Beyond the Baseline: The Art & Science of Matching for Impact

Monday, October 6 | 8:30 – 11am | $185

Instructors: Collin Elliot, Greg Vitz, and Sarah Ardell, Verdant Associates

This 2.5-hour workshop will train attendees on best practices in matched control group development and describe new methods/approaches applicable to innovative program designs.

Matched control groups have been used for decades in energy evaluation research to represent counterfactual behaviors that are not measurable within the participant population's post treatment period and to provide additional accuracy and precision around estimated impacts.

Programs that encourage the installation of electrification measures, customer-sited generation, or transportation electrification (or combinations of these technologies) create additional complications for the development of matched control groups. In certain specific cases, identifying the proper matched control group is complicated by the lack of tracking of non-program measure adoption (i.e., finding a control group of residential heat pump adopters is complicated if you don't know who those customers are). Lastly, innovative programs targeting arrears management can also benefit from development of matched control groups to understand program influence.

Participants will learn to use demographic, billing, and AMI data to perform matched control group design. They will learn how to approach common evaluation challenges such as rolling enrollment programs with variable treatment timing, improving matching model specifications based on customer load shapes, and initial customer segmentation for optimization. Attendees will also learn to use techniques such as Mahalanobis distance and propensity score matching, and they will be provided with an overview of open-source tools that facilitate these workflows. The workshop will incorporate technical presentations and hands-on exercises using anonymized utility data. Participants will have the opportunity to work with example code in R or python, evaluate results, and collaborate with other participants to tackle example matching problems.

Who is this workshop for?

The target audience includes both seasoned practitioners seeking to share best practices and young professionals wanting to further develop their understanding of these statistical techniques.

Why is this course valuable?

Attendees will walk away with a playbook for developing matched control groups for all types of program designs including solar and storage, building electrification, and electric vehicle programs.

About the Instructors

Collin Elliot, Senior Principal Consultant with Verdant Associates, has worked for more than 20 years as a consultant for energy utilities and other industries in a broad range of technical and analytical areas. Collin has led many projects employing quasi-experimental designs, where a critical component of the research is the identification of a valid comparison group. He has worked in recent years with Pacific Gas & Electric, Southern California Edison, Seattle City Light, and Leapfrog Energy to help estimate the impact of demand response based on direct control of a variety of load types, from HVAC systems to battery storage, to electric vehicle charging. Collin holds an M.A. in Communications and Public Relations from the University of Maryland and a B.A. in Sociology and History from the University of Oregon.

Greg Vitz is a Senior Consultant at Verdant Associates. He has extensive experience in energy market assessments and distributed energy resource evaluations. His focus is quantitative analysis of demand response programs and their policy context. He specializes in efficiently handling large-scale customer data to inform business and policy decision making.

Greg holds a M.S. in Agriculture and Resource Economics and a B.S. in Energy and Environmental Policy from the University of Delaware.

Sarah Ardell is a Senior Analyst at Verdant Associates. She plays a key role in program evaluation and impact assessment. She contributes to a wide range of programs including commercial demand response, residential DER, energy efficiency and electrification. Dr. Ardell specializes in the rigorous analysis of both quantitative and qualitative data and excels at communicating complex findings to those with non-technical backgrounds.

Sarah received her Ph.D. in Biological Sciences and a B.S. in Ecology, Behavior, and Evolution both from the University of California San Diego.