



2017–18 REPORT ON THE REVERS CENTER FOR ENERGY

MISSION AND VISION

The mission of the Revers Center for Energy (RCE) is to inspire and shape tomorrow's leaders of the industry while engaging today's community of scholars, students, alumni, and executives. The center makes the Tuck School of Business at Dartmouth a focus of energy leadership by taking advantage of the school's core strengths: academic excellence, broad-based management training, and a tight network of students, faculty, and alumni.

The center's vision is to establish Tuck as the preeminent business school for developing practical leadership in the energy industry. The center achieves its goals by creating a working network of global business leaders; establishing and maintaining leadership in research and academics; and developing a distinctive blend of courses and programs that support student exploration of complex, multidisciplinary issues across the industry. The center equips Tuck graduates with the tools to manage near- and long-term leadership challenges within this sector. This starts with the fundamentals of the core MBA curriculum and extends to specialized electives, customized experiential learning, faculty collaboration, and corporate and alumni outreach.



DIRECTOR'S WELCOME

The 2017–18 academic year was a year of growth and innovation for the center, with a record number of new programs. In addition to welcoming our largest cohort of MBA fellows to date, we led a record number of new programs. RCE hosted the inaugural Houston energy alumni and students event at Calpine's headquarters, thanks to the generosity of Calpine President and CEO Thad Hill T'95. Collaborating with TuckGO, we also led the first energy-focused GIX to Morocco. It was a thrill to partner with Tesla to host Tuck's inaugural energy case competition, welcoming more than ten peer school energy clubs to compete! Additionally, in the fall we held our first Energy Finance speaker series.

Our student energy club—Energy@Tuck—works with the center to amplify first-year student programming and to mobilize a social network for all things energy within Tuck. Led by fellows, the club also co-organized events with the Thayer energy club. In collaboration with the center, the club organized new career treks to ISO-New England, Great River Hydro Wilder Dam, and the MIT Nuclear Reactor Lab.

CURRICULAR CONNECTIONS

The ultimate objective of the center is to develop practical leadership skills through a combination of in-class training, exposure to outside resources, and experiential learning to hone and refine practical skills before students enter the workforce. This includes both top-tier leadership skills that are valuable within the C-suite of an organization, as well as development of useful skills that MBA graduates can employ immediately.

With the starting point of understanding that the energy industry is large and highly complex in its structure and economics, students are prepared to acquire knowledge across a spectrum:

- General energy and sectoral knowledge
- Economics: navigating complex energy markets
- Finance: managing the deployment and operation of capital-intensive resources
- Strategy: understanding the competitive landscape and key drivers for success
- Technology: operating and innovating sophisticated technology
- Policy: managing critical government stakeholder relationships

In addition to the rigorous general management MBA curriculum, Tuck offers the following elective courses exploring discrete energy challenges.

SUSTAINABLE BUSINESS COURSE (FALL)

Professor Andrew King

This course introduced students to sustainability, the effective strategies for advancing it, the role for business, as well as the tools for advancing it. This included consideration of unilateral, technological, and multilateral strategies for advancing sustainability. The most significant challenges to sustainability were reviewed, as were instructive case examples for how to analyze them.

The course also provided working knowledge of important economic and social trends, including an impartial view of potential responses to climate change, and analyzed the extent to which different technologies (wind, solar, gas, coal, and nuclear) and business-led strategic responses may be part of the solution. The course focused on general skills useful for all managers, and on helping managers recognize the source of sustainability problems and frameworks to address them. The class used a combination of cases and analytical tools: simulation, empirical evidence, historical study, and visiting experts.

Guest lecturers in 2017–18 included:

- Liza Casella, Casella Waste Systems, who spoke on recycling and the circular economy.
- Auden Schendler, Aspen Skiing Company, who spoke on energy efficiency.
- President Corey Brinkema, Forestry Stewardship Council, who spoke on responsible management policy for the world's forests.

ENERGY ECONOMICS COURSE (SPRING)

Professor Erin Mansur

This course introduced students to energy markets, including structure, competition, investment, and regulation, as well as strategy and policy. Students begin by exploring questions such as: what units are used to measure energy, what are the main sources of energy, how do we use energy, and how has energy intensity changed over time. They finish with a deeper understanding of economic determinants of industry structure, the evolution of competition, drivers of supply and demand in various markets, the roles of storage and transportation, market power and antitrust concerns, and the rationales for economic and environmental regulations. Oil, natural gas, energy commodities, LNG, power, renewable technologies, nuclear power, and environmental regulation were covered. Students, working in small teams, engaged in competitive strategy games to learn about the oil and electricity industries. They simulated OPEC countries in the oil industry, and then for-profit firms in a restructured electricity market. Scott Fisher T'98, of The Northbridge Group, guest lectured during the term.



INDEPENDENT STUDIES

The center sponsored a record eight independent study projects on energy, including four new venture entrepreneurial projects. This significantly increased our partnership with the Center for Private Equity and Entrepreneurship. The center continues to support a greenhouse gas impact reporting project for a private equity firm's cleantech infrastructure fund, as well as a Dartmouth campus energy transformation project, focusing on district heating and cooling conversion. Additionally, the center worked with an early-stage wind energy company on their go-to-market strategy, analyzed the gap between energy offtakers' and financial investors' PPA strategies, conducted a market deep dive for a leading energy venture firm, and supported a review of b-corporations and public benefit corporations. In the entrepreneurial space, projects ranged from power generation in Africa, to global commodities shipping, to capitalizing on the benefits of ancillary power in cycling equipment, which identified a market opportunity for smart inverter technology.

TUCKGO: GLOBAL INSIGHT EXPEDITION

Dartmouth Professor Dirk J. Vandewalle and RCE Executive Director April M. Salas co-lead the inaugural energy-focused Global Insight Expedition (GIX) to Morocco, which focused on energy innovation in frontier economies.

The goal of the 10-day, six city expedition was to expose students to a society with deep social and cultural traditions, uncover how Moroccans preserve the past while guiding the future, and how the society adapts to its transitioning clean-energy economy. Morocco is home to one of the world's largest solar arrays, and has cost-competitively deployed utility scale storage.



TUCKGO: FIRST-YEAR PROJECTS (FYP)

- **Irving Oil:** In this new project with Irving Oil Ltd., a team of MBA students evaluated the company's expansion into the electric vehicle market and, specifically, how the company might best position itself to be a market leader in the implementation of electrical vehicle charging stations at its retail sites. The team traveled to both Saint John, New Brunswick, and Oslo, Norway, to learn more about EV disruption and meet with clients in-country (pictured).
- **Cypress Creek Renewables:** Another energy project focused on Cypress Creek Renewables, the nation's fastest growing solar developer. Our Tuck FYP team was tasked with executing energy market research and analysis and forecasting prices, to further develop subsequent strategic positioning of Cypress Creek Renewables in this constantly changing competitive scene.
- Other notable energy-focused FYPs involved the following corporations: Ambri, Hive Battery, Clean Marine Energy, and Spark Cognition.



SPEAKER SERIES

Fall: Energy Financing the New Energy Economy: (co-sponsored by Tuck Center for Private Equity and Entrepreneurship)

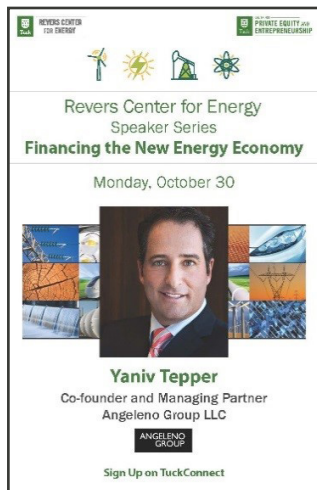
- October 30: Co-Founder and Managing Partner Yaniv Tepper, Angeleno Group, LLC.
- November 14: Managing Director Susan Flanagan, GE Energy Financial Services

Winter: (co-sponsored by Tuck Center for Private Equity & Entrepreneurship and Dartmouth's Arthur L. Irving Institute for Energy & Society)


- January 18: EVP Marcy Reed, Business Operations, Engineering, & Process, National Grid
- January 30: CEO Scott Hall, Great River Hydro, LLC, as a part of our Fellows Energy Leaders program
- February 7: CEO Tim Healy D'91 T'02, EnerNOC
- March 1: Partner Chris Poirier, Breakthrough Energy Ventures

Spring: (co-sponsored by the Tuck Center for Business, Government, and Society)

- March 28: Chairman and Co-Founder Dan Kalafatas D'96, 3Degrees
- April 13: CEO Elyse Allen D'79 T'84, GE Canada, as a part of the Fellows Energy Leaders program
- April 18: Co-Founder Fortunat Mueller, ReVision Energy (also part of Earth Week)
- April 19: Head of Strategy and Innovation Summer Bailey T'15, Novosymes (also part of Earth Week)
- May 8: Darren Peers D'96 T'01, Capital Research Global Investors, as a part of the Fellows Energy Leaders program

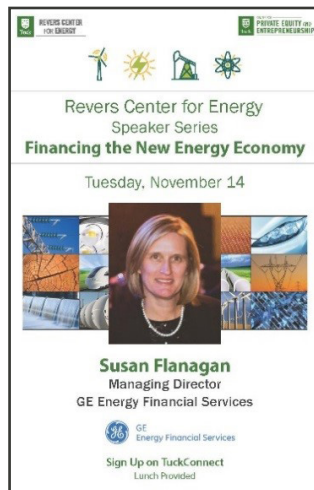


Revers Center for Energy
Speaker Series
Financing the New Energy Economy
Monday, October 30




Yaniv Tepper
Co-founder and Managing Partner
Angeleno Group LLC

Sign Up on TuckConnect



Revers Center for Energy
Speaker Series
Financing the New Energy Economy
Tuesday, November 14



Susan Flanagan
Managing Director
GE Energy Financial Services

Sign Up on TuckConnect
Lunch Provided

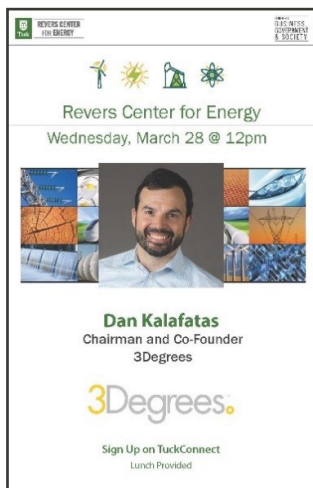


Revers Center for Energy
Thursday, March 1

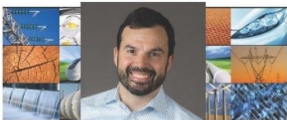


Chris Poirier
Partner
Breakthrough Energy Ventures

Sign Up on TuckConnect
Lunch Provided

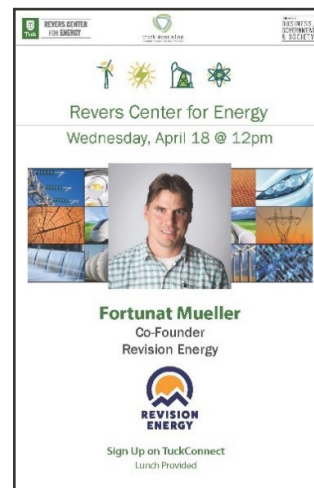


Revers Center for Energy
Wednesday, March 28 @ 12pm




Dan Kalafatas
Chairman and Co-Founder
3Degrees

Sign Up on TuckConnect
Lunch Provided



Revers Center for Energy
Wednesday, April 18 @ 12pm



Fortunat Mueller
Co-Founder
Revision Energy

Sign Up on TuckConnect
Lunch Provided

EXPERIENTIAL LEARNING

CERAWEEK (MARCH 5-9)

CERAWeek is a premier annual international gathering of energy industry leaders, experts, technology innovators, and policymakers in Houston, TX. We hosted the inaugural Houston energy alumni and student event at Calpine, on the margins of our participation at CERAWeek. More than 25 Tuck alumni in sectors ranging from banking to consulting to industry jobs attended. We also welcomed newly admitted students from the Houston area. Through the support of the Revers Center for Energy and the Arthur L. Irving Institute for Energy and Society, Dartmouth undergraduate student Jordan Swett D'19 was able to attend the event with Executive Director April Salas.

CASE COMPETITIONS

The Revers Center for Energy developed a center fellow-led energy case team program that supports the development and preparation of our Tuck energy case competition teams. The center, working with fellows, identifies three high-value case competitions each year and funds student team travel and expenses, and dedicates a student coach. This year, Tuck energy case teams competed several energy case competitions.

Tuck hosted its inaugural energy case competition in September with Tesla as the corporate partner. We welcomed students from leading peer schools to Hanover to work through a Tesla-provided case that “reimagined the driver’s relationship to the car.” Tuck’s team focused on exploring offerings that redefine the driver-car relationship and cars altogether, completely eliminating the need for a steering wheel.

They envisioned a future where artificial intelligence (AI) met autonomous vehicle. They explored opportunities to ensure peace of mind for customers without traditional constraints. They determined opportunities to elevate the Tesla ownership experience, identifying offerings that change the game in terms of customer excitement and the lasting love of owning a Tesla.



In October, a Tuck team participated in the McCombs National Energy Finance Case Challenge in Austin, TX. In December, a Tuck team competed in the Renewable Energy Case Competition hosted by University of Michigan Ross School of Business in Ann Arbor, MI.

RCE SUPPORT TO ENERGY CAREERS & CAREER DEVELOPMENT OFFICE COLLABORATION

- **Energy/Health Care CIX (August):** visited a variety of companies in San Francisco/Silicon Valley, California to introduce T'19's with energy and health care companies on the West Coast including Tesla, Calpine, Nest, Genentech, and Varian Medical Systems.
- **Career Industry Panel (September):** Alumni and T'18's discussed energy careers to an audience of T'19's.
- **Houston Career Trek (October 20-21):** T'19's visited investment banks and other financial services companies based in Houston to network and learn about careers in those fields.

WORKSHOPS

- **Energy 101 (October 13):** This one-day workshop was offered to all Tuck students and the greater Dartmouth energy community. Topics included what natural gas and electricity are and how they work, how regulation works and how it affects the various market participants, and what the future will look like for gas and electricity.
- **Commodity Trading (November 10):** This workshop by Jim Bowen was an in-depth introduction to what commodities are, futures and forwards, standardized futures contracts, derivatives, trading strategies, and the organization of commodity trading.
- **Drilling 101 (February 13):** This was hosted by Tuck students with oil and gas drilling industry experience.



- **Principles of Power Purchase Agreements (May 3-4):** Jim Bown offered this workshop to all Tuck students and the greater Dartmouth energy community.
- **Nuclear 101 (May 8):** This was hosted by Tuck students with nuclear power energy industry experience, followed by a site visit to the MIT research reactor in Cambridge, MA.

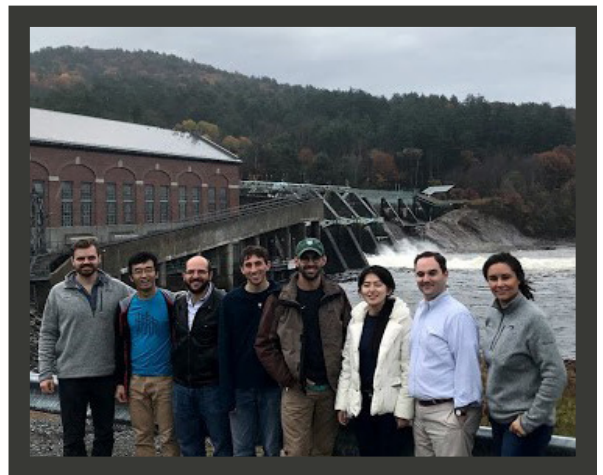
CO-CURRICULAR CONNECTIONS

CONFERENCES

- **Harvard Energy Symposium (October 21):** T'18s and T'19s, as well as students from the greater Dartmouth energy community, attended this event in Boston, MA.
- **Greentech Media New England Solar and Storage Symposium (October 26):** Tuck students and students from the greater Dartmouth energy community were invited to this event in Boston.
- **United Nations Framework Convention on Climate Change (COP 23) (November 6-17):** Due to the conference falling during fall term, the center co-sponsored a staff-alumni delegation to COP23 in Bonn, Germany.
- **MIT Energy Conference (March 2-3):** event in Boston

ENERGY TREKS

- **Great River Hydro LLC Tour (November 3):** Tuck MBAs and students from the greater Dartmouth energy community, including Thayer energy club students, took the inaugural tour of the Wilder, VT, dam and power generation station. This was followed by a Center for Energy Fellows meeting with CEO Scott Hall to learn about leading and managing through change.
- **ISO-New England Tour (November 17):** Students toured an independent, not-for-profit company responsible for operating the electricity grid in New England, administering the electricity market, and planning for electrical loads in the future. Tuck students and students from the greater Dartmouth energy community were invited, including Thayer energy club students.



ENERGY CLUB

- **Energy Club Kick-off (September 20):** All Tuck student were invited to join the club and get exclusive invitations to treks, workshops, conferences, and dinners with guest speakers.
- **Energy Club Social (January 17):** An combined event for club members with the Thayer Energy Club.

MENTORSHIP PROGRAM

The Revers Center for Energy launched the Energy Leadership Mentorship Program in fall 2016. The Mentorship Program connects student fellows with successful energy industry leaders to cultivate a strong network and community of Tuck “energy” alumni. This program furthers the work of the center by facilitating a transfer of knowledge, wisdom, resources, and life experiences. The program is designed to create lasting, meaningful mentorship relationships through two-way dialogue that extends far beyond the duration of the program.



The 2017-18 Mentors were:

- President and CEO Elyse Allan D'79 T'84, GE Canada
- CEO Scott Brown D'78, New Energy Capital
- President and CEO Phil Guidice T'85, Ambri
- CEO Thad Hill T'95, Calpine
- Board Member Chansoo Joung T'87, Apache Offshore Investment Partnership
- Don Kendall T'76, Blue Earth Capital / Kenmont Capital Partners, LP
- Head of Commodity Markets Bob McGaughey, ArcLight Capital
- CEO Mike Miskovsky T'90, Cleantech
- President and CEO (retired) Eric Spiegel T'87, Siemens
- Founder and CEO Bob Wallace T'84, Bithenergy/BITHGROUP Technologies

CENTER FELLOWS

The T'18 student Fellows work with center leadership and Tuck faculty, staff, and alumni to create opportunities for students to learn about the energy industry, both inside and outside of the classroom.



Angel Fernandez Amores
Interests: energy project finance, renewable energy development



Blair Crichton
Interests: clean tech & sustainability



Katrina Goulden
Interests: renewable energy, efficiency & sustainability



Josh Hotvet
Interests: renewable energy, storage, project development



Steve Kelly
Interests: investment banking



Taylor McMaster
Interests: renewable energy development, and real estate



Ryan Nielson
Interests: renewable energy, private equity, & investment banking



Kyle Stramara
Interests: renewable energy and storage



Haydar Taygun
Interests: power & investment banking



Pooja Yadav
Interests: infrastructure development & investment banking





TUCK SCHOOL OF BUSINESS
AT DARTMOUTH