Curriculum Vitae for Professor Michael E. Webber

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Professional Experience and Academic Positions:

- The University of Texas at Austin, 2006–present
  - *Sid Richardson Chair in Public Affairs*, LBJ School of Public Affairs, 2024–present
  - *John J. McKetta Centennial Energy Chair in Engineering*, Cockrell School of Engineering, 2023–present
  - *Engineering Co-Director*, Kay Bailey Hutchison Energy Center, 2023–present
  - *Josey Centennial Professor in Energy Resources*, 2016–2023
  - *Deputy Director*, Energy Institute, 2013–2018
  - *Co-Director*, Clean Energy Incubator, 2009–2018
  - *Professor*, Public Affairs, 2024–present
  - *Professor*, Mechanical Engineering, 2016–present
  - *Associate Professor*, Mechanical Engineering, 2012–2016
  - *Assistant Professor*, Mechanical Engineering, 2007–2012
  - *Assoc. Director*, Center for International Energy & Environmental Policy, 2006–2012
- *Chief Technology Officer*, Energy Impact Partners, New York, NY, USA, 2021–2024
- *Chief Science & Technology Officer,* ENGIE Group, Paris, France, 2018–2021
- *Associate Engineer*, RAND Corporation, Santa Monica, CA, USA 2004–2006
- *Senior Scientist*, Pranalytica, Inc., Santa Monica, CA, USA, 2000–2004
- *Graduate Research Assistant*, Mechanical Engineering, Stanford University, 1995–2000
- *Undergraduate Research Asst.*, Applied Research Laboratories, UT Austin, 1994 –1995
- *Undergraduate Research Asst.*, Nuclear Engineering Teaching Laboratory, UT Austin, 1994
- *Summer Undergraduate Research Fellow*, NASA Ames Research Center, 1992 & 1993

Education:

- Ph.D., Mechanical Engineering (Minor, Electrical Engineering), 2001, Stanford University (Advisor: Professor Ron K. Hanson, NAE)
- M.S., Mechanical Engineering, 1996, Stanford University
- B.S. with High Honors, Aerospace Engineering, 1995, The University of Texas at Austin
- B.A. with High Honors & Special Honors, Plan II Liberal Arts, 1995, The University of Texas at Austin

Biographical Summary

Professor Michael E. Webber is the *Sid Richardson Chair* in the LBJ School of Public Affairs and the *John J. McKetta Centennial Energy Chair* in the department of mechanical engineering at the University of Texas at Austin. In addition to his role as a faculty member, from August 2021 to September 2024, Webber served as CTO of Energy Impact Partners, a $5 billion venture fund focused on investments in cleantech and climate tech startups with the potential for deep decarbonization at speed and scale. Furthermore, from September 2018 to August 2021, Webber was based in Paris, France where he served as the Chief Science and Technology Officer at ENGIE, one of the world's largest energy companies.

Webber's works spans research and education at the convergence of engineering, policy, and commercialization on topics related to innovation, energy, and the environment. His group's research tackles complex energy systems analysis with a deep record of expertise on the following: 1) grid reliability in the face of electrification and the rise of variable sources in a warming world, 2) the hydrogen sector and how it couples to other sectors such as the grid, transportation, industry, and the built environment and 3) the food-energy-water-waste nexus. He serves on the board of GTI Energy (an industry consortium formerly known as the Gas Technology Institute) and the Scientific Advisory Council for ENGIE in Paris, France.

Webber has authored or co-authored more than 600 publications, including five full-length general interest books, and holds 6 patents. His essays have been published in the *The New York Times*, *The Wall Street Journal*, *Washington Post*, *Scientific American* and more. Webber's scholarly articles have appeared in top journals such as *Science*, *Nature* and *Environmental Science and Technology*.

His book Power Trip: the Story of Energy was published in 2019 by Basic Books with an award-winning 12-part companion series spread out over two seasons that aired on PBS, Amazon Prime, AppleTV, and in-flight entertainment on American Airlines. The series had more than 10,000 broadcasts in the United States and has been distributed in dozens of countries, ultimately reaching millions of viewers. Seasons 1 and 2 of Power Trip along with his documentary Thirst for Power and television special Energy at the Movies have been recognized with six Telly Awards (one gold, four silver, and one bronze) for excellence in television.

In 2024 Webber was selected for the *Energy Thought Leader: Higher Education* award by the American Energy Society and a three-year term as a *Fulbright Technical Specialist* by the U.S. State Department. He was selected in 2014 as a Fellow of ASME (the American Society of Mechanical Engineers), in 2018 as a member of the 4th class of the Presidential Leadership Scholars, which is a leadership training program organized by Presidents George W. Bush and William J. Clinton, and in 2022 for the Rockefeller Foundation's prestigious writer's residency in Bellagio, Italy. He was honored as an American Fellow of the German Marshall Fund and on four separate occasions by the University of Texas for exceptional teaching.

Webber holds a B.S. and B.A. from UT Austin, and M.S. and Ph.D. in mechanical engineering from Stanford University.

Peer-Reviewed Journal Articles

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151. E. Wieser, K. Clarno, D. Haas, and **M.E. Webber**, "The Economics of Small Modular Reactors at Coal Sites: A Program-level Analysis Within the State of Texas," *Energy Policy (In Review).*

150. J.D. Rhodes and **M.E. Webber**, "Beyond Heat Dome: What the 2023 heat wave in Texas teaches us about decarbonizing and expanding the grid in a warmer world," *Progress in Energy (In Review).*

149. A. Nasta, D. Wissmiller, C. Moore, E.G. Goita, E.A. Beagle, and **M.E. Webber**, "Estimating the Climate Impacts of Hydrogen Emissions in a Net-Zero U.S. Economy," *Progress in Energy (In Review).*

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141. Jan Mertens, Jo Dewulf, Christian Breyer, Ronnie Belmans, Corinne Gendron, Patrice Geoffron, Luc Goossens, Carolyn Fischer, Elodie Du Fornel, Katharine Hayhoe, Katsu Hirose, Elodie Le Cadre-Loret, Richard Lester, Fanny Maigné, Habibou Maitournam, Paulo Emilio Valadão de Miranda, Peter Verwee, Olivier Sala, **M.E. Webber**, Koenraad Debackere, "From emissions to resources: mitigating the critical raw material supply chain vulnerability of renewable energy technologies," *Mineral Economics*, 20 February 2024. https://doi.org/10.1007/s13563-024-00425-2

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Non-Refereed Conference Papers, Posters & Presentations

Webber has authored or co-authored dozens of non-refereed papers, posters or presentations for conferences. These papers are listed in reverse chronological order here.

78. C. Galdeano, M.A. Cook, and **M.E. Webber**, "Water availability assessment for hydraulic fracturing in Mexico. World Water Congress, Cancún, Quintana Roo, MX, May 29-June 2, 2017.

77. M.A. Cook, C. Galdeano, R.L. Teasley, S. Sandoval-Solis, and **M.E. Webber**, "A technoeconomic and policy analysis of integrated, cross-sectoral water management and conservation," EWRI Congress 2017, Sacramento, CA, USA, May 21-25, 2017.

76. C. Galdeano, M.A. Cook, **M.E. Webber**, "Multilayer data analysis of water availability for potential Hydraulic Fracturing sites in Mexico," EWRI Congress 2017, Sacramento, CA, USA, May 21-25, 2017.

75. M.A. Cook, Y.R. Glazer, J.J. Lee, F.T. Davidson, and **M.E. Webber**, "A policy and economic analysis of the environment for flowback and produced water treatment in Texas," EWRI Congress 2016, West Palm Beach, FL, USA, May 16-20, 2016.

74. C. Galdeano, S. Sandoval-Solis, M.A. Cook, R.L. Teasley, and **M.E. Webber**, "Water and Energy Nexus: Case Study of the Rio Grande/Bravo Basin," EWRI Congress 2016, West Palm Beach, FL, USA, May 16-20, 2016.

73. Y.R. Glazer, F.T. Davidson, J.J. Lee, M.A. Cook, and **M.E. Webber**, "Cleaning up: A Framework for Selecting the Proper Hydraulic Fracturing Wastewater Treatment Technologies," EWRI Congress 2016, West Palm Beach, FL, USA, May 16-20, 2016.

72. F.T. Davidson, Y.R. Glazer, M.A. Cook, J.J. Lee, and **M.E. Webber**, "A Technoeconomic Framework for Determining Whether to use Flare Gas to Treat Wastewater," EWRI Congress 2016, West Palm Beach, FL, USA, May 16-20, 2016.

71. M.A. Cook, C. Galdeano, R.L. Teasley, S. Sandoval-Solis, and **M.E. Webber**, "A technoeconomic and policy analysis of the water market in Texas," 2016 AWRA Spring Specialty Conference on Water, Energy, and the Environment, Anchorage, AK, USA, April 25-27, 2016.

70. C. Galdeano, S. Sandoval-Solis, M.A. Cook, R.L. Teasley, **M.E. Webber** "Water and Energy Nexus: Case Study of Potential Water Availability Effects of Mexico's Energy Reform in the Rio Grande/Bravo Basin," 2016 AWRA Spring Specialty Conference on Water, Energy, and the Environment, Anchorage, AK, USA, April 25-27, 2016.

69. C.M. James, T.F. Edgar, and **M.E. Webber**, "Reducing Flushing Waste in Municipal Water Systems: A Data-Driven Modeling and Optimization Study," 2015 AIChE Annual Meeting, November 12, 2015, Salt Lake City, UT.

68. M.A. Cook, Y.R. Glazer, and **M.E. Webber**, "A Techno-economic Analysis of Water Use and Recycling for Shale Production: Lessons Learned in Texas," The Third European Conference on Sustainability, Energy & the Environment, July 9–12, 2015, Brighton, England, UK. (2015).

67. Y.R. Glazer and **M.E. Webber**, "Using Flared Gas as the Energy Source for Treating Hydraulic Fracturing Wastewater," *ASME Power and Energy*, June 28–July 2, 2015 San Diego, CA, USA.

66. M.A. Cook, K. Jones, and **M.E. Webber**, "Quantifying the relationship between power plant efficiency and thermal pollution of a cooling pond: a case study in Texas," *ASME Power and Energy*, June 28–July 2, 2015 San Diego, CA, USA.

65. M.A. Cook, and **M.E. Webber**, "Mitigating the Impacts of Droughts and Heat Waves at Thermoelectric Power Plants in the United States," *ASME Power and Energy*, June 28–July 2, 2015 San Diego, CA, USA.

64. B. Ólafsson and **M.E. Webber**, "Technical Potential of Renewable Natural Gas (RNG) in the United States," *ASME Power and Energy*, June 28–July 2, 2015 San Diego, CA, USA.

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57. M.A. Cook and **M.E. Webber**, "An Analysis of Climate Effects on Cooling Water Temperature in Texas," 2014 ASME Power Conference, July 29–31, 2014, Baltimore, MD, USA.

56. M.A. Cook and **M.E. Webber**, "Water Pricing for Hydraulic Fracturing in Texas," ASME Energy Forum, March 17–19, 2014, San Diego, CA, USA.

55. A.S. Stillwell and **M.E. Webber**, "Feasibility of Using Reclaimed Water for Thermoelectric Power Plant Cooling," AIChE Annual Meeting, November 4, 2013.

54. D. Tuttle, R.L. Fares, **M.E. Webber** and R. Baldick, "Plug-In Vehicle to Home (V2H) Duration and Power Output Capability," 2013 IEEE Transportation Electrification Conference and Expo (ITEC 2013), Detroit, Michigan, June 16–19, 2013.

53. J.D. Rhodes, W.J. Cole, C.R. Upshaw, T.F. Edgar, and **M.E. Webber**, "Analysis Of Temporal Seasonal Residential Demand Profiles," *ASME 2013 International Mechanical Engineering Congress & Exposition*, November 13–21, 2013, San Diego, CA, USA.

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51. K.T. Sanders, C.W. King, A.S. Stillwell, and **M.E. Webber**, "Clean Energy and Water: Assessment of Mexico for Improved Water Services with Renewable Energy," *ASME 2012 International Mechanical Engineering Congress & Exposition*, November 9–15, 2012, Houston, TX, USA.

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43. M.E. Clayton and **M.E. Webber**, "Assessment of Embedded Water Needs at a Mixed-Use Facility in Palo Alto, California," *Proceedings of the ASME 6th International Conference on Energy Sustainability*, July 23–26, 2012, San Diego, CA, USA.

42. S.M. Cohen and **M.E. Webber**, "Unit Commitment Modeling to Explore Intermittency, Flexibility, and Storage in the ERCOT Electric Grid," *Proceedings of the ASME 6th International Conference on Energy Sustainability*, July 23–26, 2012, San Diego, CA, USA.

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6. "Energy Depletion Risks Task Force Report," City of Austin, May 15, 2009.

5. D.M. Wogan, A.K. da Silva, **M.E. Webber**, and E. Stautberg, "Algae: Pond Powered Biofuels," Clean TX Forum, Austin, TX, November 19, 2008.

4. C.W. King, I.J. Duncan and **M.E. Webber**, "Water Demand Projections for Power Generation in Texas," prepared for the Texas Water Development Board, August 31, 2008.

3. **M.E. Webber**, D.T. Allen, K. Ferland, C.W. King, G. McGaughey, S.J. Goldman and Y. Kimura, "A Clean Energy Plan for Texas," prepared for the Texas Commission on Environmental Quality, August 31, 2008.

2. C. Telenko, M. Nippert, C.C. Seepersad and **M.E. Webber**, "Symposium on Sustainable Design — Greening the Technology Industry," March 2008.

1. A.R. Broadfoot, A.D. Cuellar, M.J. O'Donnell, C.H. Smith, and **M.E. Webber**, "Next Generation Biofuels - Trends In Global Innovation and Finance: The Tools of Biotechnology Meet the World's Energy Challenge," October 2007.

Patents

6. Optimally Placing Photovoltaic Arrays To Maximize Value Of Energy Production Based On Peak Power Production, Local Solar Radiation, Weather, Electricity Market Prices And Rate Structures, #10,255,393 (2019) (J.D. Rhodes, C.R. Upshaw, and **M.E. Webber**)

5. Reducing Peak Electrical Demand By Air Conditioning Systems And Reducing Water Consumption By Implementing An Integrated Thermal Energy And Rainwater Storage System, #9,989,270 (2018) (C.R. Upshaw, J.D. Rhodes, and **M.E. Webber**)

4. System and Method for High Sensitivity Optical Detection of Gases, #7,502,115 (2009)

3. Method of Analyzing Components of Alveolar Breath, #7,473,229 (2009)

2. Amplifier-Enhanced Optical Analysis System and Method, #7,064,329 (2006)

1. Gas Sensor for Ammonia, Carbon Dioxide and Water, Patent #6,787,776 (2004)

Entrepreneurship Experience

Entrepreneurial Ventures

From August 2021 to September 2024, Webber was CTO of Energy Impact Partners, a cleantech venture fund based in New York, NY with $5 billion of assets under management dedicated for investments in the energy transition. In addition he is a founding partner or advisor of the following start-ups, which were founded by members of his research group at UT Austin or students in his classes:

- Founding Partner, IdeaSmiths LLC, Founded 2013 (clients such as BP, Dell, GE, 3M, etc.)
- Advisor, ResilientGrid, founded by former PhD student Michael Legatt, 2016–present
- Advisor, RePower Holdings, Founded by former student Chad Blevins in 2021 (acquired in 2023)
- Advisor and Investor, Low Carbon Beef and Beal Cattle Co., founded by former PhD student Colin Beal in 2016 (acquired in 2022)
- Co-Founder, DISCO Learning Media, Inc, Founded 2015 (acquired in 2018)
- Co-Founder, UVC UltraClean (equipment & services for COVID disinfection), Founded 2020, Disbanded 2021.

Teaching

Webber was part of the team that created and teaches a graduate course titled Energy Ventures together with the Energy Institute, McCombs School, MIT and Greentown Labs. That course includes 25–30 graduate students from the Law School, LBJ School of Public Affairs, and the schools of business, engineering and geosciences. During the semester, the students form multidisciplinary teams to launch a business and develop its core offering, marketing plan, go-to-market strategy, and financial models. Webber also co-created a course Entrepreneurship in 2015 and has taught it almost yearly through 2023. This multidisciplinary freshman signature course is offered in seminar style, with 18–30 students, and introduces students to the concepts of entrepreneurship while giving them the skills to create their own company. This course includes guest lectures from dozens of entrepreneurs and will give the students a chance to actually create a company. Assignments include creating a pitch deck for their company and analyzing whether an investor should participate in the buy-side of an IPO (Initial Public Offering).

Administrative

Webber served as co-director of UT Austin's Clean Energy Incubator (CEI) from 2009 through 2018. Founded in 2001, CEI is one of the longest-established energy and cleantech incubators in the United States. CEI is part of the Austin Technology Incubator, which is the startup incubator at UT Austin. A program of the University's IC^2 Institute, ATI has a 30-year track record of helping founding teams achieve success. ATI focuses on helping startups compete successfully in the capital markets to get funded. Both ATI and CEI have won national recognition for excellence in incubation in academic settings.

Advisory, Consulting and Industrial Collaborations

Corporate Advisory Positions and Professional Affiliations:

- Scientific Advisory Council, ENGIE, Paris, France (2021–present)
- Sustainability Council, Crescent Energy, Houston, TX, USA (2021–present)
- Board of Directors, GTI Energy (formerly known as Gas Technology Institute) (2019–present)
- Distinguished Associate, Energy Futures Initiative (founded by former Secretary of Energy Ernest Moniz) (2017–present)
- Founding Partner, IdeaSmiths LLC (an engineering consultancy), July 2013–present
- Board Observer, Goodnight Midstream (midstream water solutions company) (2019–2023)
- Member, Electric Utility Commission, Austin Energy, City of Austin (2008–2013)
- Member, AT&T Sustainability Advisory Council (2009–2012)

Webber has conducted independent consulting projects for the following entities:

- UNESCO, United Nations, Colombella, Perugia, Italy
- International Research and Development Centre, Ottawa, Canada
- Power Across Texas, Austin, Texas
- Organization for Economic Cooperation and Development (OECD), Paris, France
- Northwest Hydrogen Alliance, Seattle, Washington
- ExxonMobil Corporate Strategic Research, Clinton, NJ
- Tikkun Investing, Chattanooga, TN
- Ferrazzi Greenlight, Los Angeles, CA

In addition, Webber has taught short-courses for the following companies and organizations through executive education programs at the University of Texas at Austin or in-house:

- GE Vernova, USA and France
- Bank of Montréal, Canada
- ExxonMobil, USA
- Petrobras, Brazil
- CNOOC, China
- Sinopec, China
- Tailwater Capital, USA

Service to the Profession

Professional, Industrial and Governmental Committee Participation:

- National Academy Committees
  - Member, Roundtable on Science and Technology for Sustainability, The National Academies (2012–2018)
  - Member, Committee on Transitions to Alternative Vehicles and Fuels, National Research Council, National Academies of Sciences & Engineering (2011–2012)
- Editorial Positions
  - Editorial Board, *Progress in Energy*, Institute of Physics (2018–present)
  - Editorial Board, *Environmental Research Letters*, Institute of Physics (2008–2020)
  - Editor in Chief, *Current Sustainable/Renewable Energy Reports*, Springer (2013–2018)
  - Board of Advisers, *Scientific American* (2009–2018)
  - Contributing Editor, *Earth Magazine* (2007–2018)
- Non-Profit Board Positions and Other Committees
  - Member, Independent Expert Panel, Open Hydrogen Initiative (2023–present).
  - Member, Technical Review Panel, Energy Systems Integration Division, National Renewable Energy Lab (2021–present)
  - Board Member, Sustainable America (2013–present)
  - Board Member, Pecan Street Inc. (2018–2022)
  - Board Member, Engineering One Planet (2020–2022)
  - Board Member, Houston Advanced Research Center (HARC) (2013–2018)
  - Board of Advisors, Fuel Freedom Foundation (2014–2018)
  - Judge, Platt's Energy Industry Awards (2010–2011, 2013)
  - Vice-Chair, Energy-Water Nexus Interdisciplinary Council, American Society of Mechanical Engineers (ASME) (2010–2013)
  - Founding Board Member, CleanTX Foundation, Austin, Texas (2008–2012)
  - Scientific Advisory Committee, Energy & Water in a Warming World, Union of Concerned Scientists (2011–2013)
  - Steering Committee Member, Power Across Texas, a 501(c)3 non-profit (2007–2012)
  - Executive Committee, Clean Energy Venture Summit (2008–2011), Austin, Texas
  - Member of the Renewable & Sustainable Energy Team with the Texas Workforce Commission as a part of Gov. Perry's Industry Cluster Initiative (2006–2007)
  - Board Member, Hope Street Group, a national 501(c)3 non-profit (2004–2006)

Honors, Awards, and Fellowships

Individual Awards and Recognition

29. Sid Richardson Chair in Public Affairs, UT Austin (2024–present)
28. John J. McKetta Centennial Energy Chair in Engineering, UT Austin (2023–present)
27. Fulbright Technical Specialist, U.S. State Department, Bureau of Educational and Cultural Affairs and World Leaning (December 2024–December 2027)
    - Zurich University of Applied Sciences, Winterthur, Switzerland (Summer 2025)
26. Energy Thought Leader: Higher Education, 2024 American Energy Society Energy Awards (2024). [Link]
25. Gold Telly Award, Television — Education & Discovery, *Power Trip: The Story of Energy (Season 2)* (2024) [Link]
24. Silver Telly Award, Television — Documentary, *Power Trip: The Story of Energy (Season 2)* (2024) [Link]
23. Silver Telly Award, Television — Science & Technology, *Power Trip: The Story of Energy (Season 2)* "Space" Episode (2024) [Link]
22. Selected for the Rockefeller Foundation's Writer's Residency Program, Bellagio, Italy (2022) [Link]
21. Silver Telly Award, Series — Television, *Power Trip: The Story of Energy (Season 1)* (2021) [Link]
20. Silver Telly Award, General — Non-Broadcast, *Thirst for Power* (2021) [Link]
19. Selected as a member of the 4$^{\text{th}}$ class of the Presidential Leadership Scholars, which is a leadership training program organized by Presidents George W. Bush and William J. Clinton (2018) [Link]
18. Honorary Mechanical Engineer Award, Mechanical Engineering Academy of Distinguished Alumni, UT Austin (2018)
17. Hamilton Book Award, Runner Up, for Thirst for Power: Energy, Water and Human Survival (2017)
16. Josey Centennial Professor in Energy Resources, UT Austin (2016–2023)
15. Josey Centennial Fellowship in Energy Resources, UT Austin (2012–2016)
14. Frank Kreith Energy Award, American Society of Mechanical Engineers (2015)
13. Fellow of ASME (American Society of Mechanical Engineers) (2014)
12. Bronze Telly Award, TV Programs, Segments, or Promotional Pieces — Education, for PBS television special *Energy at the Movies* (2014)

11. "Best of Austin" (*Best Way to Plug In Without Frying Your Brain*), *Austin Chronicle* (2014)
10. Harrington Fellowship, UT Austin (2014).
9. Inaugural recipient of the *John S. Butler Distinguished Alumni Award*, Austin Technology Incubator, UT Austin (2014).
8. Senior Fellow, Energy and Climate Partnership of the Americas, Science & Technology Adviser's Office, US State Department (2011–2013) (1 of 5 people selected nationally)
7. Environmental Forum Scholar, Aspen Institute (2010)
6. APEX Award for Publication Excellence in the Green Writing category (2010)
5. Finalist, White House Fellowship (2009)
4. AT&T Industrial Ecology Fellow (2009)
3. Marshall Memorial Fellow, German Marshall Fund (2007)
2. Outstanding Young Engineering Graduate, UT-Austin (2005)
1. National Science Foundation Graduate Research Fellowship (1995–1998)

Teaching Awards

6. Member, Academy of Distinguished Teachers, The University of Texas System (2014–present)
5. Provost Teaching "Senior" Fellow, The University of Texas at Austin (2015–2016)
4. Signature Course Essential Elements Award for Excellence in Teaching Interdisciplinary Approaches, School of Undergraduate Studies, UT Austin (2014).
3. Regents' Outstanding Teaching Award, UT System (2011–2012)
2. Cockrell School of Engineering Award, Outstanding Teaching by an Asst. Prof. (2011–2012)
1. Dad's Association Centennial Teaching Fellowship, UT Austin (2010–2011)

Paper Awards and Recognition

6. Exceptional Plan II Thesis Award (for Will Gorman's undergraduate thesis at UT Austin) (2014).
5. American Water Works Association's (AWWA's) Second Place Academic Achievement Award for the best Master's Thesis (for supervising Ashlynn Stillwell's EWRE thesis) (2011)
4. Honorable Mention, *Transformative Research Along Multi-Disciplinary Boundaries* poster session, ASME 2011 International Mechanical Engineering Congress & Exposition (2011) (Garrison & Webber, "A Dynamic Model of an Energy Storage Scheme for Solar & Wind")
3. Best Student Paper Award, ASME 4th International Conference on Energy Sustainability (2010) (Twomey & Webber, "The Cost of Food in a Carbon Constrained Economy")

2. Best Student Paper Award, ASME 2nd International Conference on Energy Sustainability (2008) (Smith, *et al.*, "Conversion of Wet Ethanol to Syngas and Hydrogen")

1. Outstanding Paper Award for the best paper of the year (measurement science category) in *Measurement Science & Technology* (2005) (Webber, *et al.*, "Agricultural ammonia sensor using diode lasers and photoacoustic spectroscopy")

Government Testimony and Briefings

Testimony by Dr. Webber for U.S. Congress

5. "The Energy Water Nexus: Drier Watts and Cheaper Drops," **M.E. Webber**, U.S. House of Representatives Committee on Science, Space and Technology (Energy Sub-committee), March 7, 2019.

4. "How Climate Change Affects Texas," **M.E. Webber**, U.S. House of Representatives Committee on Science, Space, and Technology, Field Hearing, Dallas, TX, March 31, 2014.

3. "Effect of Drought on the Energy Sector," **M.E. Webber**, Senate Energy & Natural Resources Committee Hearing, U.S. Congress, April 25, 2013.

2. "Trends and Policy Issues For The Nexus of Energy and Water," **M.E. Webber**, Senate Energy & Natural Resources Committee Hearing, U.S. Congress, March 31, 2011.

1. "Trends and Policy Issues For The Nexus of Energy and Water," **M.E. Webber**, Senate Energy & Natural Resources Committee Hearing, U.S. Congress, March 10, 2009.

Briefings by Dr. Webber for U.S. Congress and Federal Agencies

15. "Hydrogen101," **M.E. Webber**, U.S. Department of State, June 3, 2021.

14. "Global Energy Trends and Transition," **M.E. Webber**, U.S. Department of State executive short course, September 17, 2018.

13. "Introduction to Renewable Energy," **M.E. Webber**, U.S. Department of State executive short course, September 11, 2017.

12. "The Full Cost of Electricity," **M.E. Webber** and C.W. King, Senator Cornyn's field office with other members of the Texas delegation, Austin, TX, May 12, 2017.

11. "Thirst for Power: Energy, Water and Human Survival," **M.E. Webber**, Aspen Institute Congressional Breakfast Briefing, Washington, DC, April 28, 2016.

10. "Global Energy Trends," **M.E. Webber**, U.S. Department of State Foreign Correspondents Visit, Austin, TX, April 7, 2014.

9. "Challenges and Opportunities at the Energy-Water Nexus," **M.E. Webber**,U.S. Department of Energy, Office of Fossil Energy, Washington, DC, December 12, 2013.

8. "Challenges and Opportunities at the Energy-Water Nexus," **M.E. Webber**, U.S. Department of Energy, Office of Energy Policy and Systems Analysis, Washington, DC, November 8, 2013.

7. "An Energy-Water Nexus Research Agenda," **M.E. Webber**, Opening Remarks for a Workshop on Developing a Research Agenda for the Energy Water Nexus, National Science Foundation, Arlington, VA, June 10, 2013.

6. "Energy Water Nexus," U.S. Department of Energy, Washington, DC, Office of Policy and International Affairs, November 13, 2012.

5. "From Chemistry to Energy," **M.E. Webber**, American Chemistry Council Briefing for Congress, Washington, DC, June 28, 2012.

4. "The Nexus of Energy and Water," Congressional Briefing, House Science and Technology Committee, Washington, DC, December 16, 2009.

3. "The Nexus of Energy and Water," **M.E. Webber**, ACS Briefings for Congress (House Science and Technology Committee), Washington, DC, December 8, 2009.

2. "Trends and Policy Issues For The Nexus of Energy and Water," **M.E. Webber**, Senate Energy & Natural Resources Committee staffer briefing, U.S. Congress, March 6, 2009.

1. "Energy & National Security," **M.E. Webber**, Asst. to the Secretary of Defense, June 2006.

Testimony by Dr. Webber for Texas Legislature

9. "One Year Later: Winter Storm Uri," **M.E. Webber**, Committee Hearing, Texas House of Representatives, February 15, 2022.

8. "Integrating Renewables for Brackish Groundwater Desalination," **M.E. Webber**, Committee on Agriculture, Water & Rural Affairs, Texas Senate, April 13, 2015.

7. "The Role of Massive Open Online Courses (MOOCs) In Higher Education," **M.E. Webber**, Committee on Higher Education, Texas House of Representatives, September 9, 2014.

6. "Some Thoughts On Texas' Economic Impacts From Drought and Economic Opportunities In A Carbon-Constrained World," **M.E. Webber**, Committee on International Trade and Intergovernmental Affairs, Texas House of Representatives, April 22, 2013.

5. "Drought Impacts on Electricity Generation in Texas: Challenges and Opportunities," **M.E. Webber**, Senate Business & Commerce Committee Hearing, Texas Senate, January 10, 2012.

4. "The Good News and Bad News about Electric Vehicles in Texas," **M.E. Webber**, Business and Commerce Committee, Texas Senate, August 24, 2010

3. "The Impacts of Carbon Legislation on Texas," **M.E. Webber**, Carbon Summit (A Joint Hearing of the Public Utilities Commission, Railroad Commission, and Commission on Environmental Quality), Texas State Capitol, September 22, 2009.

2. "High Performance Buildings," **M.E. Webber**, Senate Committee on Government Organization, Texas Legislature, Austin, TX, April 24, 2008.

1. "The Nexus of Energy and Water in Texas," **M.E. Webber**, Joint Interim Hearing Senate Committee on Business and Commerce and Senate Committee on Natural Resources, Texas Legislature, April 15, 2008.

Testimony by Dr. Webber's Staff and Students for State and Local Government

5. "Some Comments on Using Renewable Power to Desalinate Brackish Groundwater on State Lands," F.T. Davidson, Committee on Agriculture, Water & Rural Affairs, Texas Senate, April 24, 2017.

4. "The Energy-Water Nexus in Texas," Dr. Carey King, House Natural Resources Committee Hearing, Texas Legislature, June 28, 2012.

3. "The Energy-Water Nexus," Ashlynn Stillwell, Senate Natural Resources Committee Hearing, Texas Legislature, September 30, 2008.

2. "Water and Nuclear Power," Ashlynn (Holman) Stillwell, Brazos River Authority Public Meeting, June 4, 2008.

1. "An Assessment and Comparison of Installed Solar and Wind Capacity in Texas: A Regional Case Study," Erin Keys, Senate Committee on Government Organization, Texas Legislature, Austin, TX, April 24, 2008.

Briefings by Dr. Webber for State and Local Government

10. "Water Policy in Texas," Texas Senate Committee on Agriculture, Water & Rural Affairs, Austin, TX, September 10, 2018.

9. "Thirst for Power: Energy, Water and Human Survival," **M.E. Webber**, Texas Legislative Briefing, Austin, TX, August 16, 2016.

8. "Energy Water Nexus," **M.E. Webber**, Texas House and Senate Energy Caucus Briefing, August 28, 2014.

7. "Renewables and Brackish Groundwater Desalination in Texas," Texas Water Development Board Roundtable, Austin, TX, February 28, 2013.

6. "The Energy Water Nexus in Texas," Texas Water Day at the Capitol, Texas Legislature, Austin, TX, April 27, 2011.

5. "The Energy-Water Nexus," Metropolitan Planning Council, Chicago, IL, August, 3, 2010

4. "The Nexus of Energy & Water," **M.E. Webber**, LCRA Board of Directors, Austin, TX, February 16, 2010.

3. "The Nexus of Energy & Water," **M.E. Webber**, Hearing of the Great Lakes Commission, Erie, PA, September 30, 2009.

2. "Energy Tradeoffs for Texas," **M.E. Webber**, Texas Legislative Energy Staffers, Fall 2008

1. "Energy Policy," **M.E. Webber**, Texas Legislative Energy Staffers, Spring 2008

Teaching

Webber has created 1 new online course and 8 new in-person courses for a range of technical and non-technical students from freshmen to Ph.D. candidates. These are in addition to teaching duties for core engineering classes (described below).

Online Courses
Webber's MOOC (Massive Online Open Course) titled "Energy 101" was launched in Fall 2013 to an enrolled student body of more than 44,000 students globally. The class was issued over 10 weeks, with three modules released each week. Each module was comprised of 1) a filmed lecture that was given before a live audience and subsequently edited with animations and custom graphics, 2) interactive web-based exercises, and 3) quizzes. Approximately 13% of the students completed the course.

Electives Taught at UT Austin

1. Energy Technology & Policy: a graduate level multidisciplinary, survey course for 66–113 students (about 1–2 dozen slots are set aside for undergraduate engineers) that covers a wide range of technical, economic, policy, and cultural perspectives of energy. Topics include energy production (by fuel and technology), energy use (by sector and application), and the intersection of energy with water, food, waste, the environment, the economy, domestic policy, and international affairs. Each student is required to write a research paper and create a multimedia video. Videos from this course were featured in the "Educational Technology" section of *ITunes* and a few select papers from this course have since been published.

2. Energy Ventures: a graduate level multidisciplinary course for 25–40 students focused on energy entrepreneurship taught with Texas Venture Labs in the McCombs School of Business. Topics include ideation, team formation, business fundamentals, marketing, go-to-market, business development, customer discovery, intellectual property, and fundraising. Includes graduate students from business, engineering, law, policy, and geosciences.

3. Entrepreneurship: a multidisciplinary freshman signature course in seminar style, with 15–30 students that introduces students to the concepts of entrepreneurship while giving them the skills to create their own company. This course includes guest lectures from dozens of entrepreneurs and will give the students a chance to actually create a company. Assignments include creating a pitch deck for their company and writing a case study of an entrepreneur whom they will interview.

4. Water and Society: a discussion-oriented Tutorial Course in seminar-format for 15 upper-division Plan II Honors students and others admitted by permission. Topics focus on critically examining the role of water in society, including religion, popular culture, war, foreign policy, the economy and local government. Students each write a long individual research paper.

5. Introduction to Energy and Society: a multidisciplinary freshman signature course in large-format lecture style with 50 students and weekly discussion sections led by TAs. Topics cover a survey of energy, including the basics of energy (such as thermodynamics), energy production (by fuel and technology), energy use (by sector and application), and cross-cutting elements the intersection of energy with water, food, waste, the environment, the economy,

domestic policy, and international affairs. Each student is required to write a research paper and create a multimedia video.

6. Energy & Infrastructure Systems Field Laboratory: a multidisciplinary freshman signature course in seminar style, with 15–18 students that introduces non-engineers and engineers to the world of energy and infrastructure from a hands-on and engineering perspective. Rather than relying exclusively on lectures, this class conducts a weekly field lab that includes site visits to relevant energy and infrastructure sites such as: water and wastewater treatment plants; power plants (natural gas and coal); dam; solar panel manufacturing factory; coal mine; steel mill; nuclear reactor; UT algae library and experimental growth ponds; cement quarry and rotary kiln; semiconductor fab; wind turbine factory; large-scale data center; and recycling facility. Because of the small-format, the class is very discussion-oriented and interactive. Assignments include written field reports and presentations, field trip videos, blogging, group composition (for a class handbook), and an exam.

7. Energy at the Movies: a discussion-oriented Tutorial Course in seminar-format for 15 upper-division Plan II Honors students. Topics focus on critically examining how energy is portrayed in popular culture, and students were each assigned a long individual research paper.

8. The Engineered World: Energy: a multidisciplinary freshman signature course in seminar style, with 15–18 students in an interactive, discussion-oriented format that includes project-oriented assignments, individual research papers and regular blogging. Topics cover the basics of energy production, use and impacts.

9. Energy, Environment and Society: a multidisciplinary freshman signature course in large-format lecture style with 70–100 students and weekly discussion sections led by TAs. Topics cover the basics of energy production, use and impacts, and assignments include writing research papers and op-eds.

10. How Things Work: a multidisciplinary freshman signature course in large-format lecture style with 102 students and weekly discussion sections led by TAs. This course is intended to serve as an introduction to mechanical engineering principles and concepts while also revealing how engineering fits into a modern, globalized society. The course covers five main sections: 1) The language of engineering: *how things are described*; 2) Machines: *how things work*; 3) Manufacturing: *how things are made*; 4) Energy: *how things are powered*; and 5) Transportation: *how things move*. Lectures include an introduction to quantitative concepts in engineering, along with societal aspects such as culture, economics, and policy. The class includes a semester-long project to build a catapult-based water balloon launcher.

Core Engineering Courses Taught at UT Austin

In addition to the new courses Webber developed, he has also taught core engineering classes: undergraduate thermodynamics for sophomore engineers and thermal fluids systems for juniors. These are described below:

1. Thermodynamics: An introduction to the fundamentals of thermodynamics with an emphasis on engineering applications for sophomore mechanical engineering students. Typical class size is 75–90 students, though it is sometimes offered in double-section up to 160 students. Topics include properties, first law, second law, and cycles.

2. Applied Thermodynamics: An introduction to the fundamentals of thermodynamics with an emphasis on engineering applications for freshman or sophomore non-mechanical engineering students. Typical class size is 100–130 students. Topics include properties, first law, second law, and cycles, with an emphasis on HVAC systems, power cycles, and aerospace cycles.

3. Thermal Fluids Systems: This course integrates thermodynamics, fluid mechanics and heat transfer with an emphasis on engineering applications for junior mechanical engineering students. It is a project-based course. Typical class size is 30–40 students.

Course Summary and Evaluations

Course Title	*Enrollment*	*Course Listing*	*Semester*	*Overall Course Rating*	*Overall Instructor Rating*
Energy Ventures	23	E S 397, EER, LAW, MAN, PA	S24	4.4	4.5
Applied Thermodynamics	118	ME 310 T	S22	4.1	4.4
Applied Thermodynamics	130	ME 310 T	S23	3.6	3.7
Applied Thermodynamics	114	ME 310 T	S24	3.9	4.0
Thermodynamics	92	ME 326	F07	4.0	4.0
Thermodynamics	97	ME 326	F08	4.2	4.3
Thermodynamics	81	ME 326	F09	4.0	4.2
Thermodynamics (double section)	155	ME 326	F10	3.9	4.0
Thermodynamics	76	ME 326	F15	4.2	4.2
Thermal Fluid Systems	33	ME 343	S12	3.9	4.2
The Engineered World—Energy	16	FS 301	F07	4.1	4.6
The Engineered World—Energy	17	UGS 302	F08	4.0	4.6
The Engineered World—Energy	15	UGS 302	F09	4.4	4.7
The Engineered World—Energy	18	UGS 302	F10	4.5	4.8
Energy & Infrastructure Systems Field Laboratory	19	UGS 302	S13	4.5	4.7
Energy, Environment & Society	76	UGS 303	S09	3.9	4.2
Energy, Environment & Society	91	UGS 303	S10	3.9	4.3
Entrepreneurship	19	UGS 302	S15	3.9	3.9
Entrepreneurship	18	UGS 302	S16	4.3	4.5
Entrepreneurship	22	UGS 303	F17	4.1	4.1
Entrepreneurship	22	UGS 303	F18	4.9	4.9
Entrepreneurship	27	UGS 303	S21	4.3	4.7
Entrepreneurship	30	UGS 303	F21	4.1	4.4
Entrepreneurship	29	UGS 303	S23	3.9	4.6
How Things Work	102	UGS 303	F13	3.8	4.4
Energy Technology & Policy	66	ME 397, CHE, EER, PA, MAN	S08	4.4	4.6
Energy Technology & Policy	85	ME 397, CHE, EER, PA, MAN	S09	4.6	4.7
Energy Technology & Policy	113	ME 397, CHE, EER, PA, MAN	S10	4.2	4.4
Energy Technology & Policy	86	ME 397, CHE, EER, PA, MAN	S12	4.4	4.6
Energy Technology & Policy	90	ME 382Q, CHE, EER, PA, MAN	S13	4.6	4.8
Energy Technology & Policy	85	ME 382Q, CHE, EER, PA, MAN	S15	4.6	4.8
Energy Technology & Policy	77	ME 382Q, CHE, EER, PA, MAN	S16	4.7	4.6
Energy Technology & Policy	64	ME 382Q, CHE, EER, PA, MAN	S17	4.8	4.9
Energy Technology & Policy	85	ME 382Q, CHE, EER, PA, MAN	S23	4.7	4.8
Energy at the Movies	12	TC 357	S10	4.6	4.7
Energy at the Movies	15	TC 357	S11	4.2	4.5
Energy at the Movies	16	TC 358	F23	4.9	5.0
Water & Society	14	TC 357	S12	4.6	4.7
	>2000	**Total Enrollment**	**Average**	4.2	4.5

Student and Post-Doctoral Supervision

Webber has advised or co-advised dozens of undergraduate and graduate students.

Ph.D. Supervisions Completed:

PhD students under Dr. Webber's supervision or co-supervision have found jobs in academia, national laboratories, government, NGOs and industry.

33. Dr. Matthew Skiles, Mechanical Engineering, May 2024
    - "Assessing the Potential for Building Sector Retrofits to Improve Power Grid Reliability During Extreme Weather in Texas"
    - ERCOT, Austin, TX
32. Dr. Nick Laws, Mechanical Engineering, November 2023
    - Co-Advisor: Maggie Chen
    - "A Bilevel Methodology to Optimize the Value of Distributed Energy Resources in Power Systems"
    - Camus Energy, Boulder, CO
31. Dr. Anna Schleifer, Mechanical Engineering, November 2021
    - "A Method for Investigating the Value Evolution of Utility-Scale PV-plus-Battery Hybrid Systems"
    - Argonne National Laboratory, Chicago, IL
30. Dr. Philip White, Mechanical Engineering, August 2021
    - "A Method to Model the System-Wide Impacts of Residential Heating Electrification Under Various Future Load Scenarios in Texas"
    - National Renewable Energy Laboratory, Golden, CO
29. Dr. Neal Mann, Mechanical Engineering, November 2020
    - Co-Advisor: Sheldon Landsberger
    - "Technoeconomic Modeling of Nuclear Hybrid Energy Systems with Heat Storage"
    - Argonne National Laboratory, Chicago, IL
28. Dr. Arkasama Bandyopadhyay, Mechanical Engineering, August 2020
    - Co-Advisor; Ben Leibowicz
    - "Techno-Economic Methods for Analyzing the Energetic and Economic Effects of Solar, Storage, and Demand Response"
    - Texas A&M University, College Station, TX
27. Dr. Sam Johnson, Mechanical Engineering, September 2019

- "A Method for Evaluating Grid Stability with High Penetrations of Renewable Energy and Energy Storage"
- GreenStruxure, Houston, TX

26. Dr. Catherine Birney, Civil, Architectural and Environmental Engineering, August 2019
    - "A Framework for Evaluating Energy Embedded in the United States' Food System Including Trade-Offs Between Refrigeration and Food Waste"
    - The Environmental Protection Agency, Cincinnati, OH
25. Dr. Bruk Berhanu, Civil, Architectural and Environmental Engineering, August 2019
    - "Investigating the Role of Decentralized Water Systems as Strategies for Urban Water and Wastewater Management"
    - Pacific Institute, Oakland, CA
24. Dr. Isabella Gee, Civil, Architectural and Environmental Engineering, May 2019
    - "Deliver Me from Waste: Impacts of E-Commerce on Food Supply Chain Energy Use"
    - Alfred P. Sloan Foundation, New York, NY
23. Dr. Sam Aminfard, Mechanical Engineering, Dec 2018
    - "Methods for Evaluating the Potential to Power Industrial Processes with Geospatially and Temporally Varying Renewable Energy Resources"
    - ExxonMobil, Spring, TX
22. Dr. Margaret A. Cook, Civil, Architectural and Environmental Engineering, Aug 2018
    - "A techno-economic and policy analysis of integrated, cross-sectoral water management and conservation"
    - Houston Advanced Research Center, Spring, TX
21. Dr. Kazunori Nagasawa, Mechanical Engineering, Aug 2018
    - "Optimizing Integrated Renewable and Gaseous Systems for Grid and Residential Applications"
    - National Renewable Energy Laboratory, Golden, CO
20. Dr. Yael R. Glazer, Civil, Architectural and Environmental Engineering, Aug 2018
    - "A Techno-Economic Framework for Mitigating Environmental Liabilities from Unconventional Oil and Gas Operations in the United States"
    - UT Austin, Austin, TX
19. Dr. Andrew S. Reimers, Mechanical Engineering, May 2018
    - "Interactions between Power Generation and Desalination Systems"
    - Lancium, Austin, TX

18. Dr. Carlos Galdeano, Civil, Architectural and Environmental Engineering, May 2018
    - "Energy and Water Nexus: Water management framework for the development of shale resources in Mexico"
    - ExxonMobil, Spring, TX
17. Dr. J. Scott Vitter, Mechanical Engineering, May 2018
    - "Opportunities for Urban Water Systems to Deliver Demand-Side Benefits to the Electric Grid"
    - Bain, Chicago, IL
16. Dr. Thomas A. Deetjen, Mechanical Engineering, May 2018
    - "The benefits and challenges of renewables on the electric grid and opportunities for systems integration and demand side management"
    - RWE Americas, Austin, TX
15. Corey James, Chemical Engineering, May 2017
    - Co-Adivsor: Tom Edgar
    - "Reducing the Cost of Operational Water on Military Bases Through Modeling, Optimization, and Control"
    - U.S. Military Academy, West Point, NY
14. Bonnie Roberts, Mechanical Engineering, May 2017
    - Co-Advisor: DK Ezekoye
    - "Fire Safety in Sustainable Buildings: Status, Options, Alternatives"
    - Colorado State University, Ft. Collins, CO
13. Michael E. Legatt, Electrical and Computer Engineering, December 2016
    - Co-Advisor: Ross Baldick
    - "An Experimental and Analytical Method for Assessing the Integration of Electric Vehicles into the Bulk Power System"
    - Resilient Grid, Austin, TX
12. Charles R. Upshaw, Mechanical Engineering, May 2016
    - "Peak Load Reduction and Water Savings Potential of Integrated Thermal Energy and Auxiliary Water Storage Systems for Residential Buildings in Austin, Texas"
    - IdeaSmiths LLC, Austin, TX
11. Robert L. Fares, Mechanical Engineering, August 2015
    - "A Framework to Model and Optimize the Operation of Lithium-Ion Energy Storage in Electricity Markets, and an Assessment of Lithium-Ion Energy Storage in Texas"

- Federal Energy Regulatory Commission, Washington, DC

10. Jared B. Garrison, Mechanical Engineering, December 2014
    - "A Grid-Level Unit Commitment Assessment of High Wind Penetration and Utilization of Compressed Air Energy Storage in ERCOT"
    - Research Center for Energy Networks (FEN), ETH Zurich, Switzerland
9. Joshua D. Rhodes, Civil, Architectural and Environmental Engineering, April 2014
    - "Impacts of Big Data on Optimal Residential Energy Consumption Prediction and Analysis"
    - UT Austin, Austin, TX
8. Kelly Twomey Sanders, Civil, Architectural and Environmental Engineering, October 2013
    - "Analytical methods and strategies for using the energy-water nexus to achieve cross-cutting efficiency gains"
    - University of Southern California, Los Angeles, CA
7. Chioke B. Harris, Mechanical Engineering, October 2013
    - "An Assessment of the System Costs and Operational Benefits of Vehicle-to-Grid Schemes"
    - National Renewable Energy Laboratory, Golden, CO
6. Ashlynn S. Stillwell, Civil, Architectural and Environmental Engineering, April 2013
    - "Water Impacts on Thermoelectric Generation"
    - University of Illinois Urbana-Champaign, Urbana-Champaign, IL
5. Aaron K. Townsend, Mechanical Engineering, January 2013
    - "A Grid-Level Assessment of Compressed Air Energy Storage in ERCOT"
    - NextEra, Austin, TX
4. Stuart M. Cohen, Mechanical Engineering, August 2012
    - Co-Advisor: Gary Rochelle
    - "A Techno-economic Plant- and Grid-Level Assessment of Flexible CO_2 Capture"
    - National Renewable Energy Laboratory, Golden, CO
3. Nathan Putnam, Mechanical Engineering, August 2012
    - Co-Advisor: Carolyn Seepersad
    - "Computer Tools for Designing Self-Sufficient Military Base Camps"
    - Green Bridge Corporation, New York, NY
2. Ben Gully, Mechanical Engineering, August 2012

- Co-Advisor: Carolyn Seepersad
- "Hybrid Powertrain Design for Naval and Commercial Ocean-Going Vessels"
- DNV, Hovik, Norway

1. Colin M. Beal, Mechanical Engineering, May 2011
    - Co-Advisors: Rod Ruoff, Bob Hebner
    - "Constraints on algal biofuel production"
    - Low Carbon Technologies, Lander, WY

Committee Member:

29. Matt Dean, Civil, Architectural and Environmental Engineering, Spring 2023
28. Christina Wirsching, Architecture, Fall 2019
27. Kristina Tjachman, Architecture, Spring 2019
26. Julia O'Rourke, Mechanical Engineering, Fall 2017
25. Austin Anderson, Mechanical Engineering, Spring 2017
24. Amanda Cuellar, Civil, Architectural and Environmental Engineering, Spring 2016
23. Krystian Perez, Chemical Engineering, Spring 2016
22. Kyle Chavez, Mechanical Engineering, Spring 2016
21. Sean DeRosa, Chemical Engineering, Spring 2016
20. Jeremy Mayo, Education, Spring 2015
19. Brady Stoll, Mechanical Engineering, Spring 2015
18. Kristen Cetin, Civil, Architectural and Environmental Engineering, Spring 2015
17. Duehee Lee, Electrical and Computer Engineering, Spring 2015
16. Daniel Zavala, Chemical Engineering, August 2014.
15. Elena Nirlo, Civil, Architectural and Environmental Engineering, April 2014
14. Felix Gutierrez, Electrical and Computer Engineering, Fall 2013
13. Jakub Felkl, Mechanical Engineering, Fall 2013
12. Marwa Zataari, Civil, Architectural and Environmental Engineering, Fall 2013
11. Robert Crawford, Mechanical Engineering, Spring 2013
10. Cassandra Telenko, Mechanical Engineering, Fall 2012
9. Ian Partridge, LBJ School of Public Affairs, Fall 2012

8. Nawaf Alhajeri, Civil Engineering, Summer 2012
7. Todd Davidson, Mechanical Engineering, Spring 2012
6. Meryl Stoller, Mechanical Engineering, Fall 2011
5. Jason Albert, Mechanical Engineering, Spring 2011
4. Mariana Dionisio, Chemical Engineering, Spring 2010
3. Ross Dugas, Chemical Engineering, Fall 2009
2. Tammy Thompson, Chemical Engineering, Fall 2008
1. Taylor Green, Mechanical Engineering, Spring 2008

M.S./M.A./M.P.Aff/M.G.P.S./M.B.A. Supervisions Completed

- Advisor/Co-Advisor:

35. Esther Goita, Energy & Earth Resources, May 2024, "Hydrogen Emissions and Associated Warming Effects During Production and Across Hydrogen Supply Chains"
34. Isabella Peterson, LBJ School of Public Affairs, May 2024
33. Leah N. Pretorius, Mechanical Engineering, May 2023, "Optimal Sizing of Distribution-Scale Energy Storage"
32. Sarah Dodamead, Energy & Earth Resources and LBJ School of Public Affairs, May 2022
31. Heather S. Rose, Energy & Earth Resources, August 2020
30. Brittany L. Speetles, Mechanical Engineering, May 2020, "Representative Day Selection in Capacity Expansion Modeling: An Accelerated Energy Transition for Texas"
29. Faith S. Martinez Smith, Energy & Earth Resources and LBJ School of Public Affairs, May 2016, "Does Coal Mining in West Virginia Produce or Consume Water? A net water balance of seven coal mines in Logan County, West Virginia, an aquifer assessment, and the policies determining water quantities"
28. Andrew S. Reimers, Mechanical Engineering, August 2015, "Low Temperature Heat and Water Recovery from Super-critical Coal Plant Flue Gas"
27. Gary M. Gold, Environmental Water and Resource Engineering, May 2015, "The Energy-Water Nexus: An Analysis and Comparison of Various Configurations Integrating Desalination with Renewable Power"
26. Brynjólfur V. Ólafsson, Mechanical Engineering, December 2014, "The Technical Potential of Renewable Natural Gas (RNG) in the United States, and the Economic Potential of Methanation-derived RNG in Texas"
25. Margaret A. Cook, Environmental Water and Resource Engineering and LBJ School of Public Affairs, December 2014, "Mitigating the Impacts of Droughts and Heat Waves at Thermoelectric Power Plants in the United States"

24. Jill B. Kjellsson, Environmental Water and Resource Engineering and LBJ School of Public Affairs, August 2014, "The Energy-Water Nexus: Energetic Analysis of Water and Wastewater Treatment, Distribution and Collection"
23. Erin Keys, Mechanical Engineering, August 2014, "Variable Speed Drives for Power Factor Correction in the Water Sector"
22. Jeremy R. Zaborowski, Energy & Earth Resources, August 2014, "Valuation of an Advanced Combined Cycle Power Plant and its Cost of New Entry (CONE) Into the ERCOT Market"
21. Yael R. Glazer, Environmental Water and Resource Engineering, May 2014, "The Potential for Using Energy from Flared Gas or Renewable Resources for On-Site Hydraulic Fracturing Wastewater Treatment"
20. Elizabeth Waite, Energy & Earth Resources, December 2013, "Decision Support for Project Selection in Texas Water Planning"
19. Colin M. Meehan, Energy & Earth Resources, December 2013, "Estimating Emissions Impacts to the Bulk Power System of Increased Electric Vehicle and Renewable Energy Usage"
18. Mary Clayton, Mechanical Engineering, August 2013, "The Energy Water Nexus: Increasing Water Supply By Desalination Integrated With Renewable Power and Reducing Water Demand By Corporate Water Footprinting"
17. Alisa Schackmann, LBJ School of Public Affairs, May 2013, Topic: Underground Transmission
16. Charlie Upshaw, Mechanical Engineering, May 2012, "Thermodynamic and Economic Feasibility Analysis of a 20 MW Ocean Thermal Energy Conversion (OTEC) Power Plant"
15. Adolfo Lozano, Mechanical Engineering, August 2011, "Analysis of a Novel Thermoelectric Generator in the Built Environment"
14. Castlen Kennedy, Energy & Earth Resources and LBJ School of Public Affairs, August 2011, "Assessing the Viability of Compressed Natural Gas as a Transportation Fuel for Light-Duty Vehicles in the United States"
13. Emily Grubert, Environmental Water Resource Engineering, May 2011, "Freshwater on the Island of Maui: System Interactions, Supply, and Demand"
12. Melissa Lott, Mechanical Engineering and LBJ School of Public Affairs, December 2010, "Quantifying the Economic and Environmental Tradeoffs of Electricity Mixes in Texas, Including Energy Efficiency Potential Using the Rosenfeld Effect as a Basis for Evaluation"
11. David Wogan, Mechanical Engineering and LBJ School of Public Affairs, December 2010, "An Integrated Resource and Biological Growth Model for Estimating Algal Biomass Production With Geographic Resolution" (Co-Advisor: Dr. Alex da Silva)
10. Chioke Harris, Mechanical Engineering, August 2010, "A Mixed-Integer Model for Optimal Grid-Scale Energy Storage Allocation" (Co-Advisor: Dr. Jeremy Meyers)
9. Emily Grubert, Energy and Earth Resources, August 2010, "Maui's Freshwater Status, Allocation, and Management for Sustainability"

8. Kelly Twomey, Mechanical Engineering, May 2010, "The Energy-Water Nexus: An Examination of the Water Quality Impacts of Biofuels"
7. Ashlynn Stillwell, Environmental & Water Resource Engineering and LBJ School of Public Affairs, May 2010, "The Energy-Water Nexus in Texas" [**Winner of the American Water Works Association's (AWWA's) Second Place Academic Achievement Award for the best Master's Thesis**]
6. Michael O'Donnell, Mechanical Engineering, December 2009, "Barriers to a Biofuels Transition in the U.S. Liquid Fuels Sector"
5. Jared Garrison, Mechanical Engineering, December 2009, "An Integrated Energy Storage Scheme for a Dispatchable Wind and Solar Powered Energy System"
4. Cassandra Telenko, Mechanical Engineering, December 2009, "Developing Green Design Guidelines: A Formal Method and Case Study" (Co-Advisor: Dr. Carolyn Conner Seepersad)
3. Stuart Cohen, Mechanical Engineering, May 2009, "The Implications of Flexible CO_2 Capture on the ERCOT Electric Grid" (Co-Advisor: Dr. Gary Rochelle)
2. Colin Smith, Mechanical Engineering, May 2009, "Conversion of Wet Ethanol to Syngas via Filtration Combustion" (Co-Advisor: Dr. Janet Ellzey)
1. Ben Eisterhold, Energy & Earth Resources, May 2008, "The Geotechnical and Economic Constraints of the U.S. Strategic Petroleum Reserve"

- Committee Member or 2nd Reader:

25. Brandon Bloom, Mechanical Engineering, May 2024
24. Erik Wieser, Energy & Earth Resources, May 2023
23. Sam Klarin, Energy & Earth Resources, May 2023
22. Tomas Fuentes–Afflick, Energy & Earth Resources, May 2022
21. Julia Conger, Electrical and Computer Engineering, December 2018
20. Hector Arreola, Energy & Earth Resources, May 2017
19. Kayla Fenton, Energy & Earth Resources and McCombs School of Business, May 2017
18. Jose D. Beceiro, Energy & Earth Resources, May 2015
17. Guillermo Hernandez, Electrical Engineering, May 2014
16. Julia O'Rourke, Mechanical Engineering and LBJ School of Public Affairs, May 2013
15. Robert Fares, Mechanical Engineering, August 2012
14. Constance McDaniel Wyman, Energy & Earth Resources, May 2011
13. Claire Follete, Mechanical Engineering, May 2010
12. Nate Lapierre, Energy & Earth Resources, May 2010
11. Morayo Noibi, Chemical Engineering, August 2009
10. Andrew Durkee, Energy & Earth Resources, May 2009
9. Christopher Smith, LBJ School of Public Affairs, May 2009

8. Susan Peterson, LBJ School of Public Affairs, May 2009
7. Maura Nippert, Mechanical Engineering, December 2008
6. Ross Johnson, Mechanical Engineering, August 2008
5. Federico Pozo, Energy & Earth Resources, May 2008
4. John Losinger, LBJ School of Public Affairs, May 2008
3. Arash Nazhad, Energy & Earth Resources, May 2008
2. In-Hul Chwang, Energy & Earth Resources, May 2008
1. Cyrus Tashakorri, McCombs School of Business and LBJ School of Public Affairs, May 2008

Research Professionals and Staff Supervisions:

24. Dr. Harry Kennard, Research Associate, August 2024 – present
23. Dr. Emily Beagle, Research Associate, April 2022 – present
22. Dr. Yael Glazer, Research Associate, March 2019 – present
21. Dr. Joshua Rhodes, Research Scientist, May 2014 – present
20. Mr. Jeff Phillips, Technical Illustrator, November 2012 – present
19. Dr. Thomas Deetjen, Research Associate, May 2020 – January 2022
18. Dr. Isabelle Gee, Post-Doctoral Fellow, October 2019 – April 2022
17. Dr. Emily Beagle, Post-Doctoral Fellow, September 2018 – December 2019
16. Dr. Todd Davidson, Research Associate, September 2014 – August 2019
15. Dr. Charles Upshaw, Post-Doctoral Fellow, June 2016 – June 2018
14. Dr. Robert Fares, Post-Doctoral Fellow, August 2015 – August 2016
13. Ms. Marianne Shivers Gonzalez, Special Projects Coordinator, January 2011 – January 2016
12. Ms. Griffin Gardner, Media Coordinator, August 2011 – August 2016
11. Mr. Juan Garcia, Media Producer, November 2012 – July 2015
10. Dr. Chioke Harris, Post-Doctoral Fellow, January 2014 – August 2014
9. Dr. Colin M. Beal, Post-Doctoral Fellow, December 2012 – August 2013
8. Mr. Roger Duncan, Research Analyst, September 2011 – August 2013
7. Dr. Carey W. King, Research Associate & Post-Doctoral Fellow, Feb 2007 – Aug 2013
6. Dr. Fred C. Beach, Research Associate & Post-Doctoral Fellow, Sep 2010 – July 2013

5. Dr. Ben H. Gully, Post-Doctoral Fellow, September 2012 – December 2012
4. Mr. Alex Breckel, Research Engineer, January 2012 – August 2012
3. Ms. Sheril R. Kirshenbaum, Research Scientist, January 2010 – February 2012
2. Ms. Melissa C. Lott, Research Scientist, January 2011 – October 2011
1. Ms. Amanda C. Cuellar, Research Engineer, May 2009 – August 2010

Ph.D./M.S. Supervisions In Progress:

1. Drew Kassel, Mechanical Engineering
2. Melina Katsiroumba, Mechanical Engineering
3. Léa Daniel, Mechanical Engineering
4. Sarah Reynolds, Mechanical Engineering
5. Braden Pecora, Mechanical Engineering
6. Laura Rivera Gomez, Mechanical Engineering
7. Andrew Igdal, Energy & Earth Resources and LBJ School of Public Affairs
8. Robert Kasten, Mechanical Engineering
9. Emily Arnim, Energy & Earth Resources
10. Scott Mitchell, Energy & Earth Resources
11. Emlynn Daniel, Mechanical Engineering
12. Grayson Cliff, Mechanical Engineering

Undergraduate Research Supervision:

- Plan II Thesis Supervision as Advisor or Second Reader

    27. Dylan Gross, May 2025
    26. Christiam McWilliams, May 2025
    25. Mariana Rivas, May 2024
    24. Mark Weisberg, May 2024
    23. Ben Evanson, December 2023
    22. Braden Pecora, December 2022
    21. Emma Laub, May 2022
    20. Zoe Littleton, December 2019
    19. Gregory Ross, May 2019

18. Trey Black, May 2018
17. Coleman Tharpe, May 2015
16. Will Gorman, May 2014 **[Winner of the Model Plan II Thesis Award]**
15. Kevin Clegg, May 2013
14. Austin Shires, May 2012
13. Zach Ullah, May 2012
12. James Newman, May 2012
11. Rob Taylor, May 2012
10. Brad Parro, May 2011
9. Will Johnson, May 2011
8. Megan Stephens, May 2011
7. Ashley Powell, May 2011
6. Amanda Cuellar, May 2009
5. Paolo Puccini, May 2009
4. Avi Wolfson, May 2008
3. Jim Coutre, May 2008
2. Nick Padon, December 2007
1. Ben Branstetter, December 2007

- Undergraduate Assistants

61. Vardhan Koripally, Spring 2023–present
60. Essha Bila, Spring 2023 – present
59. Anna Victoria Lavelle, Fall 2023–present
58. Kimble Horsak, Fall 2023–Spring 2024
57. Riley Robinson, Spring 2023 – Fall 2023
56. Jena Medina, Spring 2023 – December 2023
55. Justin Shih, Summer 2021 – May 2023
54. Braden Pecora, Summer 2021 – May 2023
53. Mia Moore, Summer 2021 – May 2023
52. Emma Laub, Summer 2019 – May 2022
51. Aaron Nisman, Summer 2020 – May 2022
50. William Wade, Summer 2020 – May 2022
49. Carson Reed, Summer 2019 – December 2021
48. Kelsey Richardson, Summer 2018 – May 2021
47. Carolina Muñoz Castillo, Spring 2020–Spring 2021
46. Hannah Fawcett, Summer 2017 – Fall 2019

45. Gregory Ross, Summer 2016 – Spring 2018
44. Nicholas Behling, Fall 2017–Summer 2018
43. Julia Conger, Fall 2017 – Summer 2018
42. Gordon Tsai, Summer 2016 – Summer 2018
41. Heather Rose, Summer 2016 – Summer 2018
40. Brittany Speetles, Fall 2016 – Summer 2018
39. Laura Rivera Gomez, Fall 2016 – Fall 2017
38. Yuval Edrey, Summer 2015 – Spring 2017
37. Jamie Lee, Spring 2015 – Spring 2016
36. Betsy Martinez, Spring 2015 – Spring 2016
35. Marisa Ballard, Spring 2015 – Spring 2016
34. Breanna Granzow, Spring 2013 – Summer 2015
33. Coleman Tharpe, Spring 2013 – Summer 2015
32. Kody Jones, Mechanical Engineering, Spring 2014 – Fall 2014
31. Robert Kennedy, Mechanical Engineering, Spring 2014
30. Will Gorman, Chemical Engineering and Plan II, Spring 2012 – Spring 2014
29. Zach Wilhoit, Mechanical Engineering, Fall 2012 – Summer 2013
28. Blake Sandoval, Mechanical Engineering, Fall 2012 – Spring 2013
27. Vineet Raman, Electrical Engineering, Fall 2012 – Spring 2013
26. Isaac Sanchez, Mechanical Engineering, Summer 2012 – Spring 2013
25. Richard North, Mechanical Engineering, Fall 2011 – Fall 2012
24. Susan Conover, Mechanical Engineering, Fall 2011 – Spring 2012
23. Neil Barbaria, Electrical and Computer Engineering, Fall 2011
22. James Newman, Mechanical Engineering and Plan II, Fall 2010 – May 2012
21. John Fyffe, Mechanical Engineering, Fall 2008 – Summer 2011
20. Mary Clayton, Mechanical Engineering, Fall 2009 – May 2011
19. Courtney Grosvenor, Mechanical Engineering, Summer 2010 – May 2011
18. Veronica Pulido, Mechanical Engineering, Fall 2009 – Fall 2010
17. Lauren Ayers, Liberal Arts, Spring 2010 – August 2010
16. Charlie Upshaw, Mechanical Engineering, Fall 2009 – Spring 2010
15. Christopher Mayer, Mechanical Engineering, Summer 2010 – Fall 2010
14. Royce Chang, Mechanical Engineering and Plan II, Fall 2009
13. Adam Petri, Mechanical Engineering, Fall 2009
12. Alix Broadfoot, Civil Engineering, Spring 2007 – Spring 2009
11. Amanda Cuellar, Chemical Engineering and Plan II, Spring 2007 – Spring 2009
10. Alex Levy, Mechanical Engineering, Spring 2009

9. Tommy Browder, Mechanical Engineering, Summer 2008 – Fall 2008
8. Scott McNally, Chemical Engineering, Summer 2008–Fall 2008
7. Andrew King, Mechanical Engineering, Spring 2008–Summer 2008
6. Alison Whitt, Mechanical Engineering, Spring 2008
5. Erin Keys, Mechanical Engineering, Fall 2007–Spring 2008
4. Afolabi Ogunnaike, Chemical Engineering, Fall 2007–Spring 2008
3. Avi Wolfson, Mechanical Engineering and Plan II, Fall 2007–Spring 2008
2. Henri Kjellberg, Aerospace Engineering, Spring 2007 – Summer 2007
1. Andrea Pearlman, Mechanical Engineering, Spring 2007

Sponsors: September 2007–December 2023

Between September 2007 and December 2023, Dr. Webber has helped develop over $40 million of support for over 100 different projects. Of that amount, approximately $19.7 million is for projects that Webber supervises (over $1.2 million per year, on average). That support came from different categories of sponsors as noted in the table. Each institutional sponsor is listed below.

Funder Category	Amount (Rounded to the nearest $10,000s)
Foundations and Non-Profits	$7,280,000
State Government	$4,670,000
Federal Government	$3,710,000
Industry (Contracts and Gifts)	$3,260,000
Local Government	$600,000
Gifts from Individuals	$210,000
Total	**$19,730,000**

Federal Government Sponsors:

- U.S. Army Corps of Engineers
- National Science Foundation
- U.S. Environmental Protection Agency
- U.S. Department of Energy
- Idaho National Laboratory
- Oak Ridge National Laboratory
- Pacific Northwest National Laboratory
- Sandia National Laboratory
- Canada Pension Plan Investment Board

State Government Sponsors:

- ERCOT (Electric Reliability Council of Texas)
- Texas State Energy Conservation Office
- Texas Air Research Center
- Texas Commission on Environmental Quality
- Texas Water Development Board
- Texas Emerging Technology Fund
- Texas General Land Office
- The University of Texas at Austin
- Harrington Fellows Program at UT Austin

Local Government Sponsors:

- Austin Energy
- Austin Water Utility
- Lower Colorado River Authority
- Pedernales Electric Cooperative
- Tarrant Regional Water District

Foundations and Non-Profits:

- 308 Grace Street
- Alfred P. Sloan Foundation
- American Clean Skies Foundation
- Aspen Institute
- Bake Family Trust
- BQuest Foundation
- Catena Foundation
- Center for Climate and Energy Solutions
- Charities Aid Foundation
- Clean Grid Initiative
- CleanTX Foundation
- Cynthia and George Mitchell Foundation
- Doris Duke Foundation (via Pecan Street, Inc.)
- EcoRise Youth Innovations
- Education Foundation of America
- Energy Foundation
- Environmental Defense Fund
- Hawaii Community Foundation
- Hewlett Foundation
- Jewish Community Fund
- Kuwait Foundation for the Advancement of Science
- Lemelson Foundation
- Markle Foundation
- Meadows Foundation
- National Philanthropic Trust
- Pecan Street, Inc.
- Power Across Texas
- Ray C. Anderson Foundation
- Rockefeller Foundation
- Roy A. Hunt Foundation
- San Antonio Area Foundation
- Sloan Foundation
- Sustainable America

- Texas Environmental Grantmakers Group
- Tiller Family Foundation
- Ulopono Initiative
- Watereuse Foundation
- Webber Family Foundation
- Winkler Family Foundation

Industry, Consortia and Corporate Foundations:

- 1804 Operating
- 27 Ventures
- Aethon Energy
- Air Liquide
- AMD
- American Chemistry Council
- Apache
- APEX
- Arena Energy
- AT&T
- BP
- CB&I
- Centerpoint
- Chesapeake Energy
- Chevron
- Crescent Energy
- Crescent Point Resources
- Deloitte
- El Paso
- Enchanted Rock
- ENGIE North America
- ExxonMobil
- First Republic Private Wealth Management
- First Solar
- GDS Associates
- Goodnight Midstream
- Grid United
- GTI Energy
- Hewlett Packard Labs
- InnerHarbor Advisors
- Intel Foundation
- Invenergy
- Itron
- Johnson Controls
- Luminant
- Meta
- National Instruments
- Northern Star Generation
- Omega Nine Corporation
- OpenAlgae
- OWL
- Proctor and Gamble
- Quicksilver
- Rockland Capital
- Shell
- Southwestern
- Spears Abacus Advisors
- Specific Energy
- Statoil
- Texas Gas Service
- Total Petrochemical
- TPS Power Holdings LLC
- U.S. Dairy Association
- Vitol
- WateReuse Texas
- Well Fargo Foundation
- WoodGroup Mustang
- YarCom

University Committee Assignments

- The University of Texas System
  - Member, UT System Academy of Distinguished Teachers (2014–present)
- The University of Texas at Austin
  - Engineering Academic Director, Kay Bailey Hutchison Energy Center (2023–present)
  - Faculty Advisor, Society of Plan II Engineers (2014–present)
  - Chair, Search Committee, Senior Vice Provost for Curriculum & Enrollment and Dean of Undergraduate Studies (2021–2022)
  - Interim Director, Energy Institute (2018)
  - Deputy Director, Energy Institute (2013–2018)
  - Co-Director, Clean Energy Incubator (2009–2018)
  - Member, Plan II Advisory Council (2014–2018)
  - Member, Technology-Enhanced Educational Oversight Committee (2014–2018)
  - Member, Information Technology Committee (2014–2018)
  - Member, Regents' Outstanding Teaching Awards committee (2013)
  - Faculty panel, Bridging Disciplines Program in International Studies (2007– 2009)
  - Associate Director, Center for International Energy & Environmental Policy (2006–2012)
  - Member, Working Group on Energy and Water Systems of the President's Task Force on Sustainability (Summer 2008)
- Cockrell School of Engineering, LBJ School of Public Affairs, Jackson School of Geosciences
  - Promotion & Tenure Committee, Cockrell School of Engineering, (2024–2026)
  - Graduate Studies Committee, Mechanical Engineering (2007–present)
  - Graduate Studies Committee, Civil, Architectural & Environmental Eng. (2010–present)
  - Graduate Studies Committee, Energy and Earth Resources (2007–present)
  - Graduate Studies Committee, LBJ School of Public Affairs (2009 – present)
  - Member, Engineering Public Affairs Advisory Committee, Cockrell School (2007–2008)
  - Member, OYEG Selection Committee, Cockrell School (2008)
- Department of Mechanical Engineering
  - Member, Diversity, Equity & Inclusion Committee (2022–present)
  - Member, Building Committee (2022–present)
  - Member, Comprehensive Periodic (Post-Tenure) Reviews Committee (2021–present)
  - Member, Quals Committee (Jan 2007–Spring 2009)