# Graduate School of Management, UC Davis January 26, 2018

# Sustainable Energy Industry Immersion Syllabus Winter 2018

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#### Winter 2018

MGT 209-004, 3 unit, Fridays 10:00-2pm, Gallagher Hall 3102 Office Hours: by appointment

#### Course Schedule:

Winter Quarter, 2018 (First class is scheduled for Friday January 5, 2018, optional but highly recommended for non-GSM students familiar with energy sector and regulations)

#### Course Instructors:

Nicole Biggart, Research Professor, Graduate School of Management Benjamin Finkelor, Executive Director, Energy Efficiency Center

#### Course Abstract:

The Sustainable Energy Industry Immersion program at the UC Davis Graduate School of Management (GSM) brings together graduate students from multiple departments who are interested in the energy industry and exposes them to significant managerial problems being faced in this transforming sector. The main objective of this program is to continue to build on the reputation and connections of UC Davis in sustainable energy and transportation by training students to examine problems comprehensively in interdisciplinary teams.

The increase in global population, alterations in climate patterns, the possibility of exhausting fossil fuel reserves, the challenge to produce, store, and distribute energy while minimizing negative effects on our environment are all critical determinants of global development and security.

The importance of the energy industry is increasingly recognized by business generally, for example see this recent discussion on BBC (<u>http://www.bbc.com/future/story/20170313-the-biggest-energy-challenges-facing-humanity</u>).

The impact of new technologies and other innovations in solving a wide array of problems in this industry opens possibilities for energy companies and for other companies that depend on stable energy supplies.

Regulation of energy is a prominent policy conundrum that must balance economic, health, social equity and technology concerns.

The aim of the GSM program is to produce next generation leaders in this vital industry and other industries that depend on access to stable energy stores. Participants will learn from business and policy

leaders who will present current energy challenges. Students will work in interdisciplinary teams to find solutions to present for discussion. The program has several distinguishing features:

- Curriculum designed by both UC Davis faculty and industry executives to reflect the latest challenges in the industry
- Classes comprised of students from Graduate School of Management and the Energy Graduate Group
- Nine weeks of interactive classes on Fridays in Winter Quarter taught by senior executives from a select group of companies (Chevron, PG&E, SMUD, Microsoft etc.)
- Group assignments in every class, examining potential solutions to management challenges
- Possible project work to follow in Spring Quarter, giving students more in-depth exposure to specific problems in a certain company
- Possible internship opportunities in the featured companies during Summer Quarter
- Potential opportunities for students to take classes during the following year in other departments to expand their education in the energy industry

Readings will be developed in conjunction with each week's executives. There is no required textbook.

# COURSE REQUIREMENTS/GRADES

Because this is an interactive, group case analysis class attendance and participation are critical elements of successfully meeting three course requirements.

- 1. Eight weekly case discussions in class and presentation to the speaker: 1/3 of grade (drop two lowest grades)
- 2. Eight weekly Reflection Papers of 500-1000 words submitted online. 1/3 grade (drop two lowest grades). There will be no reflection paper due on the last speaker/class.
- 3. White Paper done in a group with no less than one MBA student, 2500-5000 words uploaded as a file by the last day of class. Instructions on how to write a white paper are available on Canvas under Files. 1/3 grade.

# CLASS SCHEDULE

# January 5

# Introduction to Energy and Sustainability: Optional Orientation Class for non-Energy Students.

**Nicole Biggart** is former Faculty Director of the Energy Efficiency Center and **Benjamin Finkelor** is current Executive Director of the EEC <u>https://energy.ucdavis.edu</u>. Ben and Nicole will do a broad overview of energy, its types, and historic trajectory. We will discuss the meaning of sustainability and how energy, sustainability and consumption connect in our choices every day.

#### January 12

#### **Global Energy in Financial Perspective**

**Russell Read** is the Chief Investment Officer of the Alaska Permanent Fund Corp., a \$50+ billion sovereign wealth fund. His previous positions included CIO and deputy CEO of Gulf Investment Corp., Kuwait, a state-owned investment company that promotes economic growth and financial diversification in Bahrain, Kuwait, Oman, Qatar, the United Arab Emirates and Saudi Arabia, and CIO of the California Public Employees Retirement System. He was deputy CIO at Deutsche Asset Management. Russell holds an MBA from the University of Chicago and a PhD from Stanford University. He has studied forestry and was an Executive in Residence at UC Davis GSM.

#### January 19

#### **Building Carbon Conscious Cities and Corporations: Microsoft**

**Rob Bernard** is Chief Environmental and Cities Strategist for Microsoft. A 17-year Microsoft veteran, he is responsible for defining and implementing the global strategy for the company's environmental and cities efforts. Under his leadership, Microsoft has established a carbon neutral goal and the first-of-its-kind internal carbon fee. Bernard and his team are also responsible for Microsoft CityNext to help cities around the world better leverage technology to realize safer, healthier, better educated, more modern and sustainable places for people to live and work. Prior to this role, Bernard was the GM for the global ISV program where he managed teams supporting partnerships with over 50,000 software partners. He received his bachelor's from Columbia University and his Master or Business Administration from The Wharton School at the University of Pennsylvania.

#### January 26

#### The Entrepreneurial Opportunities for Renewable Energy: Dandelion Energy and Home Geothermal.

Kathy Hannun is CEO and James Quazi is Chief Technology officer at Dandelion Energy. Both James and Kathy Co-founded Dandelion a start-up that graduated from Alphabet's X Rapid Evaluation Project that recognizes transformative technologies. James' previous positions included Technical Program Manager at Google and Senior Director of Efficiency Services at Solar City. He studied applied economics and architecture at Cornell. Kathy serves as the Chair of the Investor Subcommittee of the CalSEED program, a funding initiative of the California Energy Commission and previously worked at Project Loon at Google. She has degrees in Civil Engineering and Theoretical Computer Science at Stanford.

#### February 2

# The Complexities of Providing Electricity and Gas in Northern California's Vibrant and Transforming Economy

**Fong Wan** is Senior Vice President, Energy Policy and Procurement at Pacific Gas and Electric Company. PG&E is one of the largest combined electric and natural gas companies in the U.S. and has about 20,000

employees who are involved in the transmission and delivery of energy. It has about 16 million customers in northern and central California. Its assets include 106,000 miles of electric distribution lines and 18,000 miles of transmission lines. PG&E delivers natural gas to 4.3 million customers. Fong Wan's portfolio of responsibilities includes supply planning, wholesale market design, and power plant development. Fong holds a bachelor degree in chemical engineering from Columbia University and an MBA from the University of Michigan.

# February 9

# Water is Our Number one Ingredient: Managing Water and Energy at Coca-Cola Corp.

**Bruce Karas** is Vice President of Environment, Sustainability, Safety and Technical Information at Coca-Cola North America. Bruce is lead for water, packaging, climate, sustainable agriculture and occupational health and safety. Bruce and his team work to replenish 100 percent of the water used in Coca-Cola beverages and works with more than 100 community watershed projects in the US. Coca-Cola was a supporter of the COP21 climate negotiations in Paris. Before joining Coca-Cola Bruce held positions in health and safety and industrial hygiene at General Dynamics and Owens Corning. He studied medical technology at Michigan State University and Wichita State University. He received an MS in Occupational and Environmental Health at Wayne State University.

#### February 16

### Shaping the Energy Future with Our Customers

**Arlen Orchard** is CEO and General Manager of Sacramento Municipal Utility District, a communityowned and directed provider of energy services. SMUD is widely recognized as a national innovator in energy services and delivery. Its vision includes strategies to pursue energy affordability, reduce the region's carbon footprint and aggressively pursue energy efficiency in order to reduce the need for more power generation. Arlen serves on a national commission launched by the non-partisan Alliance to Save Energy in Washington. He believes that electric vehicles will be a critical factor in reducing carbon emissions and SMUD partners with vehicle manufacturers and EV equipment developers. Fuel switching is a major challenge for utilities that were not established to power vehicles. Arlen studied political science at the University of Reno and holds a JD and MBA from UC Davis.

# February 23

# Changing the Utility Business Model for the 21<sup>st</sup> Century

**Larry Kellerman** is Managing Partner of TFC Utilities, an investment platform for acquiring and leveraging regulated utilities to take advantage of their access to low cost capital and large customer bases. TFC uses a "Million Rate Base" model to provide customers with the lowest possible cost solar panels or other energy technology using low cost financing. Regulated customers can choose their preferred source of energy and have access to the latest battery systems and energy devices such as charging stations for vehicles. Larry Kellerman has worked in energy finance at Goldman Sachs and

Quantum Utility Generation. He is an alumnus of UC Davis and he holds an MBA from West Coast University.

#### March 2

#### Powering and Fueling the World's Largest Retailer

**Mark Vanderhelm** joined Walmart in 2015, as Vice President for Energy, leads the team supporting Walmart U.S., including Retail Energy, Energy Regulation and Management, Energy Services, and Energy Development. He oversees the company's global commitment to energy efficiency, sustainability, and renewable energy. Vanderhelm joined the company from Exelon Generation, LLC in Pennsylvania, where he managed Generation and Renewables Development. In this role, he led the team responsible for developing new generation projects (gas, solar, biomass, storage, and hydro) and investing in new electricity-based technologies throughout the U.S. and Canada. Vanderhelm holds a bachelor's degree in Mechanical Engineering from University of Texas and a master's degree and doctorate in Nuclear Engineering from MIT, where he co-directed the Institute of Nuclear Power Operations' Reactor Technology Course for Utility Executives.

#### March 9

#### Managing One of the World's Largest Energy Providers Safely and Effectively in a Turbulent Industry

**Wesley Lohec** is Vice President of Health, Environment and Safety for Chevron Corporation. His previous positions at Chevron included managing director of the Latin America strategic business unit, for Chevron Africa and Latin America Exploration and Production Company. He has wide experience in drilling, production engineering, operations, human resources and business planning. Wes holds a degree in petroleum engineering from Texas A&M University and serves on the UC Davis Energy Efficiency Center Board of Advisors. Chevron Corporation is the largest employer in California and a 19th on the Fortune 500 list of largest companies.