

## IPUMSU

MICHIGAN STATE UNIVERSITY | INSTITUTE OF PUBLIC UTILITIES Regulatory Research and Education  
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## IPU Grid School II: Integrated Planning, Energy Transformation, and Climate Action April 6-8, 2021 Live Online Learning

*IPU Power Grid School covers the engineering and economics of the electric utility systems across the supply chain for power and its transformation, from generation to transmission to distribution.*

### Program Agenda

#### Tuesday

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|---------------------------|--|
| 10:00-11:20 am<br>80 min. | <b>Trends and Outlook for Energy in the United States</b> [L. Martin]<br>Projections through 2050 for U.S. energy sector. Outlook for energy consumption, prices, emissions under reference case and alternate assumptions. Electricity sector capacity and generation technology mix under multiple scenarios impact on CO2 Emissions. Regional variation in electricity projections. |
| 11:40-1:00 pm<br>80 min.  | <b>Energy Resource Adequacy and Reliability</b> [P. Sreedharan & M. Milligan]<br>Resource adequacy fundamentals. Origins of RA. Terminology. Methods for estimating RA. Quantification of renewable RA. Emerging methods. ESIG reimagining resource adequacy overview.   |
| 2:00-3:20 pm<br>80 min.   | <b>Integrated Resource Planning and Policy</b> [R. Wilson]<br>Overview of Integrated Resource Planning state level regulations and utility planning processes. Describes input assumptions, modeling techniques, creation of scenarios/sensitivities, and evaluation of resulting resource portfolios. Examples from recent utility IRPs.  |
| 3:40-5:00 pm<br>80 min.   | <b>Planning for Uncertainty, Extreme Events, and Power Outages</b> [J. Lau]<br>System planning in context and implementation challenges. Interdependent energy sectors and the grid. Planning for uncertainty, extreme events, and power supply outages. Federal, state, and local decision-making and oversight. Case studies.  |

#### Wednesday






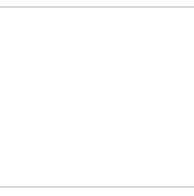

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|---------------------------|--|
| 10:00-11:20 am<br>80 min. | <b>Electrification, Demand-Side Modeling, and Demand Response</b> [J. Jorgenson]<br>Electrification considerations for future planning. Demand and peak load quantification. Flexible loads, now and in the future. Case studies.  |
| 11:40-1:00 pm<br>80 min.  | <b>Demand-Side Programs and Evaluation</b> [J. Taylor]<br>Types of energy efficiency and demand-side management (DSM) programs; load management and behavior change; program administration models; market transformation, efficiency resource acquisition, and integrated DSM; program evaluation methods; ENERGY STAR as a marketing platform; strategies for the hard to reach; policy and regulatory considerations. |







- 2:00-3:20 pm  
80 min.      **Distribution Systems and Planning** [J. Homer]  
Electric distribution systems and aspects of traditional and more advanced distribution system planning. Forecasting loads and distributed energy resources, data management, hosting capacity studies, locational value assessments, and non-wires alternatives. Regulators address distribution planning with DERs and grid modernization.
- 3:40-5:00 pm  
80 min.      **Pricing Behind-the-Meter Distributed Resources** [R. Ozar]  
Foundations of distributed generation pricing models. Net metering and successor pricing models. Computer modeling of behind-the-meter solar, and battery storage systems. Implications of modeling results on customer economics, rate design and cost of service.

### Thursday

- 10:00-11:20 am  
80 min.      **Economic Evaluation of Resources and Policies** [G. Upton]  
Economics of renewable energy resources and portfolio standards. Rate design with intermittent non-dispatchable resources.
- 11:40-1:00 pm  
80 min.      **Economic Evaluation of Resource Alternatives** [continued]
- 2:00-3:20 pm  
80 min.      **Setting and Achieving Utility Net-Zero Carbon Goals** [G. Stojic]  
Utility net zero carbon drivers. Electric utilities' role in reducing Greenhouse Gas emissions. Options for reducing and mitigating Greenhouse Gas emissions challenges for achieving net zero carbon. Role of offsets. Governance, Planning, and risk management. Utility role in community plans.
- 3:40-5:00 pm  
80 min.      **Planning Power Systems in the Climate Change Context** [M. Craig]  
Climate change impact and immediacy. Changing meteorology. Impacts on bulk power systems. Implications for operating and investment decisions. Utility methods for mitigating climate change risk.
- 5:00 pm      **Adjourn**

## IPU Power Grid School 2021: Program Faculty

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