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MICHIGAN STATE UNIVERSITY | INSTITUTE OF PUBLIC UTILITIES Regulatory Research and Education
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IPU Grid School Course II:

Supply-Side Dynamics: Energy Trends, Integrated Planning, and Climate Action

April 26-28, 2022 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

- | | |
|---------------------------|---|
| 10:00-11:20 am
80 min. | Trends and Outlook for Energy in the United States [L. Martin]
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 carbon dioxide emissions. Regional variation in electricity projections. |
| 11:40-1:00 pm
80 min. | Resource Adequacy and Diversification [D. Stenlik]
Evolution resource adequacy, capacity accreditation, and the planning reserve margin. Reliability considerations for energy storage, load flexibility, and the transition from capacity to energy adequacy. |
| 2:00-3:20 pm
80 min. | Sustainability Assessment of Energy Technologies [A. Anctil]
Sustainability assessment to reduce environmental impacts. Carbon footprints of energy production. Process-based life-cycle assessment (LCA) for clean energy alternatives (wind, solar, storage). Self-generation by prosumers. Highlights of theoretical and experimental research. |
| 3:30-4:00 pm
30 min. | Discussion |

Wednesday

- | | |
|---------------------------|---|
| 10:00-11:20 am
80 min. | Integrated Resource Planning [R. Wilson]
Types of planning. Overview of integrated resource planning, state policies, and utility planning processes. Describes input assumptions, modeling techniques, creation of scenarios/sensitivities, and evaluation of resulting resource portfolios. Noneconomic evaluation criteria. Examples from recent utility IRPs. |
| 11:40-1:00 pm
80 min. | Power System Planning for Uncertainty, Extremes, and Outages [J. Lau]
System planning and implementation. Interdependent energy sectors and the grid. Assuring resilience in the face of supply disruptions. Federal, state, and local decision-making and oversight. Case studies. |

2:00-3:20 pm
80 min. **Power System Planning and Climate Action** [M. Craig]
Changing meteorology and risks. Multi-sectoral impacts of the clean energy transition. Role of power systems in emissions reduction. Implications for operating and investment decisions. Utility methods for mitigating climate change risk and achieving carbon reduction carbon goals. Carbon offsets, taxes, and trading. Equity considerations.

3:30-4:00 pm
30 min. **Discussion**

Thursday





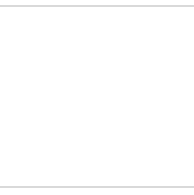


10:00-11:20 am
80 min. **Economic Evaluation of Resource Alternatives and Policies** [G. Upton]
Economics of renewable energy resources and portfolio standards. Impact of intermittent non-dispatchable resources. Cost allocation and rate design for energy consumers and prosumers. Implications of electrification for the supply side.



11:40-1:00 pm
80 min. **Economic Evaluation** [continued]

2:00-3:20 pm
80 min. **Emerging Models for Clean Energy Infrastructure** [L. Reed]
Transmission requirements. Energy storage. Distributed resources. Public and private sector roles and responsibilities.

3:30-4:00 pm
30 min. **Discussion**

IPU Power Grid School 2022: Program Faculty

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