



Draft Agenda 2018

**The Pyle Center, 702 Langdon St., Madison WI
3.2 CEUs**

Energy Utility Basics is an intensive course on the fundamental concepts critical to being conversant in today's energy industry. WPUI has proudly presented this exceptional course each fall since 1983.

Over the course of a week, participants will gain a comprehensive understanding of the history of the electric and natural gas industries, attain insights into the regulatory decision-making process, as well as analyze and discuss current issues facing the energy industry.

Attendees will obtain practical knowledge of the operations and technology of the natural gas and electric industries from extraction, whether from the ground or renewables, to the customer's bill.

Included in the registration fee: printed materials, lunches, breaks, reception, and access to materials on the WPUI website post-program. CEU certificates will be emailed to you upon completion of the course.

Sunday, October 7

UW-Madison Campus Walking Tour

Enjoy an hour-long walking tour of the north side of the UW-Madison campus, including Memorial Union and the Union Terrace, Bascom Hill, some university history and more.

Depart: Pyle Center, 3pm

Return: Pyle Center, 4pm

RSVP required – More details to follow

Post-walking Tour Reception

Pyle Center: 4:15-5:15 pm

RSVP required – More details to follow

ENERGY UTILITY BASICS
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Monday, October 8
Electricity: Industry Structure

Time	Session Title	Speaker(s)
8:15 – 8:30	<i>Check in and coffee</i>	
8:30 – 8:45	Welcome Introductions	Lori Sakk <i>Director, Wisconsin Public Utility Institute</i>
8:45 – 10:45	Why a Regulated Monopoly? Who is regulated, why and how? The federal and state perspective – historically to today <ul style="list-style-type: none"> • Why a monopoly? • What is a public interest? • The role of federal-level commissions • The relationship between the utility and the regulator • Drivers of restructuring • Wholesale markets and open access • Renewables and energy efficiency • Pricing and rate changes • Current trends 	Enrique Bacalao <i>Chief Economist</i> <i>Public Service Commission of Wisconsin</i> Kira Loehr <i>Senior Counsel, Perkins Coie LLP</i> Zach Ramirez <i>Staff Attorney, Wisconsin Legislative Council</i> Nate Zolik <i>Attorney, Godfrey & Kahn, S.C.</i>
10:45 – 11:00	Break	
11:00 – 12:00	The Public Service Commission – Roles and Rules, Balance of Power <ul style="list-style-type: none"> • PSCW authority and jurisdiction • Organizational structure of the PSCW • A Case: start to finish 	Cynthia Smith <i>Chief Legal Counsel</i> <i>Public Service Commission of Wisconsin</i>
12:00 – 12:45	Lunch – Dining room	
12:45 – 2:15	Utility Company Models – Presentations and Panel Discussion <ul style="list-style-type: none"> • Why was this type of public service company formed? • What do you own and operate? • How are you regulated or managed (differences for transmission, generation etc.)? • Who are your stakeholders (stockholders for IOUs)? • How do you secure power? • How do you sell power (retail only, wholesale customers, etc.)? • What other services do you offer your customers? • Who are your customers? 	Moderator: Jordan Hemaidan <i>Partner, Industry Group Chair – Energy</i> <i>Michael Best & Friedrich</i> Karl Hoesly <i>Regional Vice President</i> <i>Xcel Energy</i> Andy Onesti <i>Power Supply Manager</i> <i>Manitowoc Public Utilities</i> Brian Rude <i>Vice President</i> <i>Dairyland Power Cooperative</i>
2:15 – 2:30	Break	
2:30 – 3:45	The Independent System Operator/Regional State Committee <ul style="list-style-type: none"> • History • Responsibilities • Areas of influence 	Bob Kuzman <i>Regional Director, State Regulatory Affairs-</i> <i>Central Division</i> <i>Midcontinent Independent System Operator</i> Marcus Hawkins <i>Director of Member Services and Advocacy</i> <i>Organization of MISO States</i>
3:45 – 4:45	Transmission-The Overlooked Connection Until 1970 <ul style="list-style-type: none"> • History 1970 to date • FERC jurisdiction and relevant orders • “Right of first refusal” – current status 	Brian Drumm <i>Manager, Regulatory Relations and Policy</i> <i>Associate General Counsel</i> <i>American Transmission Company</i>
4:45	Adjourn	

Tuesday, October 9
Electricity: Industry Operations

Time	Session Title	Speaker(s)
8:15 – 8:30	<i>Coffee</i>	
8:30 – 9:30	From Heat to Electricity – How we make electricity in the U.S. <ul style="list-style-type: none"> • How much energy do we use? • What is the difference between energy and power? • Creating electricity • AC/DC—what does this mean? • How does a generator make electricity? • Start-up • Black starts • Who uses what • Cost of electricity 	Scott Williams <i>Research & Education Coordinator Wisconsin Energy Institute UW-Madison</i>
9:30 – 9:45	Break	
9:45 – 11:15	Field Identification Guide to the Electric Industry <ul style="list-style-type: none"> • Difference between a power line and a phone line • Substations, boosters, inter-tie, DC lines • Technical language used in the field • Power flows, counterflows, transmission basics • Curtailments, line losses, line loading, buses • Basics of LMP, congestion 	Ken Copp <i>Strategic Technical Advisor American Transmission Co.</i>
11:15 – 11:30	Break	
11:30 – 12:15	A Day in the Life of a Distribution Company <ul style="list-style-type: none"> • The new responsibility (opportunity) • Physical characteristics • A typical day in 1990 • A typical day in 2018 	Paul Gogan <i>Manager Electric Reliability and Planning WEC Energy Group</i>
12:15 – 1:15	Lunch – Dining room	
1:15 – 2:15	A Day in the Life of a Transmission Operator What they do and why they do it <ul style="list-style-type: none"> • Scheduling • Forecasting • Selling into the market • Good days and bad days • Transmission investment decisions • Meeting renewable portfolio standards • Planning and cost allocation 	Mike Londo <i>Transmission Reliability Administrator American Transmission Company LLC</i>
2:30 – 2:45	Break	
2:45 – 3:45	What Drives Utility Stock Prices? <ul style="list-style-type: none"> • How do investors value utility stock? • What is changing about the utility business climate for earnings growth? • What are the implications of those changes on future stock value? • What are the value implications for utility investment in environmental infrastructure projects? 	Steve Kihm <i>Principal and Chief Economist Seventhwave</i> <i>Senior Fellow Institute of Public Utilities Michigan State University</i>
3:45 – 5:15	Site Visit: Charter Street Heating and Cooling Plant Bus to plant; tour plant; bus back to Pyle Center Long pants and closed-toe shoes required!	
5:15	Adjourn	

Wednesday, October 10
Ratemaking

Time	Session Title	Speaker(s)
8:15 – 8:30	<i>Coffee</i>	
8:30 – 9:45	Basics of Rate Setting <ul style="list-style-type: none"> • Cost of service • Traditional rate design • Dynamic pricing and rate efficiency • Niche designs • Challenge of renewables cost and pricing 	Bruce Chapman <i>Vice President</i> <i>Christensen Associates Energy Consulting</i>
9:45 – 10:00	Break	
10:00 – 11:30	Basics of Rate Setting, continued	Bruce Chapman
11:30 – 12:30	Lunch – Dining Room	
12:30 – 1:30	Basics of Rate Setting, conclusion <ul style="list-style-type: none"> • Challenge of renewables cost and pricing 	Bruce Chapman
1:30 – 2:30	Performance-based Regulation For the past 100 years, we have used a cost of service regulatory model. It used the costs of building infrastructure to cover the costs for the services that kept the lights on (reliability) at a competitively efficient, affordable cost. And for this goal, it has worked well. Now, with shrinking sales, less need for large infrastructure investments, and the additional goal of adding sustainability to the utility responsibility, it falls short. Today the regulatory/utility goal is to provide energy with a competitively efficient, affordable, sustainable, and cleaner portfolio. Performance-based regulation is one route to this end.	Mark Lowry <i>President</i> <i>Pacific Economics Group</i>
2:30 – 2:45	Break	
2:45 – 3:45	Strategies for Addressing Fixed-cost Recovery Issues	Dan Hansen <i>Vice President</i> <i>Christensen Associates Energy Consulting</i>
3:45 – 4:00	Break	
4:00 – 4:45	One Utility's Response to Changing Customer Expectations	Cheri Salmon <i>Market Development Manager</i> <i>Madison Gas and Electric</i>
4:45	Adjourn	

Thursday, October 11
Smaller Carbon Footprint; Enabling Technologies; Gas Markets

Time	Session Title	Speakers(s)
8:15 – 8:30	Coffee	
8:30 – 12:00	Getting Work Done with a Smaller Carbon Footprint and Enabling Technologies— Moderator: Rich Hackner, Principal Engineer and Midwest Region Manager, GDS Associates <ul style="list-style-type: none"> • Biogas: Rebecca Larson, Assistant Professor, Biological Systems Engineering, UW-Madison (8:45 – 9:15) • Wind: Jim Tinjum, Associate Professor and Associate Chair, Dept. of Engineering Professional Development, UW-Madison (9:15 – 9:45) • Electrification: Jeff Ihnen, CEO, Michaels Energy (9:45 – 10:15) • Break (10:15 – 10:30) • Energy Efficiency: Erinn Monroe-Nye, Program Director, Focus on Energy-APTIM (10:30 – 11:00) • Storage: Nitzan Goldberger, State Policy Director, Energy Storage Association (11:00 – 11:30) • Solar: Adam Gusse, Vice President – Operations, Sunvest Solar Inc. (11:30 – 12:00) 	
12:00 – 12:45	Lunch – dining room	
12:45 – 2:45 1:30 break 2:10 break	What Everyone Ought to Know About Gas <ul style="list-style-type: none"> • Where does natural gas come from? • What is unconventional gas? • How does the near-term supply look? • What about the future? • Typical composition of a gas molecule • How natural gas is normally used – by time of day, by coincident hourly demand, by month and by industry type • How efficient is natural gas as an energy source, and how clean is it compared to other fossil fuels? • What is the natural gas production break-even point (basin production cost per MMBtu)? • Big picture of historical natural gas prices 	Alan Carroll Professor Geoscience UW-Madison
2:45 – 3:00	Break	
3:00 – 4:00	Gas Markets Industry Overview - How Do Traders Evaluate Options? <ul style="list-style-type: none"> • What do customers pay for in a therm of gas — production, pipeline and distribution? • Driving factors in gas prices • General outlook for supply • How has the gas market changed in the past 5 years? • The role of storage • New LNG markets and their effect on domestic pricing • Short and long term pricing implications • Price outlook caveats 	Michael Kopalek Industry Economist Energy Information Administration U.S. Department of Energy
4:00 – 4:45	A Day in the Life of a Gas Company <ul style="list-style-type: none"> • Regulatory requirements • Trading • Forecasting • Dispatch 	Steve Weston Senior Manager Customer Operations Alliant Energy
4:45	Adjourn	

Friday, October 12
Nuclear Power; Environmental Considerations; Legal Issues

Time	Session Title	Speaker(s)
8:15 – 8:30	Coffee	
8:30 – 9:15	Nuclear Power — The Base Load of the Future?	Jake Blanchard Professor and Associate Dean College of Engineering UW-Madison
9:15 – 10:15	Environmental Issues Affecting the Utility Industry	Phillip Bower Partner Husch Blackwell
10:15 – 10:30	Break	
10:30 – 11:30	Legal Issues Facing the Utility Industry	Brian Potts Partner Perkins Coie
11:30 – 11:45	Wrap-up; boxed lunch	

Friday, October 12
Optional Tours

Time	Session Title	Speaker(s)
12:00 – 2:00	<p>Dane County Landfill</p> <p>The Dane County Landfill receives 230,000 tons of waste each year transported in by 300-440 vehicles per day. However, the Hwy 12 property incorporates much more than just the landfill. It also includes several waste recycling/diversion efforts and cutting-edge renewable energy projects, including tire recycling, shingle recycling, compost, a wood yard, household hazardous waste collection, and a Construction & Demolition (C&D) recycling facility. In the C&D recycling facility, approximately 70,000 tons per year of C&D materials are processed, ending the practice of disposing of C&D waste in the landfill.</p> <p>The Dane County Solid Waste Division also has a long history of leading the way on renewable energy. As garbage decomposes, it produces gas, which is roughly 50% methane. The landfill has been using this methane for 23 years as fuel in large engines that power generators. This program creates 4MW of renewable electricity, enough to power 4,000 Dane County homes. Additionally, Dane County produces its own renewable compressed natural gas (CNG) vehicle fuel from landfill gas and captures waste heat from the gensets to heat some of the buildings at the landfill. As part of a current project, Dane County is working to convert its biogas program to a new technology which will produce 3,000,000 gallons of renewable vehicle fuel from landfill biogas. A new facility will include an off-load station which will allow off-site sources of biogas to truck their cleaned-up biogas to the landfill in order to make use of the landfill's pipeline interconnect. This will be a first-of-its-kind project in the U.S.</p> <p>Board bus at Pyle at 12:00, tour from 12:30-1:30, return to Pyle at 2:00.</p> <p>Long pants and closed-toe shoes required!</p> <p>https://pwht.countyofdane.com/recycle/landfill.aspx</p>	
12:45 – 2:15	<p>UW-Madison Nuclear Reactor Virtual Live Tour</p> <p>The University of Wisconsin-Madison's thermal nuclear reactor (UWNR) was built in 1960, and after almost 60 years in operation, is still operating now at 1 MW. The UWNR provides research opportunities and education for those involved in the university's nuclear engineering program. It is one of about two dozen small university-based reactors used for education and research across the country. Because UWNR is on the UW-Madison campus and is dedicated to research and education, it is about 1/3,000 the size of a commercial reactor.</p> <p>Despite the smaller size, the UWNR provides excellent learning opportunities for not only students of nuclear engineering but students outside of the field. For many years, UWNR staff have utilized this wonderful facility to introduce the population, such as other professors and middle and high school students, to nuclear science. Each year, about 1,000 middle school, high school, and college students tour the facility with reactor staff. Of these 1,000 visitors, about 400 are boy and girl scouts earning their "atomic energy" badge.</p> <p>The research done through the UWNR has led to further understandings in medical isotopes, environmental assessments, advanced reactor design and much, much more. To have a nuclear reactor in operation on a college campus helps introduce the idea of nuclear energy to society while also preparing students in the nuclear field for their future careers.</p> <p>This tour will be held in the building which houses the reactor and led by students and/or researchers. It will include live camera views from inside the plant, pre-recorded video of operations, a PowerPoint presentation, a life size model of a fuel bundle, and an actual graphite reflector that can be observed up close.</p> <p>Board bus at Pyle at 12:45, tour from 1:00-2:00, return to Pyle at 2:15</p> <p>https://reactor.engr.wisc.edu/</p>	