



*An Energy-Efficiency Workshop and Exposition*  
*Orlando, Florida*

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# Leveraging Public Benefit Funds for Energy Efficiency and Renewable Projects

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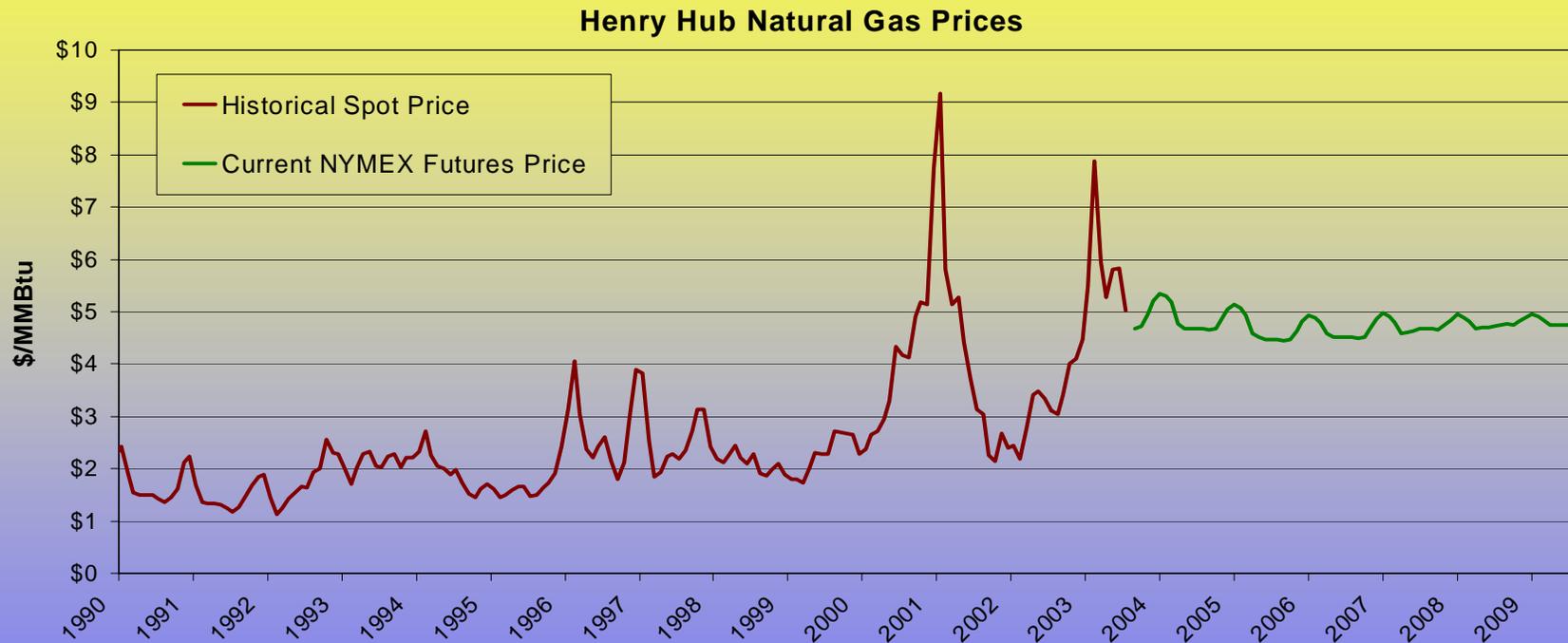


## Overview of Presentation

- Regulatory and Market Drivers
  - Developments in Gas Market
  - Electric restructuring – stuck in the big muddy
  - State budget crises
- Program Opportunities for Federal Customers
  - Attractive energy efficiency and renewable energy programs
  - FEMP Energy Management website and Technical Assistance



# Gas Market Trends: Is the party over?





## Using Demand Management to Stabilize Natural Gas Prices

- New gas supplies are needed, but...
  - In the near-term, limited ability to expand production
  - Long-term forecasts suggest that high gas prices will persist for 5-7 years
- Demand management efforts can:
  - Ramp up quickly to respond to a short-term crisis
  - Produce results in both short and long-term: conservation and energy efficiency
  - Reduce customer utility bills by exploiting cost-effective opportunities



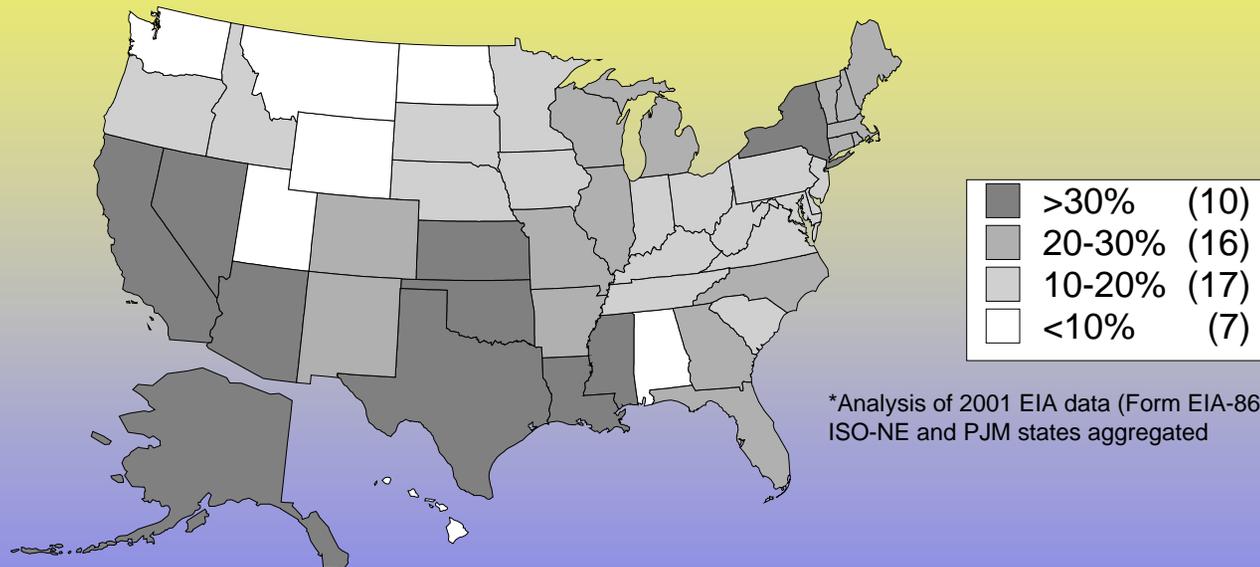
## Demand Management Strategies to reduce Gas Use

- Electric end-use efficiency and conservation likely to offer “biggest bang for the buck” to reduce gas demand
- Gas end-use efficiency and conservation also offer significant opportunities
- Demand Response/dynamic pricing
  - Impact on UEG gas demand varies by region
- Fuel Switching
- Combined Heat and Power



## Electric efficiency can back off natural gas plants operating on the margin

### Natural Gas Fired Plant Capacity (GW) as Percent of Total\*



- Power sector is main driver of higher gas demand
- 97% of net growth in capacity since 1990 is natural gas fired (including dual-fired)
- Key electric end uses: Residential A/C, Commercial HVAC systems and lighting
- Free up natural gas during summer for injection into storage



# Many un-tapped opportunities for natural gas efficiency

- Ratepayer funds for natural gas efficiency lags behind electric efficiency (~\$150M vs. ~\$1 Billion)
- Natural gas public benefits mechanisms established in several states: CA (\$63M), NJ (\$34M), OR (\$5M), MA
- And DSM programs in several others: WI (\$15), MN (\$12), WA (\$2), IA, VT

## Gas Energy Efficiency Potential (2020)\*

Measure	Savings (Bcf)	Avg. Cost (\$/therm)
<i>Residential</i>		
Duct/Air Sealing	310	0.45
Windows	233	0.15
New Homes	178	0.40
Furnaces/boilers	162	0.48
Appliances	53	0.86
Water Heaters	52	0.37
<i>Commercial</i>		
Re-commissioning	362	0.23
Furnaces/boilers	181	0.08
Retrofits (e.g. HVAC)	162	0.36
Adv. Glazing	145	0.30
New Construction	140	0.32
Operator training	51	0.06
<i>Industrial</i>		
Management Practices	402	0.53

\*Source: S. Nadel, ACEEE, "Screening MT Opportunities" Aug. 2002



## Electric Restructuring: Stuck in the big muddy?

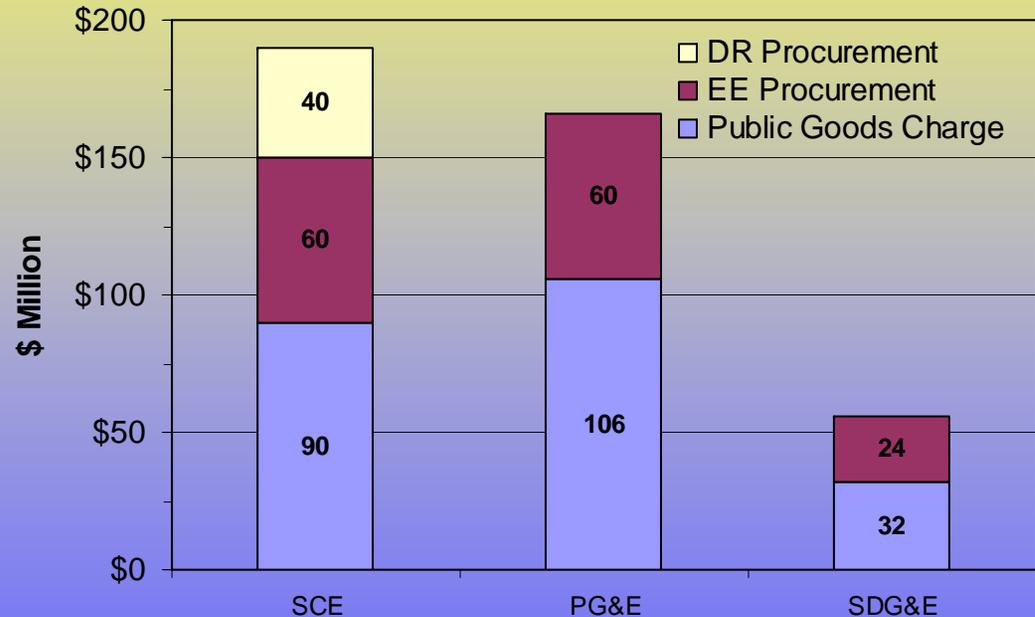
- Federal-State Regulatory Conflicts
  - Two visions: Embrace wholesale market and adopt supporting retail market policies vs. Maintain vertically-integrated utility regime under state regulation
- Implications
  - SMD “lite”
  - Regional approaches to resource adequacy



## California Utility Resource Plans Supplement EE Public Benefits Fund

- CPUC requires long-term resource procurement plans
- Utilities directed to “consider investment in all cost-effective energy efficiency”
- CPUC considering moving toward an energy efficiency portfolio standard

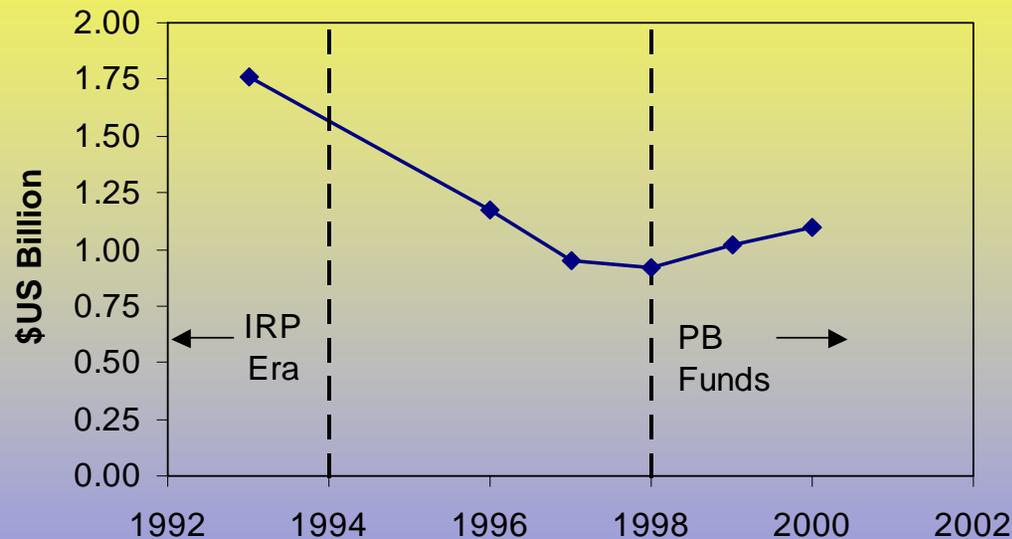
CA IOU Proposed Annual Budgets  
2004-2008



Source of Data: Foster, R., 2003. "Energy Efficiency as a Reliable Resource for California's Future," Presentation at ACEEE National Conference on Energy



## Historical Trends in Electric Energy Efficiency Spending



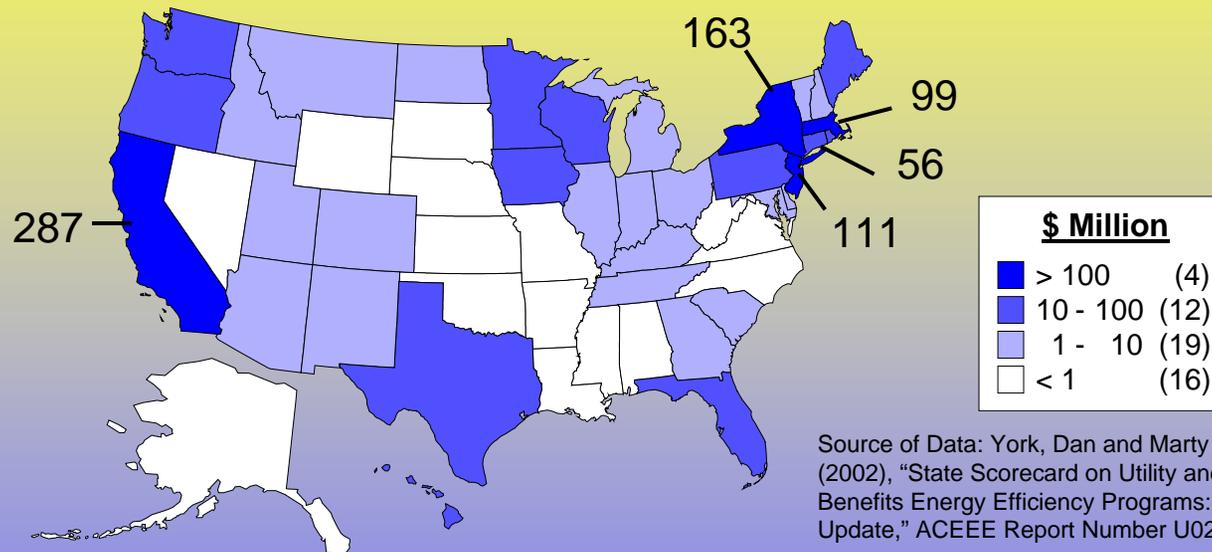
Source of Data: York, Dan and Marty Kushler (2002), "State Scorecard on Utility and Public Benefits Energy Efficiency Programs: An Update," ACEEE Report Number U023.

- Energy Efficiency (EE) programs supported through utility rates and public benefit fund programs
- Public benefit funds stabilized EE spending in late 1990s



# Electric Energy Efficiency Spending by State

Electric Energy Efficiency Spending in 2000 (\$ million)



Source of Data: York, Dan and Marty Kushler (2002), "State Scorecard on Utility and Public Benefits Energy Efficiency Programs: An Update," ACEEE Report Number U023.

- Top five states account for ~2/3 of Total EE funding
- Public benefit funds authorized by state legislatures for various time periods
- Program objectives balance cost-effective resource acquisition and market transformation



## Energy Efficiency Programs: Looking Forward

- Public Benefits Programs under pressure due to state budget problems
  - Wisconsin: 38% budget cut (\$47 M over next two years)
  - Connecticut: Energy efficiency fund cut by 32% for 7 years (\$87M to 59M/year)
- Pressure for *increased* EE spending in some states that are not restructuring
  - Southwest Energy Efficiency Project (SWEET)
  - IRP (and Portfolio Management) not dead yet
  - Efficiency Performance Standards
    - Texas restructuring legislation requires 10% of growth to be met by EE through 2009
    - Legislation introduced in Colorado
    - A national standard?



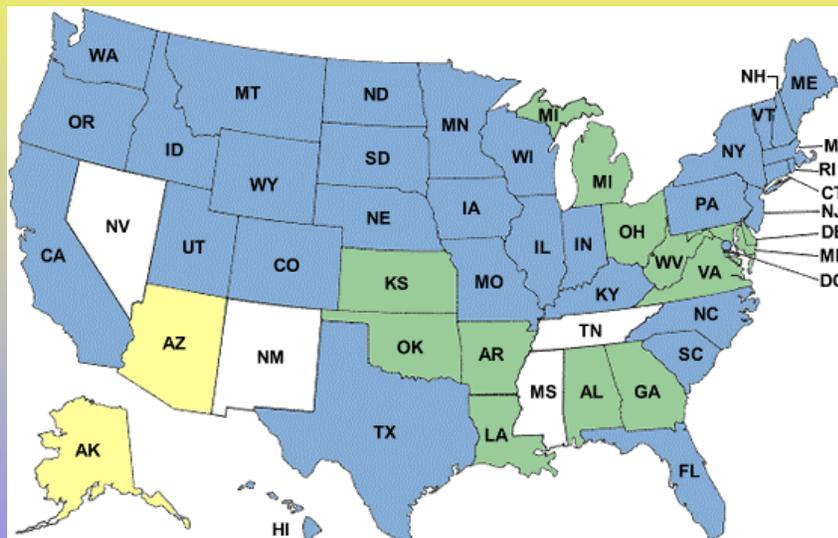
## “Top Ten” Electric EE Incentive Programs for Federal Customers

<b>Administrator</b>	<b>Program</b>	<b>Annual Funding</b>
NYSERDA	Commercial/Industrial Performance Program	\$30 M
	New Construction Program	\$28 M
California Utilities	Express Efficiency	\$23 M
	Savings by Design	\$22 M
	Standard Performance Contracting	\$20 M
Texas Utilities	Large C/I Standard Offer Program	\$15 M
Clean Energy New Jersey	Commercial/Industrial Retrofit Program	\$10 M
Massachusetts Electric and Nantucket Electric	Energy Initiative Program	\$10 M
NStar	Retrofit Program	\$7 M
Connecticut Light and Power	Custom Services	\$7 M
Oregon Energy Trust	Building Efficiency Program	\$4 M



# FEMP Energy Management Website

<http://pnnl-utilityrestructuring.pnl.gov/energymanagement/energymanagement.htm>



	These states have both EE and DR programs
	These states have DR programs only
	These states have EE programs only
	These states have no EE or DR programs.

- State-by-state information on funding opportunities for energy efficiency and demand response
- Programs sponsored by Utilities, Public Benefits Fund Administrator, State Agencies, ISOs
- Updated bi-annually to reflect program changes
- Web links for each program

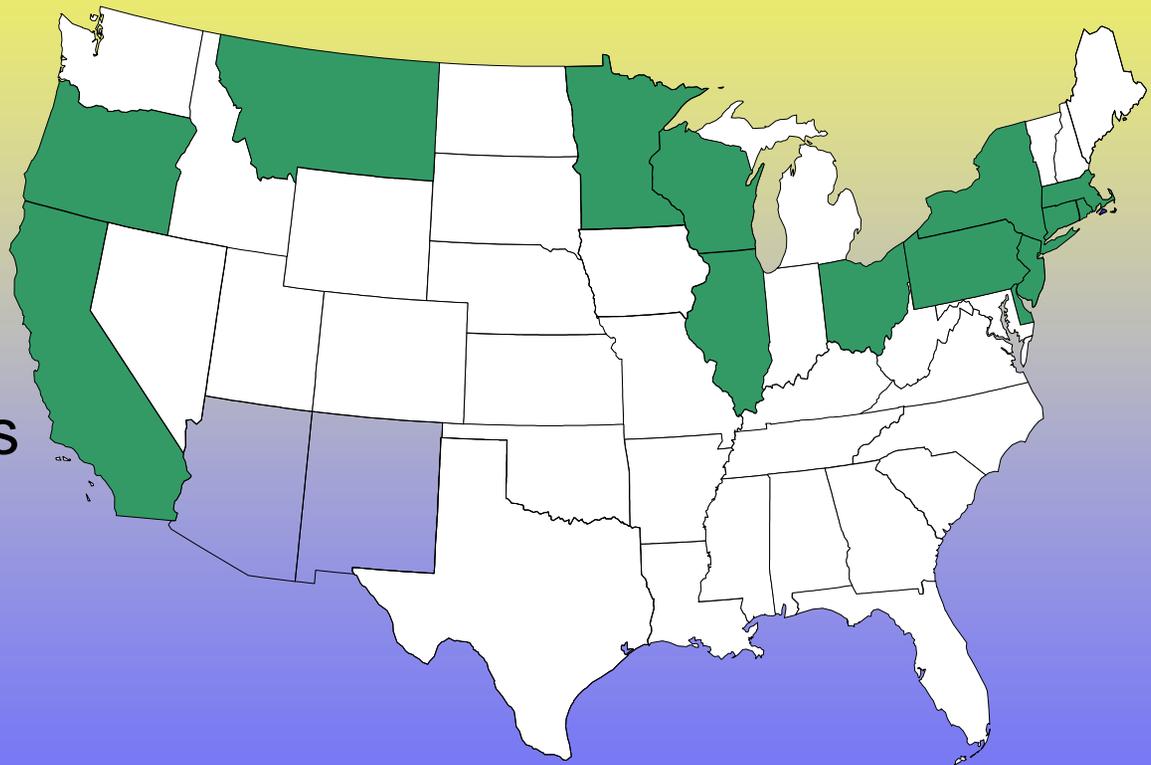
August 17-20, 2003

[www.energy2003.ee.doe.gov](http://www.energy2003.ee.doe.gov)



## State Renewable Energy Funds

- Often funded with a small additional charge on electric rates – system benefit charge
- Sometimes funded through other means (utility or merger settlements)



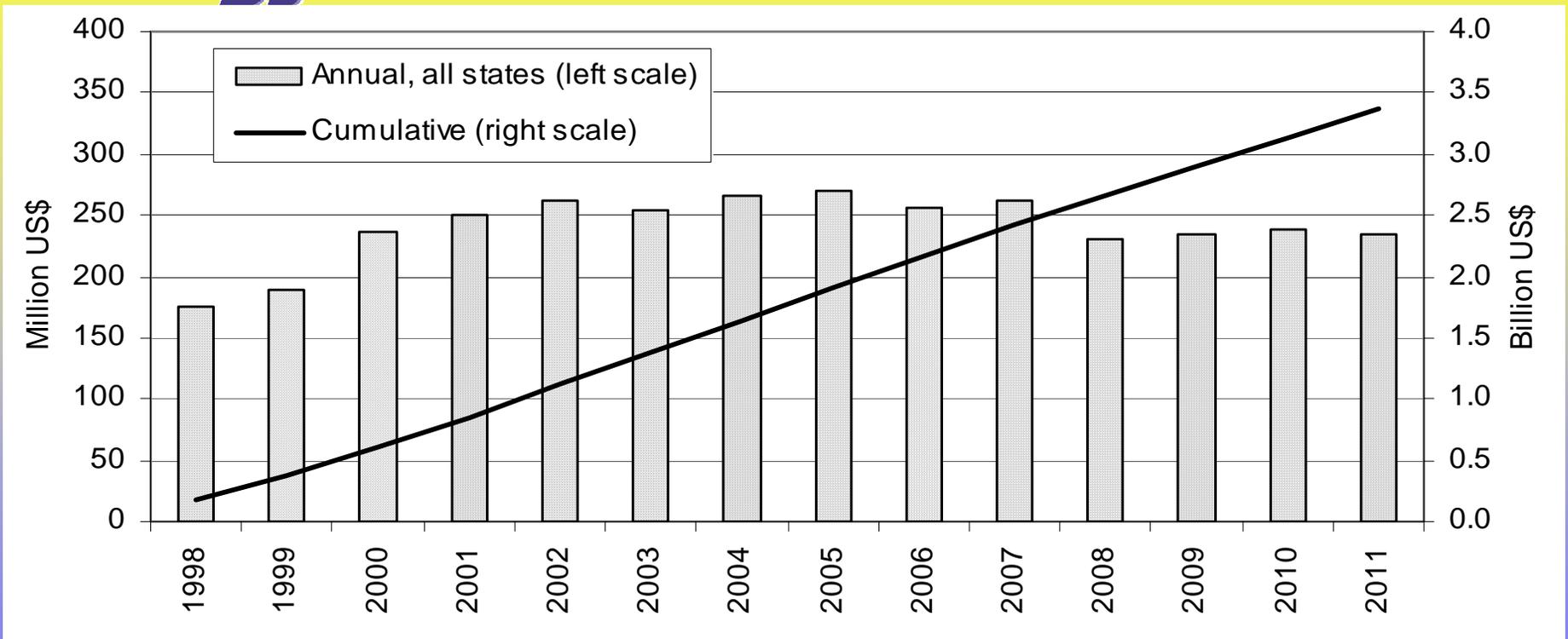


## Funding Levels Vary by State

State	Annual Funding (\$ million)	Funding Duration
CA	\$135	1998 – 2012
CT	\$15 → \$30	2000 – indefinite
DE	\$1 (maximum)	10/1999 – indefinite
IL	\$5	1998 – 2007
MA	\$30 → \$20	1998 – indefinite
MN	\$9	2000 – indefinite
MT	\$2	1999 – July 2003
NJ	\$30	2001 – 2008
NY	\$6 → \$14	7/1998 – 6/2006
OH	\$15 → \$5 (portion of)	2001-2010
OR	\$8.6	10/2001 – 9/2010
PA	\$10.8 (portion of)	1999 – indefinite
RI	\$2	1997 – 2003
WI	\$1 → \$4.8	4/1999 – indefinite



## Funding Levels are Substantial



Cumulative funding of **\$3.5 billion** through 2012



## Key Renewable Energy Public Benefit Programs for Federal Customers

### 1) Rebate Programs for Customer-Sited Renewable Energy (especially PV)

- Programs exist in most states with renewable energy funds
- Largest, most lucrative programs in CA, NJ, IL, NY
- Incentive levels range from \$2-\$6/W, often capped at 50-60% of installed cost

### 2) Customer Incentives for Purchasing Green Power

- Rhode Island and, in time, perhaps other states, provides customer incentives for green power purchases over the grid

### 3) Incentives for Large-Scale Renewable Projects

- Multiple states offer incentives for larger-scale RE projects, some of which could be co-located at certain federal facilities



## The Big Picture

- Emerging natural gas demand/supply imbalance signals heightened need for energy efficiency and renewables at Federal facilities
  - Potential increases in natural gas and electric rates for Federal customers
  - An opportunity to help put downward pressure on prices for all electricity and natural gas consumers
- Public benefit and ratepayer funds for energy efficiency & renewables can leverage projects
  - More than \$1 Billion/yr in electric funds available, but under threat in several states
  - \$150-175M/yr for natural gas efficiency in states with active DSM programs
  - ~\$250M/yr for renewable energy
- FEMP Energy Management Website provides an information clearinghouse for identifying funding opportunities