The Shifting Landscape of Ratepayer-Funded Energy Efficiency in the U.S.

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Report Summary
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Presentation Outline

- Overview and analysis of recent trends in state policies affecting ratepayer-funded energy efficiency (EE) programs
- Berkeley Lab's projection of spending and savings from ratepayer-funded EE programs through 2020
  - Implications for the potential incremental impact of a national energy efficiency portfolio standard (EERS)
  - Potential contribution to national greenhouse gas emission reduction targets
- Key challenges to dramatically scaling-up ratepayer-funded EE program activity

Current EE Funding is at an All-Time High but is Concentrated in 10 States

Rank	State	2008 Budget ($M)		
		Electric	Gas	Total
1	CA	831	183	1,014
2	NY	258	30	288
3	NJ	135	61	196
4	WA	160	18	179
5	MA	121	28	149
6	WI	76	64	140
7	MN	106	30	137
8	FL	109	15	124
9	CT	107	7	114
10	TX	106	no data	106
All Other States		592	94	686
U.S. Total		2,603	529	3,132

Source: CEE; excludes budget for load management programs.

- **2008 U.S. electric and gas EE budget = $3.1B** (0.6% of revenue from U.S. retail sales)
- **80% of total funding is concentrated in 10 states**
  - CA represents 1/3rd of U.S. total
- **Approx. 85% of total funding is for electric end-uses**

New State Policies Suggest that EE Landscape is on the Verge of Dramatic Change

- **Traditionally leading states are poised to redouble their efforts**
  - New EEPS policies adopted or under consideration (NY, WI, NJ)
  - Statutory requirements to acquire all cost-effective EE (CA, CT, MA, RI, WA)
  - Aggressive EE acquisitions in IRPs (PacNW)
  - In CA, EE will remain central energy policy but ratepayer-funding may decline (e.g., as new Fed/state standards take effect)
- **Substantial funding increases are expected in a number of "up-and-coming" states**
  - New EEPS policies (CO, IL, MD, MI, NC, NM, OH, PA, HI)
  - Aggressive EE acquisitions in IRP/DSM plans (AZ, CO, NM, NV)
- **Yet, many states (mostly in Southeast and parts of Midwest) have not made significant commitments to ratepayer-funded EE**

Berkeley Lab Projections of Ratepayer-Funded EE Program Spending & Savings

LBNL developed Low, Medium, and High projections of electric and natural gas energy efficiency program spending and savings through 2020

Approach

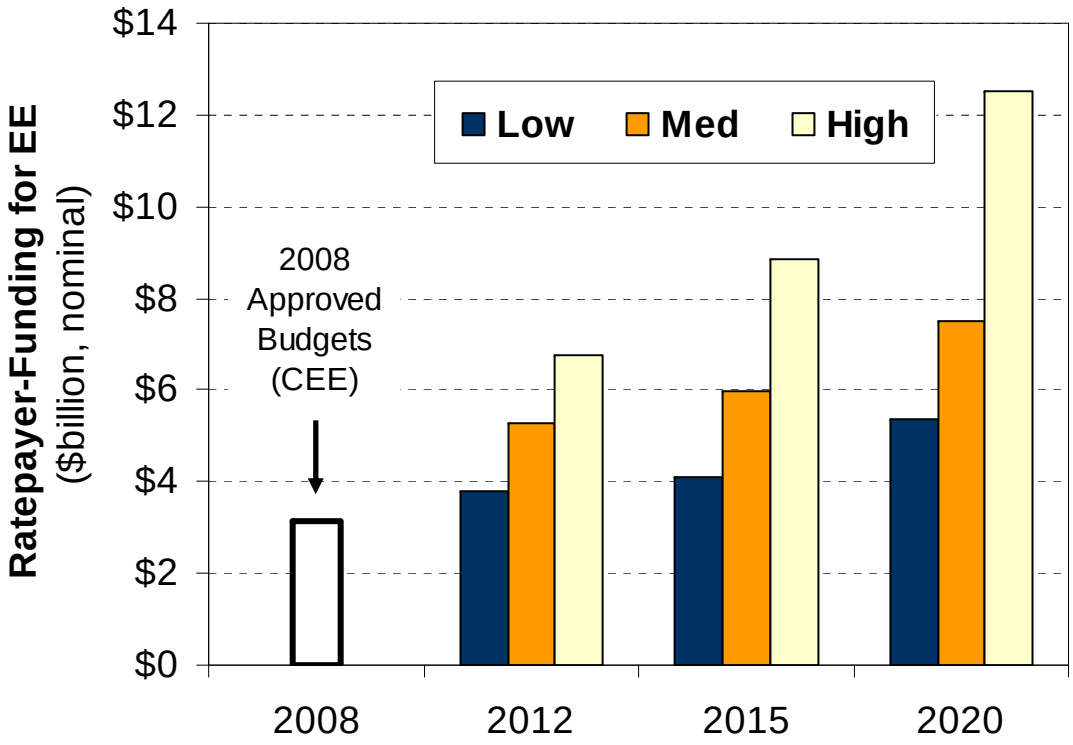
- ***Leading*** and ***Up-and-Coming*** states: scenarios reflect state- or region-specific assumptions about how effectively and aggressively EE policies currently in place (or under consideration) are implemented
- ***Uncommitted*** states: standardized scenarios are used, specified in terms of spending level (as % of revenues) by particular years (e.g., High Case is 0.8% of revenues by 2020)
- Note: projections do not account for ARRA funding or other "non-traditional" sources (e.g., emission allowance auction revenues, capacity markets)

See LBNL report for full methodological details

LBNL Projects Substantial Increases in Ratepayer-Funded EE by 2020 in Medium & High Scenarios

- **EE funding projected at $7.4B-$12.4B in Medium and High scenario by 2020**
  - Equal to approx. **250%** (Medium Case) and **400%** (High Case) of 2008 funding levels
- **As % of revenue from retail electric and gas sales, spending increases to 1.1% (Medium) 1.8% in High Case in 2020** (compared to 0.6% in 2008)

Projected Ratepayer-Funding for EE Programs in the U.S. (Electric + Gas)



EE Funding is also Likely to Become Much More Evenly Distributed Across U.S.

- **Populous states with historically low EE funding but aggressive new EEPS policies** (IL, MI, NC, OH, PA) **emerge as major new markets**
- **Other states with historically large budgets** (NY, MA) **are likely to expand funding and close the gap with CA**

Top-10 Energy Efficiency Markets in 2020, Ranked by Annual Budget Projections

Rank	2008 Budget ($M, nominal)		2020 Spending Projections			
			Medium ($M, nominal)		High ($M, nominal)	
1	CA	1,014	NY	808	CA	1,312
2	NY	288	CA	538	NY	1,094
3	NJ	196	MA	477	TX	882
4	WA	179	IL	449	IL	805
5	MA	149	NJ	424	MA	630
6	WI	140	OH	375	OH	595
7	MN	137	NC	283	WI	575
8	FL	124	PA	274	NJ	504
9	CT	114	WI	270	PA	467
10	TX	106	MI	265	MN	413
Top-10 ($M)	2,447		4,164		7,277	
% of U.S.	78%		55%		58%	
Other States ($M)	686		3,342		5,247	
% of U.S.	22%		45%		42%	

- **A much greater portion of total U.S. funding is likely to occur outside of the top-10 markets by 2020** (i.e., 42-45%, compared to 22% today)

Many States Are Expected to See Funding Increases of >$200-300M by 2020

- **Some of the largest funding increases across all scenarios are expected in populous "up-and-comers"** (IL, MD, MI, NC, OH, PA)
- **Large funding increases (>$200M) also projected under Med/High scenarios for many traditionally leading states**

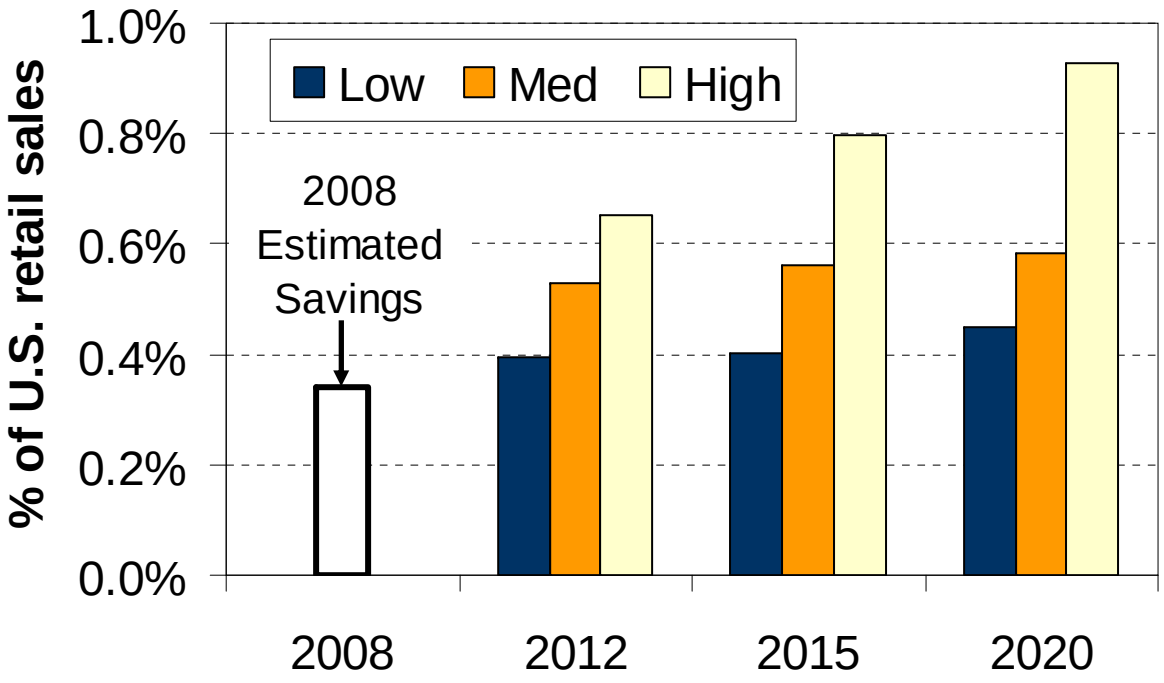
States with Largest Projected Funding Increase (2008-2020)

Rank	Medium Case ($M, nominal)			High Case ($M, nominal)		
	State	2008 Budget	2008-2020 Increase	State	2008 Budget	2008-2020 Increase
1	NY	288	520	NY	288	806
2	IL	41	408	TX	106	775
3	MA	149	328	IL	41	764
4	OH	58	317	OH	58	537
5	NC	0	283	MA	149	481
6	PA	0	274	PA	0	467
7	MI	20	245	WI	140	435
8	NJ	196	228	MD	6	348
9	MD	6	184	NC	0	324
10	CO	26	154	MI	20	313

Electricity Savings from Ratepayer-Funded Programs Projected to Grow Substantially

- **2008 U.S. annual electricity savings = 0.34% of retail sales** (estimate)
  - Represents 1st-yr. savings from measures funded in 2008
  - Some leading states achieved savings >1% (VT reports 2.5%)
- **Annual electricity savings are projected to rise to 0.58% (Medium) to 0.93% (High) of retail sales by 2020**

Projected Incremental Annual Electric EE Savings from Ratepayer-Funded Programs



- **Cumulative savings by 2020 equal 6.1% (Medium) to 8.6% (High) of EIA's reference case forecast of 2020 retail electricity sales**

State-Level EE Policies Could Meet a Sizable Portion of a Federal Electric EERS

- **LBNL compared state EE projections with generic national EEPS policy and three alternative targets:**
  - Cumulative savings equal to 5%, 10%, or 15% of 2020 retail electricity sales
- **LBNL assumed that 50% of EERS target is met through other EE strategies** (e.g., codes & standards, CHP)
- **In 2020, a 5% EERS would require little or no increase in aggregate savings from ratepayer funded-programs (relative to LBNL projections)**
- **A 15% EERS would require a moderate aggregate increase**

Projected Incremental Impact of a National EERS on Ratepayer-Funded Energy Efficiency Program Savings

National EERS Saving Target: *Cumulative Savings in 2020 as a Percent of Retail Sales*	**% Increase in EE Program Savings** (Relative to No National EERS)
5%	**0 - 12%**
10%	**8 - 37%**
15%	**18 - 68%**

Projected Savings Would Contribute Modestly to a Federal Cap-and-Trade System

- **Projected savings from ratepayer-funded electric EE programs implemented in 2010-2020 would yield emission reductions of 69-125 mmtCO_2e (Low Case) or 117-211 mmtCO_2e (High Case) in 2020**
  - Based on back-of-the-envelope analysis
  - Range for each case reflects uncertainty in marginal generator emission rate
- **As an *example* of the potential emission reductions required under a federal cap-and-trade (i.e., not an endorsement or prediction)…**
- **EPA projects that *The American Clean Energy and Security Act of 2009* (the Waxman-Markey bill) would require emission reductions of approximately 900 mmtCO_2e by 2020.**
- **LBNL's projection of emission reductions from ratepayer-funded EE programs represents 5-18% of the total required emission reduction**
  - Under the assumption that EPA reference case includes business-as-usual ratepayer funded EE program savings (equal to 50% of 2008 savings)

Key Challenges to Dramatically Scaling Up Ratepayer-Funded EE over the Next Decade

- The economic downturn, which may affect both the ability of programs to acquire savings, and the political feasibility of increasing ratepayer funding for energy efficiency programs
- General aversion to short-term rate impacts associated with large-scale energy efficiency implementation (a longer-term issue distinct from the economic downturn)
- Coordination with state/federal energy efficiency programs, including, in the near-term, programs funded through The American Recovery and Reinvestment Act (aka, the "stimulus bill")
- The need to develop innovative program designs to reach deeper and broader savings, in order to achieve statewide savings goals significantly beyond what is currently being achieved
- The effect of new state and/or Federal appliance and lighting efficiency standards on the remaining market potential that can be captured by voluntary energy efficiency programs
- The need to develop the institutional framework for effective regulatory oversight of ratepayer-funded energy efficiency programs in states that historically have not had significant program activity
- The potential, most likely near-term, shortage of trained personnel in the energy efficiency services sector

For More Information...

Download the Report:

http://eetd.lbl.gov/ea/emp/ee-pubs.html

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