe, C., Mendoza, B.</u>, 2023. The effects of policy uncertainty and risk aversion on carbon capture, utilization, and storage investments. *INFORMS Annual Meeting*, Phoenix, AZ.
- [58] <u>Moglen, R.</u>, Leibowicz, B.D., Kwasinski, A., Cruse, G., 2022. Restoration and recovery of interdependent infrastructure after a nuclear detonation. *INFORMS Annual Meeting*, Indianapolis, IN.
- [57] <u>Colombe, C.</u>, Leibowicz, B.D., 2022. Tax credit uncertainty and carbon capture infrastructure development. *INFORMS Annual Meeting*, Indianapolis, IN.
- [56] <u>Zhu, Q.</u>, Leibowicz, B.D., Busby, J.W., Shidore, S., Adelman, D.E., Olmstead, S.M., 2022. Enhancing policy realism in energy system optimization models: Politically feasible decarbonization pathways for the United States. *INFORMS Annual Meeting*, Indianapolis, IN.
- [55] Leibowicz, B.D., 2022. Redefining resource adequacy in modern power systems. *INFORMS Annual Meeting*, Indianapolis, IN.
- [54] <u>Zhu, Q.</u>, Leibowicz, B.D., Busby, J.W., Shidore, S., Adelman, D.E., Olmstead, S.M., 2022. Enhancing policy realism in energy system optimization models: Politically feasible decarbonization pathways for the United States. *Macro-Energy Systems Workshop*, Stanford, CA.
- [53] Leibowicz, B.D., <u>Zhu, Q.</u>, Busby, J.W., Shidore, S., Adelman, D.E., Olmstead, S.M., 2022. Enhancing policy realism in energy system optimization models: Politically feasible decarbonization pathways for the United States. *IISE Annual Conference*, Seattle, WA.
- [52] <u>Moglen, R.</u>, Barth, J., Gupta, S., <u>Kawai, E.</u>, Leibowicz, B.D., Klise, K., 2021. A nexus approach to infrastructure resilience planning under uncertainty. *INFORMS Annual Meeting*, Anaheim, CA.
- [51] <u>Calci, B.</u>, Leibowicz, B.D., Bard, J.F., <u>Jayadev, G.</u>, 2021. Multi-period pricing under price history dependent investments in consumption infrastructure: An application in natural gas sector. *INFORMS Annual Meeting*, Anaheim, CA.
- [50] <u>Lu, L., Zhang, N.</u>, Leibowicz, B.D., 2021. Designing electric vehicle charging infrastructure to enable disaster evacuation. *INFORMS Annual Meeting*, Anaheim, CA.
- [49] Leibowicz, B.D., <u>Calci, B.</u>, Bard, J.F., <u>Jayadev, G.</u>, 2021. Incorporating learning-by-doing into mixed complementarity equilibrium models. *INFORMS Annual Meeting*, Anaheim, CA.
- [48] <u>Moglen, R.</u>, Klise, K., Leibowicz, B.D., 2021. Water infrastructure resilience: A case study in the U.S. Virgin Islands. *IISE Annual Conference*, Montreal, Canada (virtual due to COVID-19).
- [47] Leibowicz, B.D., <u>Calci, B.</u>, Bard, J.F., <u>Jayadev, G.</u>, 2021. Incorporating learning-by-doing into mixed complementarity equilibrium models. *IISE Annual Conference*, Montreal, Canada (virtual due to COVID-19).
- [46] <u>Bourque, C.M.</u>, Thompson, C.J., Clarno, K.T., Leibowicz, B.D., 2020. Coupling simulation technologies to assist nuclear fuel fabrication facility design. 2020 American Nuclear Society Winter Meeting, Chicago, IL (virtual due to COVID-19).
- [45] Jayadev, G., Leibowicz, B.D., Bard, J.F., <u>Calci, B.</u>, 2020. Strategic interactions between liquefied natural gas and domestic gas markets: A bilevel model. *INFORMS Annual Meeting*, National Harbor, MD (virtual due to COVID-19).
- [44] <u>Zhu, Q.</u>, Leibowicz, B.D., 2020. Sectoral greenhouse gas mitigation in the U.S. *INFORMS Annual Meeting*, National Harbor, MD (virtual due to COVID-19).
- [43] <u>Moglen, R.</u>, Klise, K.A., Leibowicz, B.D., 2020. Water infrastructure resilience: A case study in the U.S. Virgin Islands. *INFORMS Annual Meeting*, National Harbor, MD (virtual due to COVID-19).
- [42] <u>Calci, B.</u>, Leibowicz, B.D., Bard, J.F., <u>Jayadev, G.</u>, 2020. A complementarity-based equilibrium model with endogenous technological change and an application to natural gas markets. *INFORMS Annual Meeting*, National Harbor, MD (virtual due to COVID-19).

- [41] Leibowicz, B.D., <u>Brozynski, M.T.</u>, 2020. A bilevel optimization model of infrastructure-dependent technology adoption: Overcoming the chicken-and-egg problem. *INFORMS Annual Meeting*, National Harbor, MD (virtual due to COVID-19).
- [40] Leibowicz, B.D., 2020. Urban land use and transportation planning for climate change mitigation: A theoretical framework. *IISE Annual Conference*, New Orleans, LA (virtual due to COVID-19).
- [39] <u>Zhang, N.</u>, Leibowicz, B.D., Hanasusanto, G.A., 2020. Optimal residential battery storage operations using robust data-driven dynamic programming. *MIT A+B Applied Energy Symposium*, Cambridge, MA (virtual due to COVID-19).
- [38] Leibowicz, B.D., <u>Jayadev, G.</u>, Kutanoglu, E., 2019. U.S. electricity infrastructure of the future: Generation and transmission pathways through 2050. *37<sup>th</sup> USAEE/IAEE North American Conference*, Denver, CO.
- [37] <u>Calci, B.</u>, Leibowicz, B.D., Bard, J.F., 2019. Not on my coast? North American natural gas markets under LNG demand growth and infrastructure restrictions. 37<sup>th</sup> USAEE/IAEE North American Conference, Denver, CO. Runner Up for the 2019 Dennis J. O'Brien USAEE Best Student Paper Award.
- [36] Leibowicz, B.D., <u>Zhang, N.</u>, Hanasusanto, G.A., 2019. Optimal residential battery storage operations using robust data-driven dynamic programming. *INFORMS Annual Meeting*, Seattle, WA.
- [35] Leibowicz, B.D., Jayadev, G., Kutanoglu, E., 2019. U.S. electricity infrastructure of the future: Generation and transmission pathways through 2050. *INFORMS Annual Meeting*, Seattle, WA.
- [34] <u>Zhang, N.</u>, Carvallo, J.P., Leibowicz, B.D., Larsen, P.H., Murphy, S., 2019. Generation and transmission planning with decentralized distributed resource decision making. *INFORMS Annual Meeting*, Seattle, WA.
- [33] <u>Brozynski, M.T.</u>, Leibowicz, B.D., 2019. A game-theoretic model of infrastructure-dependent technology adoption: Overcoming the chicken-and-egg problem. *INFORMS Annual Meeting*, Seattle, WA.
- [32] <u>Bandyopadhyay, A.</u>, Ramirez-Meyers, K., Wikramanayake, E.D., Leibowicz, B.D., Webber, M.E., Bahadur, V., 2019. A capacity planning model for microgrids in rural India. ASME 2019 International Mechanical Engineering Congress & Exposition, Salt Lake City, UT.
- [31] <u>Bandyopadhyay, A.</u>, Conger, J.P., Webber, M.E., Leibowicz, B.D., 2019. A decision support tool for distributed solar and storage investments: A case study in Austin, TX. *ASME 2019 International Mechanical Engineering Congress & Exposition*, Salt Lake City, UT.
- [30] <u>Bandyopadhyay, A.</u>, Leibowicz, B.D., Conger, J.P., Beagle, E.A., Webber, M.E., 2019. A convex optimization tool to model customer behavioral issues in demand response initiatives in the residential sector. *Texas A&M Conference on Energy*, College Station, TX.
- [29] Leibowicz, B.D., Lanham, C.M., Brozynski, M.T., Vázquez-Canteli, J.R., Castillo Castejón, N., Nagy, Z., 2019. Optimal decarbonization pathways for urban residential building energy services. Sustainable Built Environment Conference, Tokyo, Japan.
- [28] <u>Jayadev, G.</u>, Leibowicz, B.D., Kutanoglu, E., 2019. U.S. energy infrastructure of the future: Electricity capacity planning through 2050. *International Conference on Continuous Optimization (ICCOPT)*, Berlin, Germany.
- [27] Leibowicz, B.D., 2019. Urban land use and transportation planning for climate change mitigation: A theoretical framework. *INFORMS International Meeting*, Cancun, Mexico.
- [26] <u>Calci, B.</u>, Leibowicz, B.D., Bard, J.F., 2019. North American natural gas market and infrastructure under different LNG export scenarios. *IAEE International Conference*, Montreal, Canada.
- [25] <u>Bandyopadhyay, A.</u>, Conger, J.P., Webber, M.E., Leibowicz, B.D., 2019. A techno-economic model to assess optimal distributed energy resource investments in the residential sector. *IAEE International Conference*, Montreal, Canada.
- [24] <u>Zhang, N.</u>, Leibowicz, B.D., Hanasusanto, G.A., 2019. Optimal residential battery storage operations using robust data-driven dynamic programming. *IISE Annual Conference*, Orlando, FL.

- [23] Leibowicz, B.D., <u>Brozynski, M.T.</u>, 2019. Markov models of policy support for technology transitions. *IISE Annual Conference*, Orlando, FL.
- [22] <u>Brozynski, M.T.</u>, Leibowicz, B.D., 2018. Markov models of policy support for technology transitions. *INFORMS* Annual Meeting, Phoenix, AZ.
- [21] Jayadev, G., Leibowicz, B.D., Kutanoglu, E., 2018. U.S. energy infrastructure of the future: Electric sector pathways through 2050. *INFORMS Annual Meeting*, Phoenix, AZ.
- [20] Leibowicz, B.D., 2018. Representing the demand side in energy system optimization models. *INFORMS Annual Meeting*, Phoenix, AZ.
- [19] Jones, E.C., Leibowicz, B.D., 2018. The role of shared autonomous vehicles in climate change mitigation. *Graduate Education for Minorities (GEM) Annual Board Meeting and Conference*, Los Angeles, CA.
- [18] Leibowicz, B.D., <u>Punjabi, K.</u>, O'Shaughnessy, E., Margolis, R., 2018. Effects of platform design on solar PV prices in an online marketplace. *IAEE International Conference*, Groningen, Netherlands.
- [17] <u>Bandyopadhyay, A.</u>, Ramirez-Meyers, K., Wikramanayake, E.D., Leibowicz, B.D., Webber, M.E., Bahadur, V. A capacity planning model for microgrids in rural India. *IAEE International Conference*, Groningen, Netherlands.
- [16] Leibowicz, B.D., <u>Brozynski, M.T.</u>, 2018. Decarbonizing power and transportation at the urban scale: An analysis of the Austin, Texas Community Climate Plan. *International Energy Workshop*, Gothenburg, Sweden.
- [15] Leibowicz, B.D., 2018. Effects of urban land-use regulations on greenhouse gas emissions. *Intergovernmental Panel on Climate Change (IPCC) Cities and Climate Change Science Conference*, Edmonton, Canada.
- [14] Leibowicz, B.D., 2017. The cost of policy uncertainty in electric sector capacity planning: Implications for instrument choice. *Energy Policy Research Conference*, Park City, UT.
- [13] Leibowicz, B.D., 2017. The cost of policy uncertainty in electric sector capacity planning: Implications for instrument choice. *INFORMS Annual Meeting*, Houston, TX.
- [12] Leibowicz, B.D., 2017. Policy recommendations for a transition to sustainable mobility based on historical diffusion dynamics of transport systems. *INFORMS Annual Meeting*, Houston, TX, 2017.
- [11] <u>Brozynski, M.T.</u>, Leibowicz, B.D., 2017. Optimal pathways to net-zero emissions: A study of Austin, Texas. *INFORMS Annual Meeting*, Houston, TX.
- [10] Vitter, J.S., Berhanu, B., Deetjen, T.A., Leibowicz, B.D., Webber, M.E., 2018. Optimal dispatch and equipment sizing of a community-scale water recycling facility for electric demand flexibility. *INFORMS Annual Meeting*, Houston, TX.
- [9] Leibowicz, B.D., 2017. Effects of urban land-use regulations on greenhouse gas emissions. *International Energy Workshop*, College Park, MD.
- [8] Leibowicz, B.D., 2017. The cost of policy uncertainty in electric sector capacity planning: Implications for instrument choice. *35<sup>th</sup> USAEE/IAEE North American Conference*, Houston, TX.
- [7] Leibowicz, B.D., 2016. Technology-push, demand-pull, and strategic R&D investment. *INFORMS Annual Meeting*, Nashville, TN.
- [6] Leibowicz, B.D., 2016. Technology-push, demand-pull, and strategic R&D investment. 34<sup>th</sup> USAEE/IAEE North American Conference, Tulsa, OK.
- [5] Leibowicz, B.D., 2015. Growth and competition in renewable energy industries: Insights from an integrated assessment model with strategic firms. 33<sup>rd</sup> USAEE/IAEE North American Conference, Pittsburgh, PA.
- [4] Leibowicz, B.D., Krey, V., Grubler, A., 2014. Representing spatial technology diffusion in an energy system optimization model. *Energy Systems Conference*, London, United Kingdom.
- [3] Leibowicz, B.D., Krey, V., Grubler, A., 2014. Representing spatial technology diffusion in an energy system optimization model. *Integrated Assessment Modeling Consortium Annual Meeting*, College Park, MD.

- [2] Leibowicz, B.D., 2013. Representing international technology spillovers in a computable general equilibrium energy-economic model. *International Energy Workshop*, Paris, France.
- [1] Leibowicz, B.D., 2013. Representing international technology spillovers in a computable general equilibrium energy-economic model. *The University of Texas at Austin Energy Forum*, Austin, TX.

### C. Other Invited Workshop Participation

- [3] **Participant**. *Cybersecurity Manufacturing Innovation Institute (CyManII) Roadmap Workshop*, virtual event, 2021.
- [2] **Participant** and **Commentator**. *Workshop on Accelerating Climate-Mitigating Technology Development and Deployment*, College Park, MD, 2018. Convened by Harvard Kennedy School and University of Maryland.
- [1] Participant. Sandia National Laboratories Academic Alliance Faculty Field Day, Livermore, CA, 2018.

### **GRANTS AND CONTRACTS**

| EXTERNAL RESEARCH FUNDING  |  |  |                            |                      |
|--|--|--|----------------------------|----------------------|
| Role and<br>Co-Investigators   | Title  | Sponsor  | Grant Total<br>(My Share)  | Grant Period         |
| Co-Pl<br>J. Bard (Pl)  | Project Portfolio<br>Optimization with Fixed<br>Production Profile   | ExxonMobil Upstream<br>Research Company  | \$450,000<br>(\$225,000)   | 9/2022 –<br>8/2025   |
| Pl<br>J. Hasenbein (Co-Pl)   | Sampling Design for Random<br>Inspections  | Department of<br>Homeland Security<br>(via Texas A&M)                            | \$250,000<br>(\$125,000)   | – 11/2022<br>11/2024 |
| Co-PI<br>C. Werth (PI), D. Eaton<br>(Co-PI), A. Huang (Co-<br>PI), P. Sela (Co-PI) | NRT-INFEWS: Graduate<br>Student Education: Reducing<br>Energy Barriers for Novel<br>Water Supply Use in<br>Sustainable Agriculture | National Science<br>Foundation   | \$3,020,324<br>(\$604,065) | 9/2018 –<br>8/2024   |
| PI*  | Economic Impact of Nuclear<br>Detonations: The Nuclear<br>Economic Consequence<br>Analysis Tool (NECAT)                            | Defense Threat<br>Reduction Agency (via<br>University of Southern<br>California) | \$412,562<br>(\$316,667)   | 9/2021 –<br>7/2024   |
| Co-Pl<br>S. Olmstead (Pl), A.<br>Waxman (Co-Pl), C.<br>Mason (Co-Pl)               | The Economics of Scaling<br>Carbon Capture, Utilization,<br>and Storage  | Alfred P. Sloan<br>Foundation  | \$849,981<br>(\$212,495)   | 6/2021 –<br>5/2024   |
| PI   | LBNL Electricity Markets and Policy Group  | Lawrence Berkeley<br>National Laboratory   | \$296,927<br>(\$296,927)   | 3/2019 –<br>9/2024   |
| Co-Pl<br>J. Bard (Pl), T. Edgar (Co-<br>Pl)  | Energy Market Dynamic<br>Modeling  | ExxonMobil Upstream<br>Research Company  | \$619,508<br>(\$206,503)   | 6/2018 –<br>5/2022   |
| Senior Investigator*   | Services Necessary to<br>Design, Develop, and Test<br>Mechanical Designs for<br>Application at LANL                                | Los Alamos National<br>Laboratory  | \$73,438<br>(\$73,438)     | 1/2019 –<br>12/2020  |
| Co-PI<br>A. Waxman (PI), S.<br>Olmstead (Co-PI)                                    | Strategies for Mitigating<br>Climate Impacts of Gulf<br>Coast Industrial Facilities  | The Cynthia and<br>George Mitchell<br>Foundation                                 | \$62,851<br>(\$20,950)     | 3/2019 –<br>12/2019  |

| Senior Investigator*  | Strategic Safety<br>Improvements   | City of Austin   | \$2,000<br>(\$2,000)         | 5/2019 –<br>10/2019  |
|---|--|--|------------------------------|----------------------|
|   | · ·  | btotal: External Funding   | \$6,037,591<br>(\$2,083,045) | 10/2013              |
|   | INTERNAL RES   | EARCH FUNDING  |                              |                      |
| Role and<br>Co-Investigators  | Title  | Sponsor  | Grant Total<br>(My Share)    | Grant Period         |
| Co-PI<br>H. Daigle (PI), A.<br>Ravikumar (Co-PI), S.<br>Castellanos (Co-PI), S.<br>Olmstead (Co-PI) | Developing Critical Research<br>Tools to Evaluate Carbon<br>Management Technologies                                  | UT Austin Office of the<br>VPR, Bold Inquiry<br>Incubator Project          | \$20,000<br>(\$4,000)        | 9/2024 –<br>8/2025   |
| Co-Lead<br>Q. Huang (Co-Lead)   | Data-Driven View Planning for 3D Reconstruction  | UT Austin Office of the<br>VPR, Associate<br>Professor X Project           | \$99,914<br>(\$50,300)       | 1/2023 –<br>12/2023  |
| Co-Pl<br>K. Kockelman (Pl)  | Smart Charging (and<br>Discharging) of BEVs for<br>Lower Grid Emissions and<br>Better Grid Performance               | UT Austin Energy<br>Institute  | \$60,000<br>(\$30,000)       | 9/2022 –<br>8/2023   |
| PI  | Low Demand Levers for<br>Climate Mitigation:<br>Amplification Through<br>Economic Upstream<br>Effects and Spillovers | Texas Global Faculty<br>Research Seed Grants                               | \$9,800<br>(\$9,800)         | 1/2022 –<br>12/2022  |
| PI<br>J. Hasenbein (Co-PI)  | Micro-to-Macro Systems<br>Modeling   | UT Austin Energy<br>Institute  | \$55,000<br>(\$27,500)       | 11/2021 –<br>11/2022 |
| Co-Lead<br>J. Busby (Co-Lead), D.<br>Adelman (Member)<br>S. Olmstead (Member)                       | Sectoral Feasibility of<br>Greenhouse Gas Mitigation<br>and Clean Energy Transitions                                 | UT Austin Energy<br>Institute  | \$245,000<br>(\$61,250)      | 1/2020 –<br>6/2022   |
| PI  | Designing Electric Vehicle<br>Charging Infrastructure to<br>Enable Disaster Evacuation                               | UT Austin Department<br>of Mechanical<br>Engineering Seed<br>Grant Program | \$20,000<br>(\$20,000)       | 1/2021 –<br>8/2021   |
| PI  | Walker Scholar Award   | UT Austin Department<br>of Mechanical<br>Engineering                       | \$20,000<br>(\$20,000)       | 4/2019 –<br>8/2021   |
| Senior Investigator*  | Energy Infrastructure of the Future  | UT Austin Energy<br>Institute  | \$51,635<br>(\$51,635)       | 1/2018 –<br>5/2019   |
|   | Su   | btotal: Internal Funding   | \$581,349<br>(\$274,485)     |                      |
|   | ALL RESEAF   | RCH FUNDING  |                              |                      |
|   |  | Grand Total: All Funding   | \$6,618,940<br>(\$2,357,530) |                      |

\* For these projects, Dr. Leibowicz was allocated the listed funding to conduct specific research as part of a broader project with more collaborators and a larger budget.

### SERVICE TO THE PROFESSION

### Memberships in Professional Societies

| Member   | Institute of Industrial and Systems Engineers (IISE)   |                |
|--|--|----------------|
| Senior Member  | Institute for Operations Research and the Management Science   | nces (INFORMS) |
| Member   | International Association for Energy Economics (IAEE)  |                |
| Member   | United States Association for Energy Economics (USAEE)   |                |
| Elected Leadership Positions                                 |  |                |
| President-Elect (Board Member)                               | INFORMS Section on Energy, Natural Resources, and the Environment (ENRE)   | 2022 – Present |
| Secretary-Treasurer (Board<br>Member)                        | INFORMS Section on Energy, Natural Resources, and the Environment (ENRE)   | 2020 – 2022    |
| Director (Board Member)                                      | IISE Energy Systems Division   | 2020 – 2022    |
| Editorial Service  |  |                |
| Editorial Board Member                                       | Energy Sources, Part B: Economics, Planning, and Policy  | 2019 – Present |
| Conference Organization                                      |  |                |
| Conference Leadership  |  |                |
| Organizing Committee Member<br>(Sponsored Sessions Co-Chair) | INFORMS Annual Meeting, Phoenix, AZ  | 2023           |
| Conference Executive<br>Committee Member                     | 40 <sup>th</sup> USAEE/IAEE North American Conference, Chicago, IL   | 2023           |
| Program Committee Member                                     | Macro-Energy Systems Workshop, Stanford, CA  | 2022           |
| Steering Committee Member                                    | Stanford University Macro-Energy Systems Workshop,<br>Stanford, CA (virtual due to COVID-19)                     | 2020           |
| Scientific Committee Member                                  | Sustainable Built Environment Conference, Tokyo, Japan   | 2019           |
| Co-Organizer   | Sandia-UT Energy Collaboration Workshop, Austin, TX  | 2018           |
| Cluster / Track Chair  |  |                |
| Track Co-Chair   | Energy Systems track, <i>IISE Annual Conference</i> , Montreal,<br>Canada (virtual due to COVID-19)              | 2021           |
| Cluster Chair  | ENRE — Energy and Climate cluster, <i>INFORMS Annual Meeting</i> , National Harbor, MD (virtual due to COVID-19) | 2020           |
| Cluster Co-Chair   | ENRE — Energy cluster, <i>INFORMS Annual Meeting</i> ,<br>Seattle, WA  | 2019           |
| Cluster Chair  | Energy and Climate cluster, <i>INFORMS Annual Meeting</i> , Phoenix, AZ  | 2018           |
| Cluster Chair  | Energy and Climate cluster, <i>INFORMS Annual Meeting</i> ,<br>Houston, TX                                       | 2017           |
|  |  |                |

# Session Chair

ENRE Awards Session, INFORMS Annual Meeting, Phoenix, AZ

2023

| Oil, Gas, and the Future of Energy, INFORMS Annual Meeting, Phoenix, AZ   | 2023     |
|---|----------|
| Electric Reliability and Resilience, INFORMS Annual Meeting, Phoenix, AZ  | 2023     |
| ENRE Awards Session, INFORMS Annual Meeting, Indianapolis, IN   | 2022     |
| Energy Infrastructure Network Optimization, INFORMS Annual Meeting, Indianapolis, IN  | 2022     |
| ENRE Awards Session, INFORMS Annual Meeting, Anaheim, CA  | 2021     |
| Macro-Energy Systems: Energy Infrastructure Resilience, INFORMS Annual Meeting, Anaheim,  | CA 2021  |
| Energy Modeling Platform for North America — Supporting Worldwide Open Modeling Efforts<br>INFORMS Annual Meeting, Anaheim, CA  | , 2021   |
| Energy Systems Track Best Paper Competition, <i>IISE Annual Conference</i> , Montreal, Canada (virtu<br>due to COVID-19)  | ual 2021 |
| Optimization in Energy and Resource Systems, <i>IISE Annual Conference</i> , Montreal, Canada (virtu<br>due to COVID-19)  | ual 2021 |
| Critiques of Macro-Energy Systems Research and Our Responses as a Field (panel organizer an<br>moderator), <i>Stanford University Macro-Energy Systems Workshop</i> , Stanford, CA (virtual due to<br>COVID-19) | 2021     |
| The Challenges of Going Green: Solutions for Utilities and Firms, <i>INFORMS Annual Meeting</i> , Seattle, WA   | 2019     |
| Energy Demand Analysis, 37 <sup>th</sup> USAEE/IAEE North American Conference, Denver, CO   | 2019     |
| The Future of Energy: A Systems Perspective, INFORMS Annual Meeting, Phoenix, AZ  | 2018     |
| Demand Modeling, International Energy Workshop, Gothenburg, Sweden  | 2018     |
| Energy and Climate Themes in Transportation, INFORMS Annual Meeting, Houston, TX  | 2017     |
| Systems Modeling Approaches to Energy Analysis, INFORMS Annual Meeting, Houston, TX   | 2017     |
| Future Pathways and Uncertainties, International Energy Workshop, College Park, MD  | 2017     |
| Energy III, INFORMS Annual Meeting, Nashville, TN   | 2016     |
|   |          |

### Award Chair and Committees

| Committee Member | Career Achievement Award, IISE Energy Systems Division                     | 2024 |
|------------------|--|------|
| Chair            | Outstanding Young Investigator Award, IISE Energy Systems<br>Division      | 2022 |
| Chair            | Best Paper Award Competition, Energy Systems Track, IISE Annual Conference | 2021 |

### **Grant Proposal Review Service**

Alfred P. Sloan Foundation ConTex Collaborative Research Grants National Science Foundation UT Austin Energy Institute

# Journal Referee Service

Applied Energy Cities Economics of Energy & Environmental Policy Energies Energy **Energy and Buildings** Energy and Climate Change **Energy Economics** Energy Policy Energy Research and Social Science Energy Sources, Part B: Economics, Planning, and Policy Energy Systems Environment International Environmental Modelling and Software Environmental Research Letters Environmental Science & Technology European Journal of Comparative Economics European Journal of Operational Research Frontiers in Energy **IEEE Access** IEEE Transactions on Power Systems **IISE Transactions** International Journal of Electrical Power and Energy Systems International Journal of Energy Sector Management International Journal of Production Research Journal of Cleaner Production Journal of Environmental Management Journal of Planning Education and Research Journal of the Association of Environmental and Resource Economists Management Science Nature Climate Change **Optimization and Engineering** PLoS ONE **Research Policy Risk Analysis** Socio-Economic Planning Sciences Sustainable and Resilient Infrastructure Sustainable Cities and Society Technological Forecasting and Social Change The Energy Journal The Engineering Economist Transportation Research Part D: Transport and Environment Utilities Policy

### Advisory Committees and Working Groups

| Member                            | Policies on Weatherization and Electric Reliability (POWER) Committee, UT Energy Institute | 2021           |
|-----------------------------------|--|----------------|
| Steering Committee Member         | Macro-Energy Systems Community   | 2020 – Present |
| Member                            | Working Group on Multisector Impacts of Energy<br>Transitions, Multisector Dynamics        | 2020 – 2022    |
| Steering Committee Member         | Austin Climate Equity Plan, City of Austin   | 2019 – 2021    |
| Academic Advisory Group<br>Member | Carbon Reduction Assessment of New Enterprises<br>(CRANE), Prime Coalition                 | 2019 – 2020    |

### SERVICE TO THE UNIVERSITY

| Walker Department of                              | Faculty Search Committee (ORIE Subcommittee)  | 2023 – Present |
|---|---|----------------|
| Mechanical Engineering                            | Building Renovation Committee   | 2022 – Present |
|   | Faculty Search Committee  | 2021 – 2022    |
|   | Faculty Mentor, Career Gateway Electives (Industrial<br>Engineering and Management) | 2019 – Present |
|   | Member, Graduate Student Recruiting Committee                                       | 2016 – 2022    |
| Graduate Program in                               | Communications and Outreach Coordinator   | 2022 – Present |
| Operations Research and<br>Industrial Engineering | Graduate Student Recruiting Coordinator   | 2016 – 2022    |

### STUDENT AND POSTDOCTORAL SUPERVISIONS

# Ph.D. Supervisions Completed

| [10] Moglen, Rachel   | "Disaster Preparedness and Restoration<br>of Interconnected Infrastructure<br>Systems"                       | Resea<br>Ind              | Operations<br>Research and<br>Industrial<br>Engineering | The University of<br>Texas at Austin |
|---|--|---------------------------|---|--------------------------------------|
|   | Placement: Integrated Energy Systems<br>Modeler/Research Staff Level 3, Electric<br>Power Research Institute |                           | Lingineering  |                                      |
| [9] Zhang, Nan  | "Optimization Tools for Emerging<br>Challenges in Power Systems"   | Resea                     | Operations<br>Research and                              | The University of<br>Texas at Austin |
|   | Placement: Research Scientist, Amazon<br>Lab126  |                           | Industrial<br>Engineering                               |                                      |
| [8] Calci, Baturay<br><i>Co-supervisor</i> :<br>Jonathan Bard | "Natural Gas Market Applications of<br>Multi-Agent Optimization"   | Research ar<br>Industrial | Operations<br>Research and                              | The University of Texas at Austin    |
|   | Placement: Applied Scientist II, Uber  |                           | Industrial<br>Engineering                               |                                      |
| [7] Jones, Erick  | "Multi-System Optimization: Intermittent<br>Production, Flexible Demand, Emerging<br>Technologies"           | 8/2021                    | Operations<br>Research and<br>Industrial<br>Engineering | The University of<br>Texas at Austin |
|   | Placement: Assistant Professor (tenure track), UT Arlington  |                           |   |                                      |
| [6] Jayadev, Gopika<br><i>Co-supervisor:</i><br>Jonathan Bard | "Optimization Approaches for Energy<br>Infrastructure Network Design"  | 5/2021                    | Operations<br>Research and<br>Industrial<br>Engineering | The University of<br>Texas at Austin |
|   | Placement: Machine Learning Scientist,<br>Apple  |                           |   |                                      |
| [5] Zhu, Qianru   | "Operations Research Models of Climate<br>Change Mitigation and Adaptation at<br>Diverse Scales"             | 5/2021                    | Operations<br>Research and<br>Industrial                | The University of<br>Texas at Austin |
|   | Placement: Engineer/Scientist II, Electric Power Research Institute  |                           | Engineering   |                                      |

| [4] Naeini, Milad<br><i>Co-supervisor:</i><br>J. Eric Bickel              | "Uncertainty in Cost-Benefit Analysis of<br>Climate Policy: Climate-Economy Model<br>Evaluation and Extension"<br><i>Placement:</i> Data Scientist, Circle K | 5/2021  | Operations<br>Research and<br>Industrial<br>Engineering | The University of<br>Texas at Austin |
|---|--|---------|---|--------------------------------------|
| [3] Bandyopadhyay,<br>Arkasama<br><i>Co-supervisor:</i><br>Michael Webber | "Techno-Economic Methods for<br>Analyzing the Energetic and Economic<br>Effects of Solar, Storage, and Demand<br>Response"                                   | 8/2020  | Mechanical<br>Engineering                               | The University of Texas at Austin    |
|   | Placement: Research Assistant Professor,<br>Texas A&M University   |         |   |                                      |
| [2] Brozynski, Max  | "Operations Research Models of<br>Technology Transitions and the Role of<br>Policy Support"  | 5/2020  | Operations<br>Research and<br>Industrial                | The University of Texas at Austin    |
|   | <i>Placement:</i> Senior Consultant, Echelon<br>Analytics  |         | Engineering   |                                      |
| [1] Phathanapirom,<br>Urairisa "Birdy"<br><i>Co-supervisor:</i>           | "Autonomous Decision Making in Fuel<br>Cycle Simulators using a Game Theoretic<br>Approach"  | 12/2018 | Mechanical<br>Engineering                               | The University of<br>Texas at Austin |
| Derek Haas  | Placement: Postdoctoral Research<br>Associate, Oak Ridge National Laboratory   |         |   |                                      |

# **M.S. Supervisions Completed**

| [11] Pimentel,<br>Aidan                 | "Hydrogen Supply Chain Optimization for<br>Industrial Stationary Combustion<br>Decarbonization Under U.S. Federal   | 5/2024  | Operations<br>Research and<br>Industrial                | The University of<br>Texas at Austin |  |
|---|---|---------|---|--------------------------------------|--|
| <i>Co-supervisor</i> :<br>Eric Bickel   | Policy Incentives"  |         | Engineering   |                                      |  |
| [10] Lu, Le "Helen"                     | "Designing Electric Vehicle Charging<br>Infrastructure to Enable Disaster<br>Evacuation"  | 8/2022  | Operations<br>Research and<br>Industrial<br>Engineering | The University of<br>Texas at Austin |  |
| [9] Corcoran, J.<br>Sean                | "Perceptions of Risk in Increasingly<br>Capital-Intensive Electricity Grids:<br>Measuring the Impacts of Accurate Cost<br>of Capital Representation on Planning for<br>Future Energy Systems" | 5/2022  | Energy and Earth<br>Resources                           | The University of<br>Texas at Austin |  |
|   | Director's Award for Best Energy and<br>Earth Resources M.S. Theses   |         |   |                                      |  |
| [8] Morton, Ella                        | "Optimizing Hydrogen Production   | 12/2021 | Operations  | The University of                    |  |
| <i>Co-supervisor:</i><br>Shadi Goodarzi | Capacity and Day Ahead Market Bidding for a Wind Farm"  |         | Research and<br>Industrial<br>Engineering               | Texas at Austin                      |  |
| [7] Ramthun, Eli                        | "Winds of Change: Assessing Direct and  | 12/2021 | Energy and Earth  | The University of                    |  |
| <i>Co-supervisor:</i><br>David Adelman  | Indirect Effects of Variable Renewable<br>Energy Growth on the ERCOT Market"  |         | Resources   | Texas at Austin                      |  |

| [6] Kawai, Eiji                         | "The Role of Carbon Capture and<br>Utilization in Industrial Sector<br>Decarbonization: A Case Study of Japan" | 5/2021  | Energy and Earth<br>Resources                           | The University of<br>Texas at Austin |
|---|--|---------|---|--------------------------------------|
| [5] Bourque, Cade                       | "Production Through Simulation: Using  | 12/2020 | Mechanical  | The University of                    |
| <i>Co-supervisor:</i><br>Kevin Clarno   | Simulation Technologies to Create and<br>Evaluate Nuclear Fuel Fabrication Facility<br>Designs"                |         | Engineering   | Texas at Austin                      |
| [4] Speetles,<br>Brittany               | "Representative Day Selection in Capacity<br>Expansion Modeling"   | 5/2020  | Mechanical<br>Engineering                               | The University of<br>Texas at Austin |
| <i>Co-supervisor:</i><br>Michael Webber |  |         |   |                                      |
| [3] Lanham,<br>Christopher              | "Optimal Decarbonization Pathways for<br>Urban Residential Building Energy<br>Services"                        | 5/2018  | Energy and Earth<br>Resources                           | The University of<br>Texas at Austin |
|   | Director's Award for Best Energy and<br>Earth Resources M.S. Theses  |         |   |                                      |
| [2] Tutton, Peter                       | "Carbon Capture and Storage Network  | 5/2018  | Energy and Earth  | The University of                    |
| Co-supervisor:                          | Optimization Under Uncertainty"  |         | Resources   | Texas at Austin                      |
| Susan Hovorka                           | Director's Award for Best Energy and<br>Earth Resources M.S. Theses  |         |   |                                      |
| [1] Punjabi, Kunal*                     | "Effects of Platform Design on Solar PV<br>Prices in an Online Marketplace"                                    | 12/2017 | Operations<br>Research and<br>Industrial<br>Engineering | The University of<br>Texas at Austin |

\* This student completed an M.S. report rather than an M.S. thesis.

### Postdoctoral Supervisions Completed

| [1] Sambasivam, Balasubramanian | <i>Co-supervisors:</i><br>John Hasenbein | 11/2021 – 11/2023 | The University of<br>Texas at Austin |
|---------------------------------|--|-------------------|--------------------------------------|
|                                 | Kara Kockelman                           |                   |                                      |

#### Ph.D. Supervisions in Progress

#### A. Students admitted to candidacy and/or passed Ph.D. qualifying exam

[6] Albeladi, Abdullah – Operations Research and Industrial Engineering

[5] Colombe, Connor — Operations Research and Industrial Engineering

[4] Kumar, Yash – Operations Research and Industrial Engineering (co-supervisor: Raghu Bollapragada)

[3] Liu, Donghao — Operations Research and Industrial Engineering (co-supervisor: Jonathan Bard)

[2] Ma, Huidi — Operations Research and Industrial Engineering (co-supervisor: John Hasenbein)

[1] Maynor, Katrina — Operations Research and Industrial Engineering (co-supervisor: J. Eric Bickel)

### B. Post M.S. students preparing to take Ph.D. qualifying exam

[2] Blandford, Stephen – Operations Research and Industrial Engineering

[1] Hebel, Nina – Operations Research and Industrial Engineering

### **M.S. Supervisions in Progress**

### Ph.D. Committees Completed

Operations Research and Industrial Engineering - 10

- Ashutosh Shukla, 2024
- Brent Austgen, 2024
- Colin Small, 2023
- Ai Zhao, 2023
- Xiangyi Fan, 2023
- Joshua Woodruff, 2020
- Andrew Beck, 2020
- Jia Guo, 2020
- Zachary Smith, 2019
- Chris Hadlock, 2017

Mechanical Engineering — 9

- Nick Willems, 2022
- Anna Schleifer, 2021
- Neal Mann, 2020
- Samuel Johnson, 2019
- Sam Aminfard, 2018
- William Gurecky, 2018
- Kazunori Nagasawa, 2018
- Thomas Deetjen, 2018
- Scott Vitter, 2018

Electrical and Computer Engineering – 1

• Saadallah Kaasir, 2022

Public Policy — 1

• Cale Reeves, 2019

## M.S. Committees Completed

Energy and Earth Resources — 7

- Julia Skrovan, 2024
- Vianey Rueda, 2021
- Meiyan Chen, 2021
- Eli Ramthun, 2021
- Sergio Leon Marquez, 2020
- Mark Reid, 2019
- Dinuk Prathaj Haputhanthri, 2017

### Undergraduate Research Supervisions

- Undergraduate Honors Theses 2
  - Morgan Santoni-Colvin, 2021
  - Pranav Nair, 2020
- Undergraduate Research Assistantships (paid) -3
  - Leah Dubiel, 2022 2023
  - Benjamin Mendoza, 2021 2022
  - Elena Koung, 2020 (co-supervisor: Kevin Clarno)

ME 377K Projects — 1

• Anmol Mathur, 2019

ME Freshman Introduction to Research in Engineering (FIRE) Projects - 1

• Spring 2024

#### TEACHING

#### ORI 390Q.8 (formerly ORI 397): Systems Modeling (new course)

Many of the most pressing policy challenges of our time transcend traditional disciplinary boundaries and necessitate the use of systems models to analyze possible solutions. This course shows how methodological approaches from operations research and industrial engineering can be applied to construct such models. Particular emphasis is devoted to models that combine concepts from engineering, economics, natural sciences, and policy. The featured models showcase a broad range of methodological approaches, such as optimization, simulation, dynamic programming, decision analysis, stochastic processes, and dynamical systems. Example applications are drawn from fields including energy and climate change, health policy, transportation, and national security. More generally, the course trains students to build mathematical models that represent complex real-world problems.

• Taught in 2017, 18, 19, 20, 21, 22, 23

### ORI 390R.1: Applied Probability

Concepts of probability and mathematical statistics; application of these analytical methods to planning and evaluation of research and industrial experimentation. Basic probability theory, combinatorial analysis of random phenomena, conditional probability and independence, parametric families of distributions, expectation, distributions of functions of random variables, limit theorems.

• Taught in 2016, 18, 19, 20, 21, 22, 23

#### ORI 384 (formerly ORI 397): Emerging Trends in ORIE

This course introduces students to the full breadth of ORIE research areas by bringing in distinguished seminar speakers working at the forefront of various methodologies and application domains. These speakers include professors from other universities; researchers from national laboratories and research institutes; practitioners who use ORIE methods in the private sector; and occasionally, experts from the UT community. The course emphasizes information literacy, effective written communication of research concepts, critical analysis of academic research, direct engagement with ORIE researchers, and active preparation for thesis and dissertation research.

• Taught in 2018, 23

#### ME 353: Engineering Finance

Evaluating the financial impact of engineering decisions. Comparing alternatives with cash flow analysis considering rate of return, inflation, and taxes, with emphasis on analyzing risk. Managing complex projects with activity scheduling and resource allocation considering cash flows. Methods include probabilistic analysis and simulation.

• Taught in 2017, 19, 20, 22, 23

#### CONSULTING

Senior Advisor FTI Consulting 2022 – Present

#### VITA

**Dr. Benjamin D. Leibowicz** is an Associate Professor at The University of Texas at Austin, where he holds the endowed Banks McLaurin Fellowship in Engineering. His primary appointment is in the Operations Research and Industrial Engineering graduate program, which is administered through the Walker Department of Mechanical Engineering. Dr. Leibowicz also holds a courtesy appointment in the Lyndon B. Johnson School of Public Affairs and supervises student research in the Energy and Earth Resources graduate program.

Dr. Leibowicz develops mathematical models and methods to improve decision-making on energy and environmental policy and strategy issues. His primary research interests are energy systems, energy and climate policy analysis, integrated assessment modeling, technological change, and sustainable cities. He approaches these topics from an interdisciplinary perspective and develops modeling frameworks that combine methods from optimization, systems analysis, economic modeling, game theory, and stochastic control.

Dr. Leibowicz's research projects are funded by federal agencies, industrial corporations, private foundations, and national laboratories, among others. He has published in many of the leading journals in his research areas including *The Energy Journal, Energy Economics, Energy Policy, European Journal of Operational Research, Risk Analysis, IEEE Transactions on Smart Grid*, and *Research Policy*. In 2020, Dr. Leibowicz received the Outstanding Young Investigator Award from the Energy Systems Division of the Institute of Industrial and Systems Engineers (IISE). He was then named the Runner Up for the Early Career Best Paper Award given by the Energy, Natural Resources, and the Environment (ENRE) section of the Institute for Operations Research and the Management Sciences (INFORMS) in 2021.

Dr. Leibowicz is the current President-Elect of the INFORMS ENRE section and will begin a two-year term as President in 2024. He has served as an elected Board Member of the INFORMS ENRE section since 2020 and previously served as a Board Member of the IISE Energy Systems Division. Dr. Leibowicz also serves on the Editorial Board of *Energy Sources, Part B: Economics, Planning, and Policy*. From 2017 through 2020, Dr. Leibowicz served as a Cluster Chair or Co-Chair at four consecutive INFORMS Annual Meetings.

Prior to joining UT Austin, Dr. Leibowicz received both PhD and MS degrees in Management Science and Engineering from Stanford University, and earned a BA in Physics with a minor in Economics from Harvard University. While working toward his PhD, he was a research fellow in the Energy and Transitions to New Technologies programs at the International Institute for Applied Systems Analysis.

Citizenship: United States Birthplace: New York, NY, USA