



IPU POWER GRID SCHOOL Course I:
Engineering Economics of the Supply Chain for Power
June 10-12, 2024

INSTITUTE OF PUBLIC UTILITIES

MICHIGAN STATE
U N I V E R S I T Y

About the IPU-MSU

- Institute of Public Utilities
 - ▶ Serving the regulatory policy community since 1965
 - ▶ Thousands of domestic and international program alumni
 - ▶ A national network of experienced experts in regulation
 - ▶ Financially self-sustaining at Michigan State University

- IPU's mission
 - ▶ To support informed, effective, and efficient economic regulation of electricity, natural gas, water, and broadband

- Integrative educational programs and research
 - ▶ A principled approach to regulatory practice
 - ▶ An empirical approach to regulatory analysis
 - ▶ A reasoned approach to regulatory reform

- We teach the “ideal” of economic regulation in the public interest
 - ▶ Interdisciplinary theory, regulatory institutions and culture, and critical thinking
 - ▶ Commitment to lifelong learning and appreciating what we do not know
 - ▶ Our purpose is not to formulate answers – but to help form good questions
 - ▶ Objective – but not unopinionated

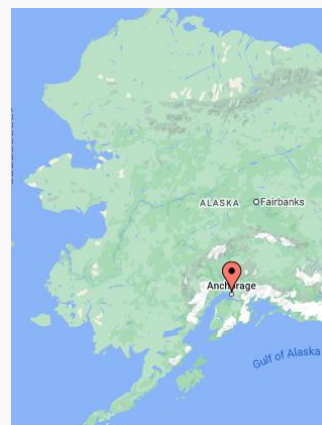


Welcome to the program!

- Welcome to this live online learning experience
 - ▶ Thanks for being part of our community, joining us today, lowering our carbon footprint
 - ▶ We recommend closing other screens and turning off notifications
 - ▶ Enjoy the relaxed dress code, and remember to stretch, stand, and hydrate!
- We hope to give you a positive and interactive experience
 - ▶ Feel free to raise your hand to ask a question (clarifying or otherwise) at any time
 - ▶ Use the chat function for questions or comments during the program
 - ▶ For help, contact Erin West via the Q&A, erinwest@msu.edu, or 517-355-1876
- A few program notes
 - ▶ Accessing course materials
 - ▶ Polls and practical exercises
 - ▶ Course evaluation forms
 - ▶ Certificates of attendance
 - ▶ Continuing education credits
 - ▶ Opening code word: _____
- Schedule
 - ▶ From 10 am to 4 pm Eastern Time Zone Monday - Wednesday
 - ▶ Three 80-min. modules with lunch from 1-2 pm and a 20-min. break at 11:20 am, ending the day with a discussion session from 3:20-4 pm.

Poll 1: Who's online today?

- State or federal regulatory commission: 40
- Consumer advocate: 2
- Environmental advocate: 3
- Consulting, accounting or law firm: 2
- Private owned utility: 2



Q. Use the **chat** function to introduce yourselves – who and where are you?

Poll 2: What is your role?

- Commissioner: 2
- Administrator or manager: 6
- Attorney: 10
- Engineer: 9
- Economist or policy analyst: 11
- Rate analyst: 7
- Financial analyst: 4

Program learning objective

- To understand the basic engineering form and function of electricity grids.
- To understand grid functions, from generation to transmission to distribution.
- To understand electricity economics, market structures, and regulation.
- To understand how energy resources are integrated into the power grid.
- To understand the technologies and policies driving sector transformation.

Q. Use the chat function to tell us what you hope to learn from the program – what is your “burning issue”?

Program agenda

- **Day 1**
 - ▶ Fundamentals of Power Systems and Grid Infrastructure [J. Mitra]

- **Day 2**
 - ▶ Fundamentals of Electricity Markets, Economics, & Regulation [S. Blumsack]

- **Day 3**
 - ▶ Grid Integration & Modeling for Distributed & Variable Resources [T. Veselka]

Program faculty

- Janice Beecher, Ph.D., Professor, Political Science, MSU and IPU Resident Fellow
- Joydeep Mitra, Professor, Electrical and Computer Engineering, MSU
- Seth Blumsack, Professor, Energy Policy and Economics and International Affairs, PSU
- Thomas Veselka, Principal Computational Engineer, Energy Systems, Argonne Natl. Lab.



Upcoming IPU Programs

- IPU Annual Regulatory Studies Program (CAMP),
The Fundamentals
August 12-16, 2024
- IPU Accounting and Ratemaking Course
September 17-19, 2024