

Emerging World of Integrated Distributed Energy Resources

Moderator: Ellen Franconi, Rocky Mountain Institute

Panelists:

John Williams, NYSERDA

Jim Merriam, Vermont Energy Investment Corp.

Ed White, National Grid

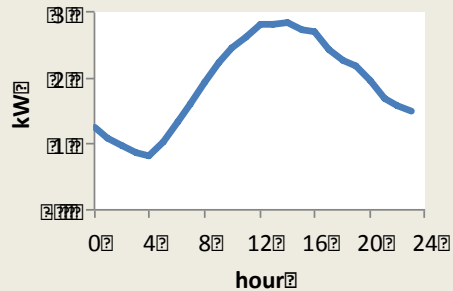
Patrick McDonnell, United Illuminating

IDSMS + Advanced Data and Analytics

To meet demand for electricity, utility customers used to buy it, but it is increasingly easy and cost-effective to make it, avoid it, or shift it.

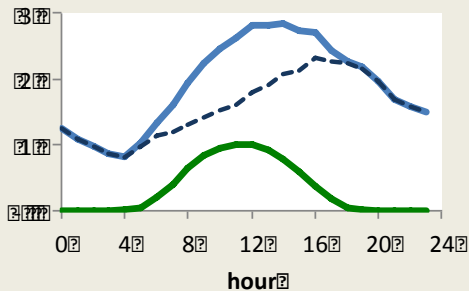
Grid Purchases

Buy kWh from the grid as and when needed.



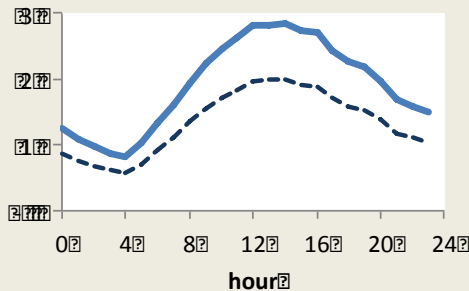
Distributed Generation

Generate electricity, changing the profile of net grid demand while reducing total grid demand.



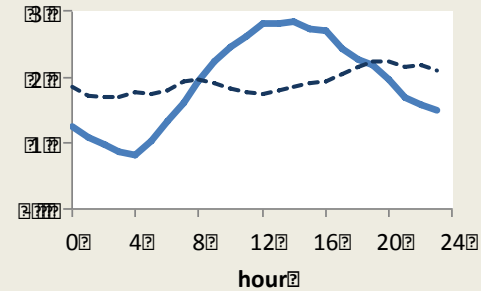
Energy Efficiency

Reduce demand whenever load is operated, thus lowering the daily load curve.



Demand Flexibility

Shift eligible loads across the hours of a day to lower-cost times, reshaping the daily load curve.



Source: RMI The Economics of Demand Flexibility

Advanced High
Frequency
Metering



Cloud Based
Advanced Data
Analytics



Measured Impact
on Load Shape to
Better Value IDSM
Resources

Next Generation Utility Programs

Recent CA Legislation

SB350 – Clean Energy and Pollution Reduction Act 2015

- Double the end-use energy-efficiency goals
- Pay for performance utility programs with goals, budgets, savings, and incentives linked to metered-based performance

AB802 – Energy Efficiency

- Utilities must provide owners with utility metered energy data
- Must determine how to incorporate meter-based performance into program design, incentives, and evaluation

CPUC Guidance

- Encourage savings not yet accounted for – e.g. operational, behavioral, and retro-cx activities
- Lead with high opportunity programs and inform programs that follow

Improving IDSM Valuation

Application	DSM Program Project Impact	DSM Program Project Impact	IDSM	DSM Program Program Impact
Example	Residential Program	Commercial Program	Capacity Market	DSM Program Impact
Valuation Approach	M&V	M&V	M&V	EM&V
Savings	Deemed	Adjusted Gross	Adjusted Gross	Net
Baseline Definition	Code baseline	Existing conditions with adjustments	Existing conditions with adjustments per standards	Common practice
Data Requirements	<ul style="list-style-type: none"> • Technical Reference Manual 	<ul style="list-style-type: none"> • Performance data • Adjustment parameters 	<ul style="list-style-type: none"> • Metered energy data • Adjustment parameters 	<ul style="list-style-type: none"> • Performance data • Adjustment parameters values • Building asset data, cohort data
Value of Interval Meter Data and Advanced Analytics	<ul style="list-style-type: none"> • Real time results • Savings refinement • Segment and target 	<ul style="list-style-type: none"> • Real time results • Capture unrealized savings • Scaling through automation 	<ul style="list-style-type: none"> • Real time results • Negawatt valuation • Segment, target, automate, scale 	<ul style="list-style-type: none"> • Real time results • Reduce time and costs • Segment, target, automate, scale

Emerging World of Integrated Distributed Energy Resources

1. What is the status of AMI meters in your jurisdiction?
2. What will programs of the future look like in your jurisdiction?
3. What are your perspectives on the EM&V considerations?