Innovations in Energy Efficiency and Distributed Energy Resources

Learn how to design an energy efficiency program that achieves your utility's strategic goals while serving your customers. Integrate Design Thinking exercises and other tools to generate ideas and insights to inform program design.

Course Overview

How are utility efficiency programs responding to a rapidly changing world? As Internet/Communications Technologies (ICT) become more important to utility operations, and more Distributed Energy Resources (DERs) come online, efficiency programs and services are adapting and becoming more integrated. Learn about current industry trends in energy efficiency, including the inescapable forces of the early 21st century and the rise of artificial intelligence and connected devices. Learn the benefits of distributed energy resources (DER) and key opportunities for municipal utilities to improve customer service, increase reliability, and reduce costs through a range of DER activities.

Course Topics

- Drivers of changes to the utility industry – the physics of DERs, the internet of everything, and customer needs
- Emerging technologies and savings opportunities – connected devices and behavior-based savings
- Latest trends in real-time EM&V, measuring savings at the meter, and program designs to maximize successful outcomes
- Demand reduction and load management opportunities through energy efficiency, demand response, energy storage, and electric vehicles
- Integrating DERs into utility and power system planning

Draft Agenda

8:00 a.m. **Introductions and Course Overview**

- Important Concepts & Expectations

8:15 a.m. **Introduction: What's Causing Changes in Our Industry?**

- Inescapable Physics: Climate Change and Renewable Energy
- Inescapable Progress: The Internet and Commodity Data
- Inescapable Needs: Building the Case for Innovation
- Covid-19 and Customer Behavior
- Seeing Ahead: The Multi-Level Perspective & Innovation

9:00 a.m. **Break**

9:15 a.m. **What's New & Emerging in Our Industry?**

- The Internet & Grid Modernization
- Details on Distributed Energy Resources
- Net Zero Energy + the Duck Curve
- The Human Element
- Load Flexibility & Grid-interactive Efficient Buildings

10:15 a.m. **Break**

10:30 a.m. **How Do You Bring This Home?**

- Designing Successful “Experiments” for Defensible Results
- Measuring and Sharing Success
- Integrated DSM

11:30 a.m. **Wrap up and Discussion**

- Resources and Next Steps

12:00 p.m. **Adjourn**

Recommended for
This practical course is designed for utility staff and policymakers that are interested in learning about energy efficiency trends and best practices.

This course is part of APPA’s Energy Efficiency Management Certificate Program.

Course Level
Basic: No prerequisites; no advance preparation.

Instructor
Dan Fredman, Ph.D., Senior Consultant, VEIC
Dan is Senior Consultant at the Vermont Energy Investment Corporation (VEIC) with a PhD and a focus in data analytics and visualization. During his PhD he worked at the Lawrence Berkeley National Lab honing his expertise in emerging technologies, distributed energy resources (DERs) and experimental design for energy programs. He works with utilities and governments across the country to refine the measurement and analysis of demand response programs, behavior programs and the integration of grid-interactive technology.

Registration Info

- Provider: American Public Power Authority (APPA)
- Date: Wednesday, April 27, 2022
- Time: 8:00 a.m. - 12:00 p.m. Pacific Time
- Length: 1 day
- Platform: online
- Capacity: minimum of 15 attendees; maximum of 50 attendees

Estimated Enrollment Fee
SCPPA MEMBER RATE: $100-$350 per attendee