GMLC Interconnection Cohort Workshop #2:

Workshop Topic: **Modern DER Capabilities and Deployment Considerations**
Date: March 8th, 2023, 1:00PM – 4:30PM ET
Location: Virtual – Teams link will be sent prior to event
Registration Link

Workshop Overview:
The workshop addresses PUC questions on modern DER technical capabilities, DER deployment concerns, and provides examples of how DERs can benefit different stakeholders. The workshop will provide information to help regulators answer questions such as,

- **Introduction** (5 min)
  Speaker: Michael Ingram

- **What decisions need to be made and by whom?** (45 min + 15 min Q&A)
  - Insights from implementing IEEE 1547 across various states.
    - **Speaker: Brian Lydic –** Ref: IREC 1547 decisions matrix

- **What are DERs and how can they be used?** (45 min + 15 min Q&A)
  - What are modern DER capabilities?
  - What are different DER configurations? (e.g., solar + storage hybrid systems, intentional islands)
  - Case studies
    Speaker: Andy Hoke - Modern inverters & experience from early deployments

- **Lessons learned from the regulatory perspective** (45 min + 15 min Q&A)
  Speaker: Michelle Rosier, Derek Duran

- **Summary of Educational Resources and Activities** (15 min)
  Speaker: Michael Ingram

- **Wrap-up** (5 min)
  Speaker: Michael Ingram

Speakers

Michael Ingram

Michael Ingram is a Chief Engineer at NREL and serves as Principal Investigator on multiple research projects supporting grid modernization and renewables integration, including hydropower. He has extensive experience providing technical assistance on renewable energy integration policy and technical requirements to multiple states, Puerto Rico, and international audiences. He has undertaken multiple FEMA deployments to the US Virgin Islands to assess recovery and mitigation readiness after Hurricane Maria and led two reports cited in the 2018 Quadrennial Energy Review (QER) covering the cybersecurity readiness of small and under-resourced utilities (electric cooperatives). He is also the lead author on the "*Guide to Updating Interconnection Rules and Incorporating IEEE Std 1547-2018*." Michael joined NREL following a 28-year career with the Tennessee Valley Authority. He is a Fellow of the IEEE and a registered professional engineer.

Brian Lydic

Brian Lydic is the Chief Regulatory Engineer for IREC and has been active in renewable energy since 2005. In his current role, Brian works with regulatory stakeholders to further the organization's mission to increase access to sustainable energy and energy efficiency, particularly through interconnection rule proceedings. He is a member of UL 1741 and IEEE 1547 working groups, helping to improve the grid integration of PV systems. Brian is a founding member and chair of the Forum on Inverter Grid Integration Issues (FIGII), an ad-hoc consortium of PV experts which seeks to address emerging high penetration issues through research and standardization. Working with utilities, manufacturers and experts, Brian helps to craft and revise technical requirements for grid interconnection in states across the country.

Andy Hoke

Andy Hoke is a principal engineer in the Power Systems Engineering Center at NREL, where he has worked for the past 12 years. He received Ph.D. and M.S. degrees in Electrical, Computer, and Energy Engineering from the University of Colorado, Boulder, in 2016 and 2013, respectively. Dr. Hoke's expertise is in grid integration of power electronics and inverter-based renewable and distributed energy. His work includes advanced inverter controls design, hardware-in-the-loop testing and model development, power systems modeling and simulation, and standards development. He has served as Chair of IEEE 1547.1 and P2800.2, which contain the test and verification procedures to ensure DERs and inverter-based resources conform to the grid interconnection requirements of IEEE Standards 1547 and 2800, respectively. He is a registered professional engineer in the State of Colorado.

Michelle Rosier

Michelle Rosier is the Regulatory Analysis Division Manager for the Minnesota Public Utilities Commission with four units (Energy Facilities & Permitting, Regional Energy Program, Economic Analysis, and Financial Analysis). Michelle previously served as Economic Analysis Supervisor with a team of 10 analysts working on rate design, comprehensive electricity planning, distributed energy resources, electric vehicles, power purchase agreements, load flexibility, natural gas utility innovation, affordability programs, service quality and service reliability, cyber security, data access, and other utility programs and pilots. Michelle has been with the MN PUC since 2017 and was previously the Distributed Energy Resource Specialist. Michelle has over 20 years' experience in energy regulation and policy and earned her master's degree in public policy focused on regulatory and industry analysis for energy and the environment from Harvard's Kennedy School of Government.

Derek Duran

Derek Duran is an Economic and Policy Analyst for the Minnesota Public Utilities Commission. Derek is the lead analyst on distribution system interconnection and distributed energy resources (DERs) like community solar gardens (CSGs). Derek has been with the MN PUC since 2021 and has been working cluster studies, cost-sharing programs, and hosting capacity analysis within the interconnection realm. Derek received a master's degree in Environmental Science and in Public Administration from the O'Neill School of Public and Environmental Affairs from Indiana University as well as B.S. in Sustainability from Arizona State University.