

The Future of U.S. Utility Customer-Funded Energy Efficiency Programs: Projected Spending & Savings through 2025

Report Summary
January 2013

Galen Barbose, Charles Goldman
Ian Hoffman, Megan Billingsley
Electricity Markets and Policy Group
Lawrence Berkeley National Laboratory

Overview of Presentation



- **Context and Approach**
- **Current EE spending trends and policy drivers**
- **Projections of electric and gas program spending and savings through 2025**
- **Key challenges to dramatically scaling up EE program activity and issues on the horizon**

Context



- A proliferation of policies supporting customer-funded EE programs has occurred over the past 5-10 years, leading to substantial growth in program activity
- Significant uncertainties exist over the long term that may influence the impact of these policies on program spending and savings
- Understanding the range of potential outcomes is important to policy makers, energy planners & modelers, efficiency program administrators, and the energy services industry
- LBNL conducted an analysis in 2009 to project spending and savings from customer-funded EE programs to 2020, examining a range of scenarios; this study updates and extends that earlier analysis to 2025

Approach



- **State-by-state projections of electric & gas efficiency program spending, and electric program savings**
 - Based on detailed review of state policies and program results, DSM and resource plans, and other regulatory documents
 - Informed by interviews with program administrators, regulators, and regional energy efficiency organizations
- **Low, medium, and high scenarios for each state reflect uncertainties related to:**
 - Policy implementation & efficacy (e.g., impact of rate caps)
 - Broader policy and market drivers (e.g., natural gas prices and impact of efficiency standards/codes)
- **Scenarios are not intended to capture the full range of uncertainties (e.g., future macroeconomic conditions) or wholesale shifts in a state/federal EE policies**

See technical report for further details

Current EE Spending at an All-Time High but Concentrated in a Handful of States



2010 Customer-Funded EE Program Spending (\$M)

Rank	State	Electric	Gas	Total
1	CA	938	201	1,139
2	NY	482	39	521
3	NJ	191	126	317
4	MA	245	72	317
5	WA	218	29	247
6	FL	165	11	176
7	OR	135	23	158
8	MN	107	36	144
9	CT	108	12	119
10	MI	75	41	116
All Other States		1,284	247	1,531
U.S. Total		3,948	838	4,786

- Total electric and gas EE program spending more than doubled over latter half of decade (from \$2B in 2006 to \$4.8B in 2010)
- Two thirds of total U.S. spending concentrated in 10 states
- Roughly 80%/20% split between electric and gas program spending

Source: CEE (2012), excludes load management

Key Policy Drivers for EE Program Spending and Savings Projections



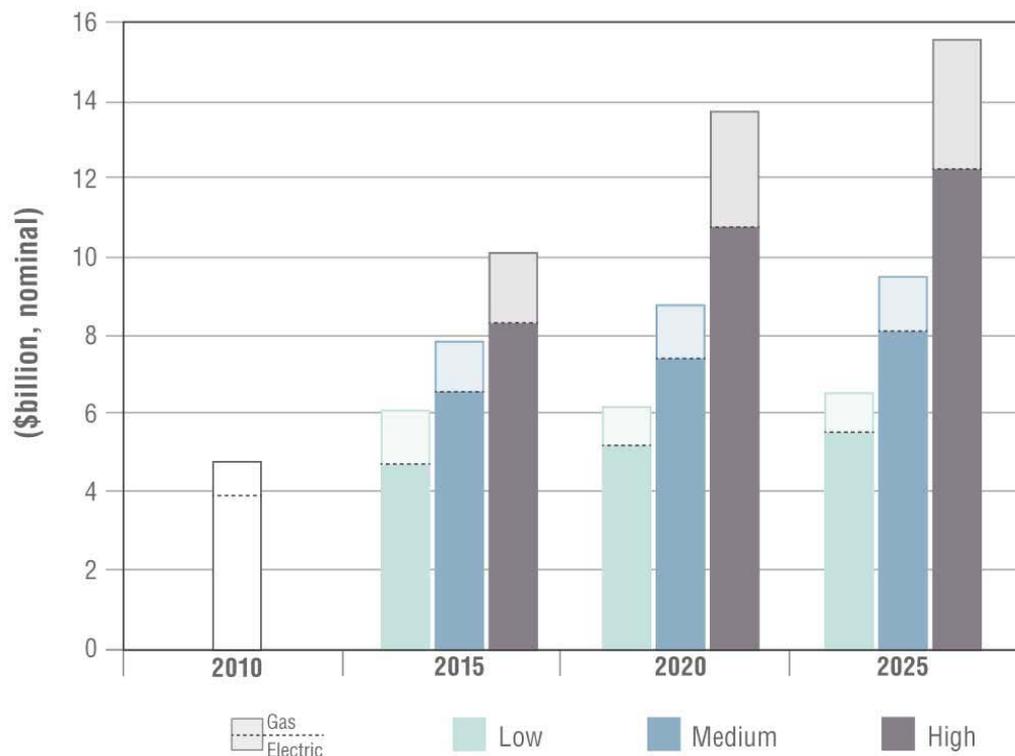
Key Policy Drivers for Energy Efficiency Spending and Savings	Applicable to Electric Efficiency Programs	Applicable to Natural Gas Efficiency Programs
Energy Efficiency Resource Standard (EERS)	AZ, CA, CO, HI, IL, IN, MD, MI, MN, MO, NM, NY, OH, PA, TX	CA, CO, MI, MN, NY, IL
Energy efficiency eligibility under state RPS	HI, MI, NC, OH, NV	
Statutory requirement that utilities acquire all cost-effective energy efficiency	CA, CT, MA, RI, VT, WA	CA, CT, MA, RI, VT, WA
Systems benefit charges	CA, CT, DC, MA, ME, MT, NH, NJ, NY, OH, OR, RI, VT, WI	CA, DC, ME, MT, NJ, NY, RI, WI
Integrated resource planning	34 States (primarily in the West and Southeast) and TVA	17 States (primarily in the West and Northeast)
Demand Side Management plan or energy efficiency budget	28 States	21 States (primarily in the Northeast and Midwest)

Projected Growth in Electric & Gas EE Program Spending Varies Across Scenarios



- Total electric & gas spending doubles to \$9.5B in 2025 in the medium case (low: \$6.5B, high: \$15.6B)
- Equates to average growth of 5%/yr in medium case (low: 2%/yr, high: 8%/yr)
- In comparison, spending grew at 5%/yr from 1997-2006 and at 26%/yr from 2006-2010
- Electric program spending grows faster than gas spending in low and medium cases, but slower in high case

Projected Utility Customer Funding for Electric and Gas EE Programs

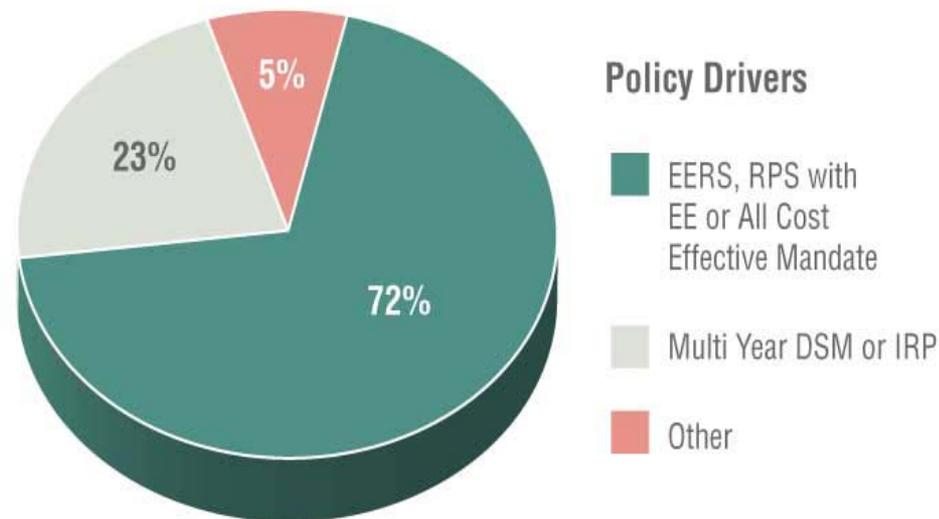


Projected Electric EE Spending is Driven Largely by State EERS Policies



- Electric EE spending doubles to \$8.1B (1.7% of revenues) in the medium case (low: \$5.5B, high: \$12.2B)
- EERS and “all cost-effective EE” mandates are the dominant policy drivers
- Spending growth is “front-loaded” with 11%/yr growth through 2015 but 2%/year from 2020-2025 (medium case)

Policy Drivers for Electric EE Spending (Medium Case, 2025)

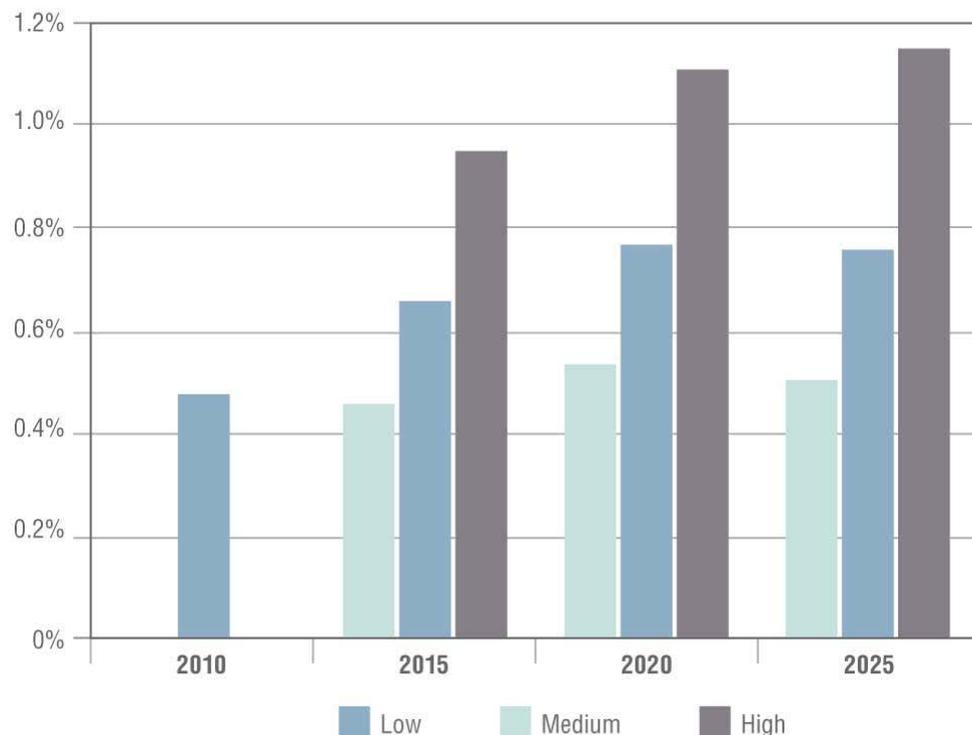


Projected Electricity Savings Rise in Tandem with Increased Spending



- In 2010, total incremental annual savings from electric EE programs was 18.4 TWh or 0.5% of U.S. retail sales (ACEEE)
- Projected annual incremental savings rise to 0.76% by 2025 in medium case (low: 0.53%, high: 1.13%)
- As a point of comparison, EIA's 2012 reference case projects that U.S. electric retail sales will grow by 0.58% annually through 2025
- Projected EE savings would offset much of this forecasted electric load growth (given certain assumptions about the extent to which EIA's forecast captures EE program savings)

Projected Incremental Annual Electric EE Savings from Customer-Funded Programs (Percent of Retail Sales)

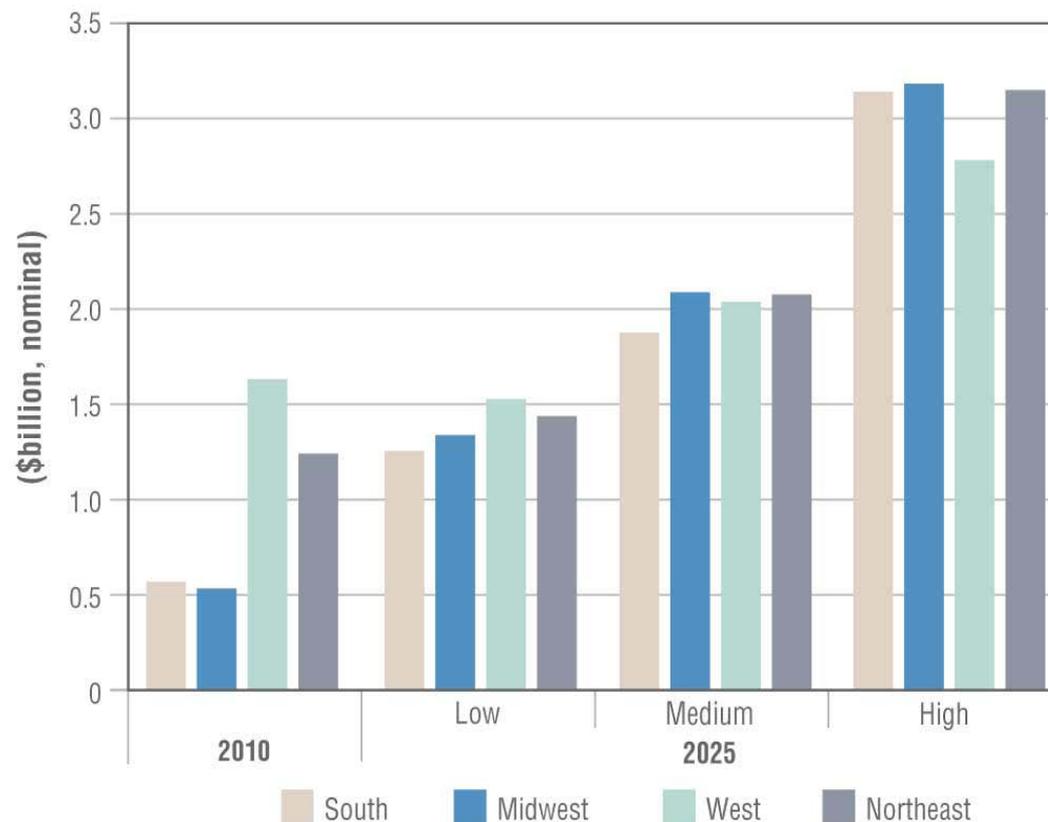


Electric EE Spending Growth Driven by Midwest and South



- Populous Midwest states with aggressive EERS are ramping up (IL, IN, MI, OH)
- Spending growth in South driven by several larger states with modest EERS policies and/or nascent IRP/DSM planning processes (FL, TX, NC, MD, KY)
- In Northeast and West, which historically have dominated the EE program landscape, spending also increases in the medium case, but more slowly than the other two regions

Projected Electric EE Program Spending Growth by Census Region

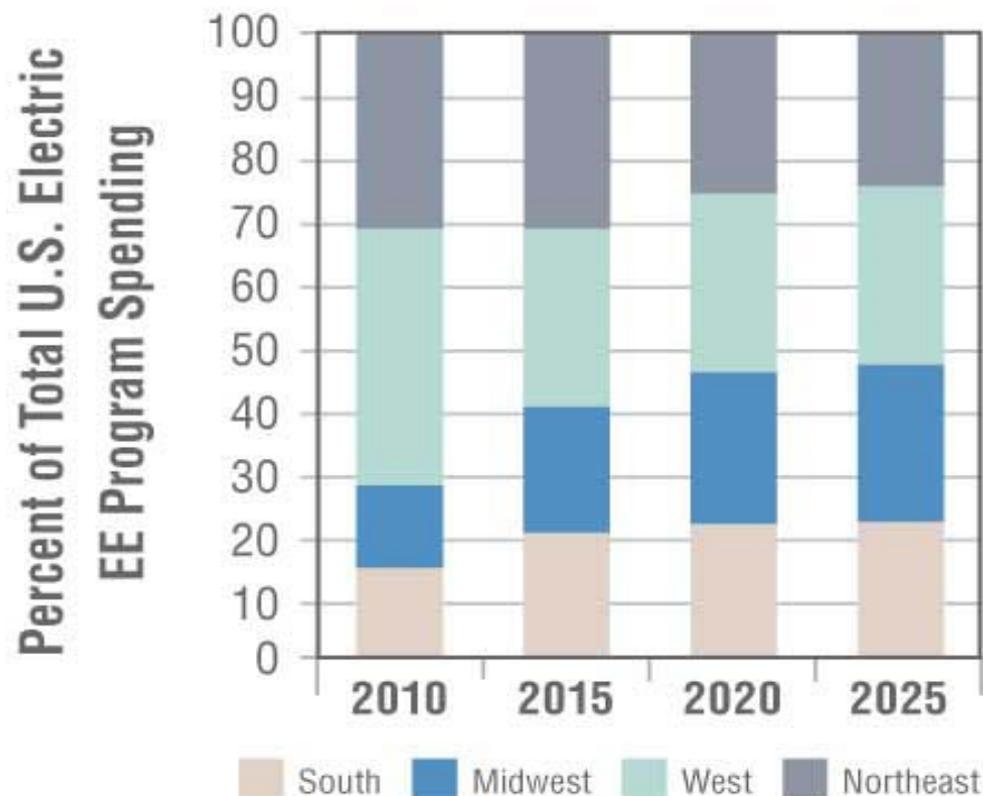


Electric EE Funding Projected to Become More Evenly Distributed Across Regions



- Historically, West and Northeast constituted 70% of U.S. electric EE program spending
- As a result of strong projected growth in the Midwest and South, their collective share of U.S. spending grows to almost 50% by 2025 (in medium case)
- But this distribution reflects absolute spending levels...

Regional Distribution of Electric EE Program Spending (Medium Case)

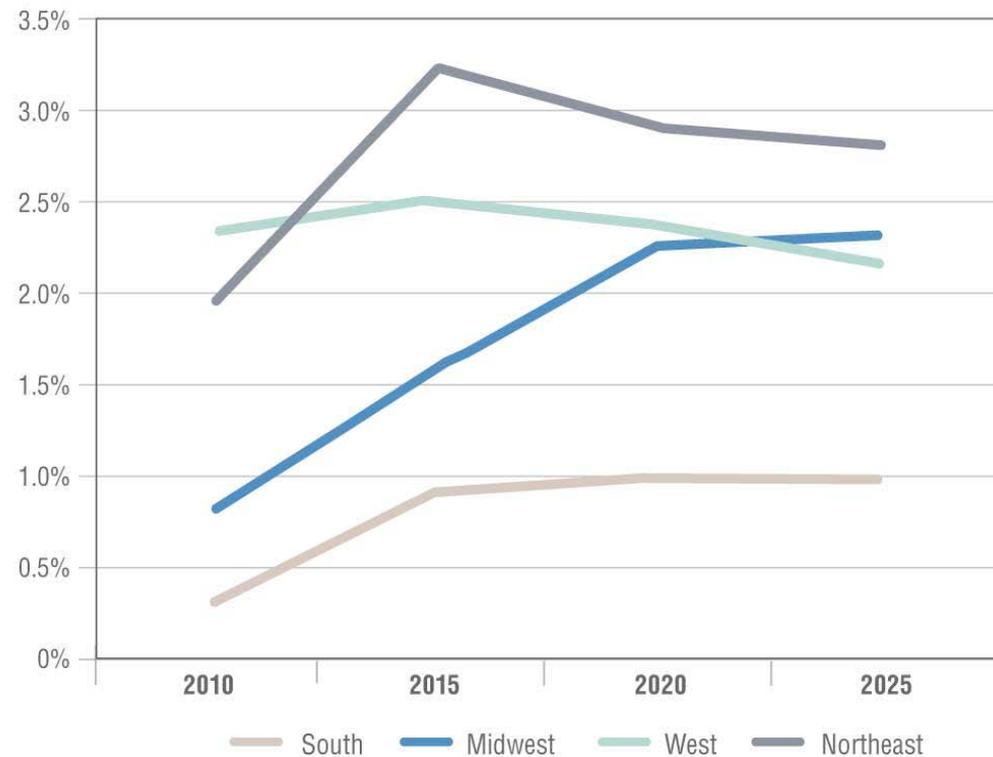


Electric EE Spending as Percentage of Revenues Tells a More Nuanced Story



- In Northeast, spending increases rapidly as states seek to capture all cost-effective potential
- Spending in the West remains relatively flat reflecting declining potential in CA, partially offset by spending growth elsewhere
- Spending in Midwest rises steadily through 2020 (when most EERS targets reach their terminal level)
- In South, spending as a percentage of revenues increases but remains well below other regions

Projected Customer Funding for Electric EE Programs (Percent of Utility Revenues)

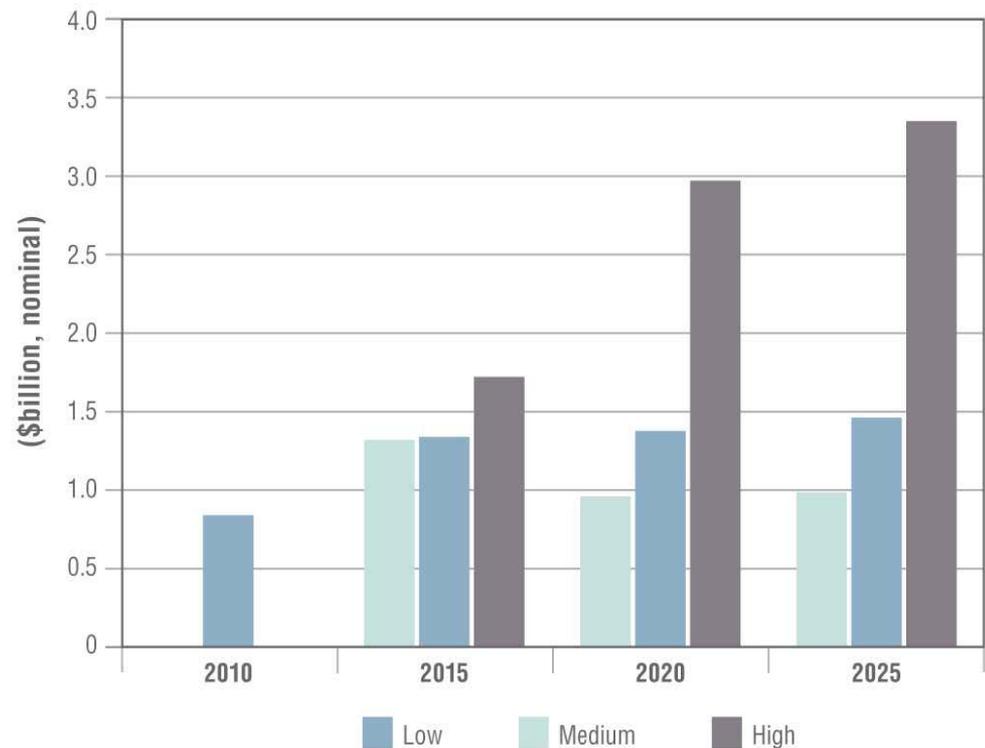


Projected Gas EE Spending Dampened by Low Gas Prices and Efficiency Standards



- Gas EE program spending increases through 2015, reflecting approved gas DSM plans
- Thereafter, spending remains relatively flat (medium case) or declines (low case)
- Bearish outlook compared to electric EE reflects impact of low gas prices and efficiency standards
- High case would require significant increases in natural gas prices and dramatically expanded gas EE programs offerings for non-residential and “transportation gas” customers

Projected Natural Gas EE Program Spending



Key Issues and Uncertainties:

Broader Policy and Market Context



- A persistent economic downturn may impact the ability of EE administrators to meet savings targets as well as the political feasibility of increasing ratepayer funding for EE programs
- Low natural gas prices reduce the avoided energy forecast and the headroom for cost-effective EE, as well as participant interest
- The effect of new State and Federal appliance and lighting efficiency standards on the remaining market potential for voluntary EE programs
- EE programs can be part of the compliance solution for retiring coal-fired units – how much reliance on EE vs. supply-side options?

Key Issues and Uncertainties:

EE Program Implementation and Regulatory Oversight



- Short-term rate impacts associated with large-scale energy efficiency implementation
- Innovative program designs to reach deeper and broader savings in order to achieve goals significantly beyond current achievement
- Extending gas EE programs to transportation gas (i.e., “non-core”) customers
- Sustainable EE business models to motivate program administrators

For more information...



Full Report (once posted):

<http://emp.lbl.gov/publications>

Contact the Authors:

Galen Barbose (gbarbose@lbl.gov) (510) 495-2593

Chuck Goldman (cagoldman@lbl.gov) (510) 486-4637

Ian Hoffman (ihoffman@lbl.gov) (510) 495-2990

Megan Billingsley (MABillingsley@lbl.gov) (510) 495-2588