

Presented at the 2013 ACEEE National Conference on Energy Efficiency as a Resource



U.S. DEPARTMENT OF
ENERGY



Michael Li, Senior Policy Advisor, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy



Activities in support of the Western Governors' Association and the Western Electric Coordinating Council:

1. developing reference case and High DSM scenario projections of energy efficiency savings;
- 2. estimating the energy efficiency savings embedded within load forecasts prepared by balancing authorities throughout the interconnection;**
3. assisting in the development of high distributed generation penetration scenarios;
4. developing projections of high demand response potential; and
5. developing methods for incorporating demand response resources into regional production cost models.

<http://emp.lbl.gov/projects/incorporating-demand-side-resources-regional-transmission-planning>



- **Seventeen Technical Reference Manuals (TRMs) have been identified, covering 21 states and DC (as of Spring 2012)**
- **Savings estimates for identical measures varied widely with no clear explanation of the source**



Research by Brandy Brown, Energy Market Innovations:

- **Looked at 91 evaluation reports**
- **1/3 did not include evaluation methodology**
- **Over 1/3 did not include sampling methods**
- **Majority did not disclose analysis methods**



Develop and Publish 15–20 Protocols for Savings Calculations of Energy Efficiency Measures

Addresses most common residential and commercial efficiency measures in incentive programs

Presents step-by-step calculations for determining gross savings

Includes additional sections to address cross-cutting evaluation requirements

Phase 1 Complete; Phase 2 underway



Greater Consistency of Savings Calculations:

- Increases credibility of savings estimates
- Makes it easier and less costly for to quickly establish good EM&V practices
- Simplifies comparison of savings
- Helps utilities and program administrators manage regulatory risk
- Allows administrators to set data requirements early on



- **Designed to be applied to the largest efficiency programs**
- **Can be used by program administrators, PUCs, evaluators**
- **Basis for future technical reference manuals**



Protocols for Efficiency Measures (Phase 1)

Refrigerator recycling
Commercial lighting
Commercial lighting controls
Residential lighting
Residential furnaces and
boilers
Commercial unitary and split
system air conditioning
equipment
Whole-building retrofit

Cross-Cutting Protocols (Phase 1)

Sample design
Survey design
Metering
Calculation of peak impacts
Other evaluation topics
(including rebound and
persistence of savings)



Measures Covered:

- Chillers (drafted)
- Commercial/non-residential new construction (drafted)
- Retro-commissioning (drafted)
- HVAC controls
- Adjustable Speed Drive Motors
- Data centers (IT component)
- Residential new construction
- Residential behavioral programs
- Compressed air systems

Cross-Cutting Measures:

- Net-to-Gross Ratio (NTG)



State Officials

- **Miles Keogh, National Association of Regulatory Utility Commissioners**
- **Nancy Seidman, Commonwealth of Massachusetts**
- **Dub Taylor, State of Texas**

Utilities

- **Mike Brandt, Commonwealth Edison**
- **Mary Ann Ralls, National Rural Electric Cooperative Association**
- **Chuck Rea, MidAmerican Energy Company**
- **Gene Rodrigues, Southern California Edison**
- **Bill Newbold, Detroit Edison**

Efficiency Service Providers/ESCO

- **Donald Gilligan, National Association of Energy Service Companies**

Non-Profit Organizations

- **Tom Eckman, Regional Technical Forum**
- **Steve Kromer, Efficiency Valuation Organization**
- **Marty Kushler, American Council for an Energy-Efficient Economy**
- **Julie Michals, Northeast Energy Efficiency Partnerships**
- **Steve Schiller, on behalf of Lawrence Berkeley National Laboratory**

Observers

- **Phyllis Reha, Minnesota, Public Utility Commission**
- **Steve Rosenstock, Edison Electric Institute**
- **Lisa Wood, Institute for Electric Efficiency**

Technical Experts & Technical Advisory Group



U.S. DEPARTMENT OF
ENERGY



APEX
ANALYTICS, LLC



Left Fork Energy



Jacobson Energy Research LLC 



BuildingMetrics, Inc.



GDS Associates, Inc.
Engineers and Consultants



Pioneering Solutions for a Sustainable Energy Future



CADMUS



TETRA TECH



For more information visit:

eere.energy.gov/ump

Contact:

Michael.Li@ee.doe.gov



U.S. DEPARTMENT OF
ENERGY

 **NREL**
NATIONAL RENEWABLE ENERGY LABORATORY

CADMUS