

State Utility Sector Energy Efficiency Programs: Emerging Trends

Bill Prindle
American Council for an Energy-Efficient
Economy

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Snapshot of the Latest Trends

- Unprecedented new commitment to energy efficiency as a resource in California
- Energy efficiency as the Pacific Northwest's first priority, lowest cost new resource for long-term planning
- Energy efficiency's key role in emerging regional efforts to combat greenhouse gases (Northeast and West Coast)
- Setting energy savings targets (CA, CT, HI, IL, NJ, PA, TX)



Snapshot of the Latest Trends (part 2)

- Energy efficiency being used to address T&D constraints and system needs
- Regional efforts emerging to use energy efficiency as a tool to dampen natural gas demand and decrease prices (e.g. midwest)
- Support for energy efficiency growing rapidly in new states and areas—e.g., the Southwest
- Other new areas—linkages to water efficiency, integration with demand response, “rapid ramp-up” efforts

Efficiency Serves Multiple Goals

Energy efficiency is a key part of the answer for:

- Rising energy costs
- New resource needs
- New environmental objectives
- Reliability
- Economic development

No surprise it enjoys wide support

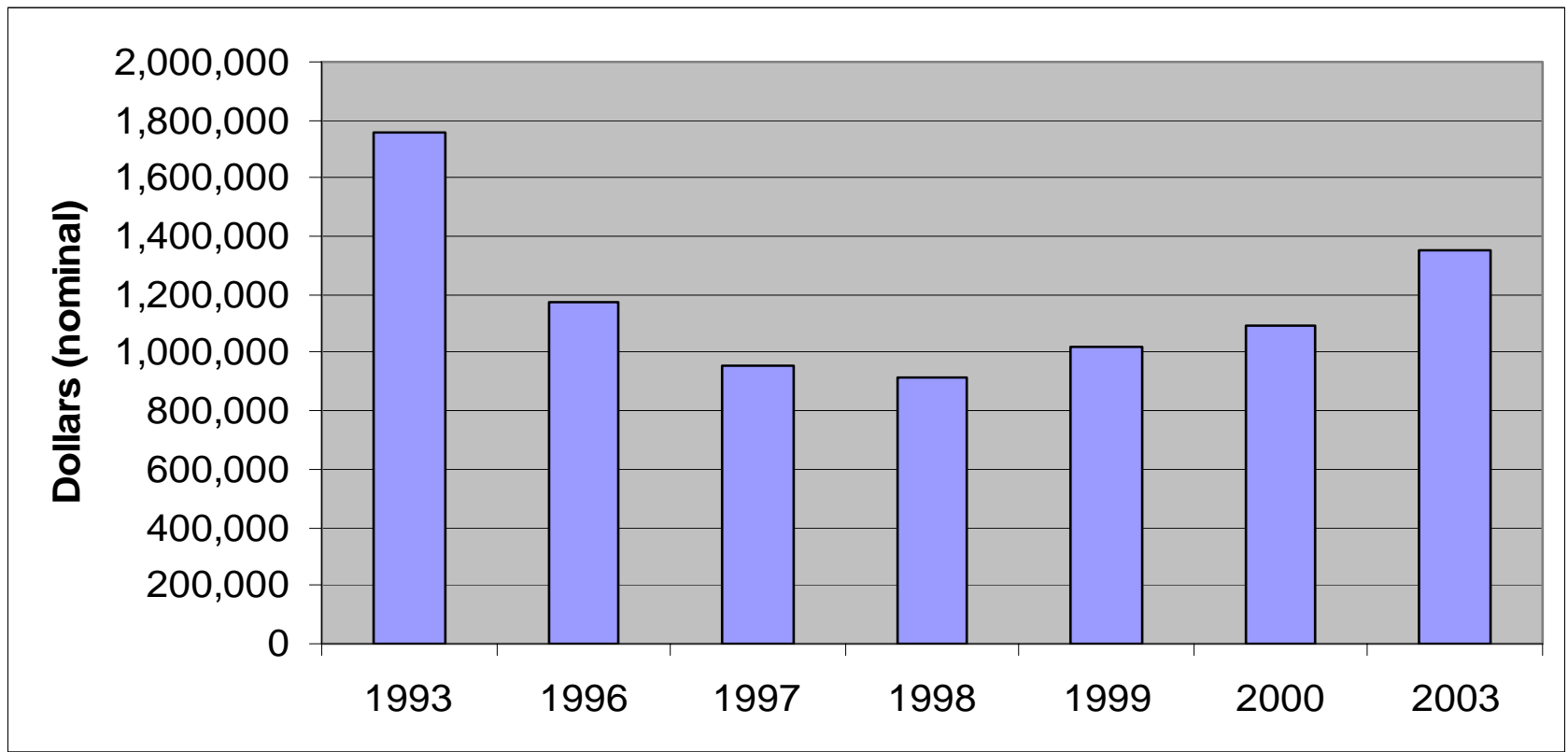


A Brief Historical Perspective

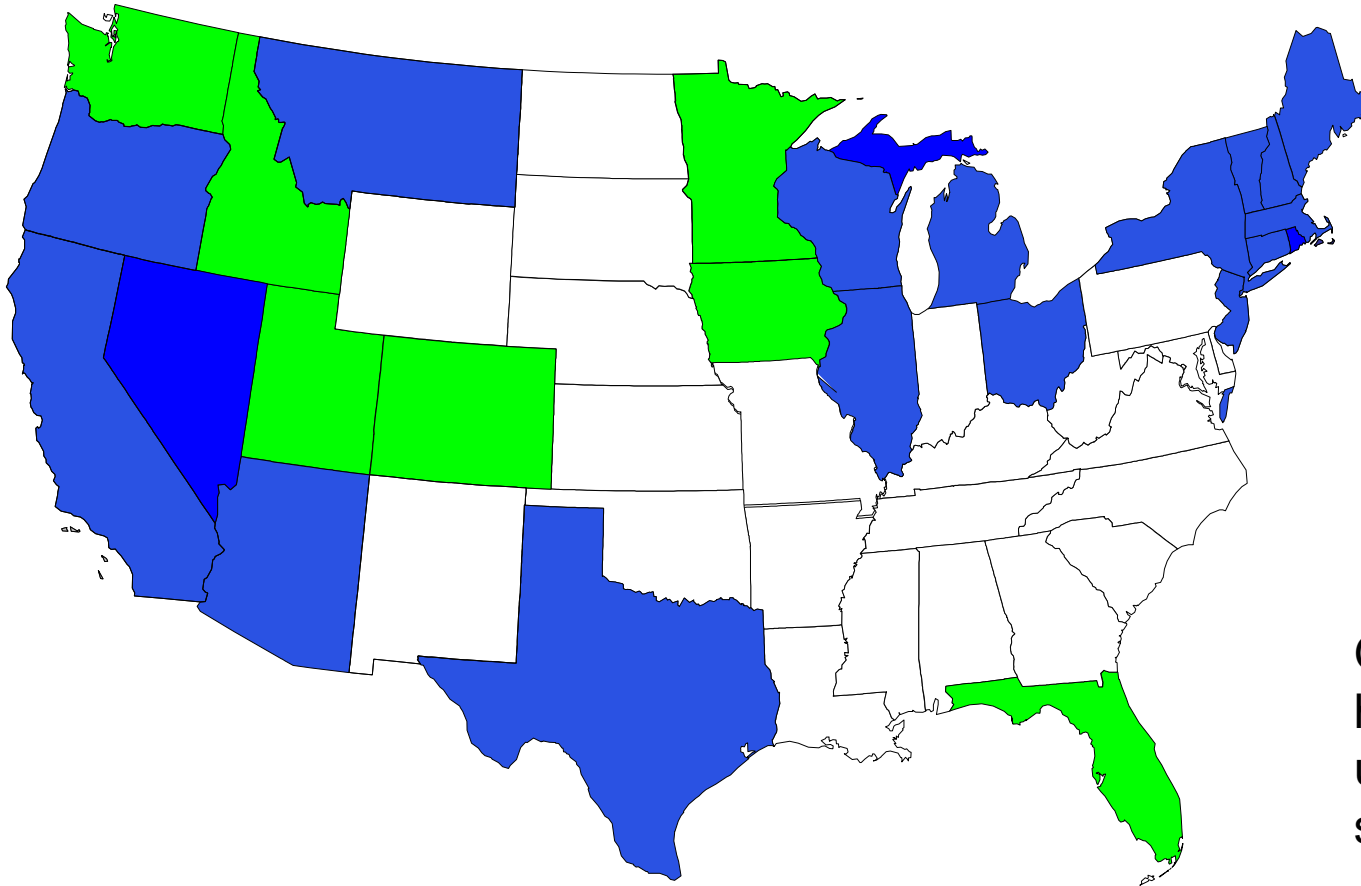
- Late 80s/early 90s:
 - “Future’s so bright, I gotta wear shades”
- Late 90s:
 - “That’s me in the corner, losing my religion”
- 2000s
 - “I’m BACK!”



Spending on Utility Sector Energy Efficiency Programs 1992-2003 [nominal dollars]



States with Utility Sector Energy Efficiency Programs—Public Benefits or DSM



Blue states have public benefit funds that support EE

Green states have utility DSM under regulated structure

Structure and Delivery of Efficiency Programs

- Utilities are still the primary providers of energy efficiency programs—including public benefits programs. But “non-utility” segment is growing.
- ACEEE research shows that numerous structures are possible for administration and delivery of services—no single “best model”

Examples of Non-Utility Program Administrators

- Efficiency Vermont—the statewide “energy efficiency” utility
- Energy Trust of Oregon
- Focus on Energy [Wisconsin]
- New York Energy \$mart
- Efficiency Maine

2002/3 Public Benefits Energy Efficiency Program Spending

	Annual Budgets (\$ Millions)	% of revenues
AZ	2.0	0.1%
CA	240.0	1.5%
CT	89.0	3.1%
DC	2.2	0.3%
DE	----	----
IL	2.0	0.02%
ME	2.9	0.3%
MD	----	----
MA	135.0	3.0%
MI	7.8	0.1%
MT	14.3	2.0%

2002/3 Public Benefits Energy Efficiency Program Spending

	Annual Budgets (\$ Millions)	% of revenues
NH	5.2	0.5%
NJ	99.6	1.5%
NY	129.0	1.3%
NV	11.2	0.5%
OH	14.3	0.1%
OR	19.1	0.9%
PA	----	----
RI	16.4	2.7%
TX	69.0	0.4%
VT	16.8	3.3%
WI	49.7	1.4%
Total	925.5	



What's Public Benefits Money Buying Us?

- Total cumulative annual energy savings from utility sector programs in 2003 were over 67,198 GWH—or about 1.9% of total annual retail energy sales
- Cumulative annual impact in top 10 states is from 4 to 8%: CT, CA, WA, VT, MN, RI, MA,, OR, WI and UT
- But are energy efficiency programs cost effective?



Public Benefits Energy Efficiency Program Cost-effectiveness

State	Benefit/Cost All programs	B/C Comm/Ind programs	B/C Residential programs	Cost of saved energy (\$/kWh)
California	2.0 – 2.4			0.03
Connecticut	NA	2.4 to 2.6	1.5 to 1.7	0.023
Maine	1.3 – 7.0			
Massachusetts	2.1	2.4 to 2.7	1.3 to 2.1	0.04
New Jersey				0.03
New York				0.044
Rhode Island	2.5	3.3	1.5	
Vermont	2.5	2.9	1.8	0.03
Wisconsin	3.0	2.0	4.3	
Median	2.1 to 2.5	2.5 to 2.6	1.6 to 1.7	0.03



How Deep is the Energy Efficiency Resource Well?

- In 2004 ACEEE recently completed a “meta-analysis” of energy efficiency potential studies (which have re-emerged as a tool)
- Median economic potential of 21.5% for electricity; 22% for natural gas
- Lesson: Still a lot we haven’t drawn out yet—and at the same time the well is replenished and even expanded with new technologies

Renewed Commitments to Energy Efficiency as a Resource

- Setting energy saving targets to complement or instead of setting spending levels
- California:
 - CPUC new EE savings targets will double savings over the next decade—to ~5000 MW peak demand and ~23,000 GWh by 2013
 - Budgets have been increased by \$2.1 Billion over 3 years, increasing total national spending by more than 50%
- Illinois: Implementing an “Energy Efficiency Portfolio Standard”—will require utilities to meet 10% of annual load growth by 2008; 25% by 2017
- Texas: Regulated distribution utilities must meet 10% of new demand growth through energy efficiency
- Other states: PA, NJ, HI, NV, CT

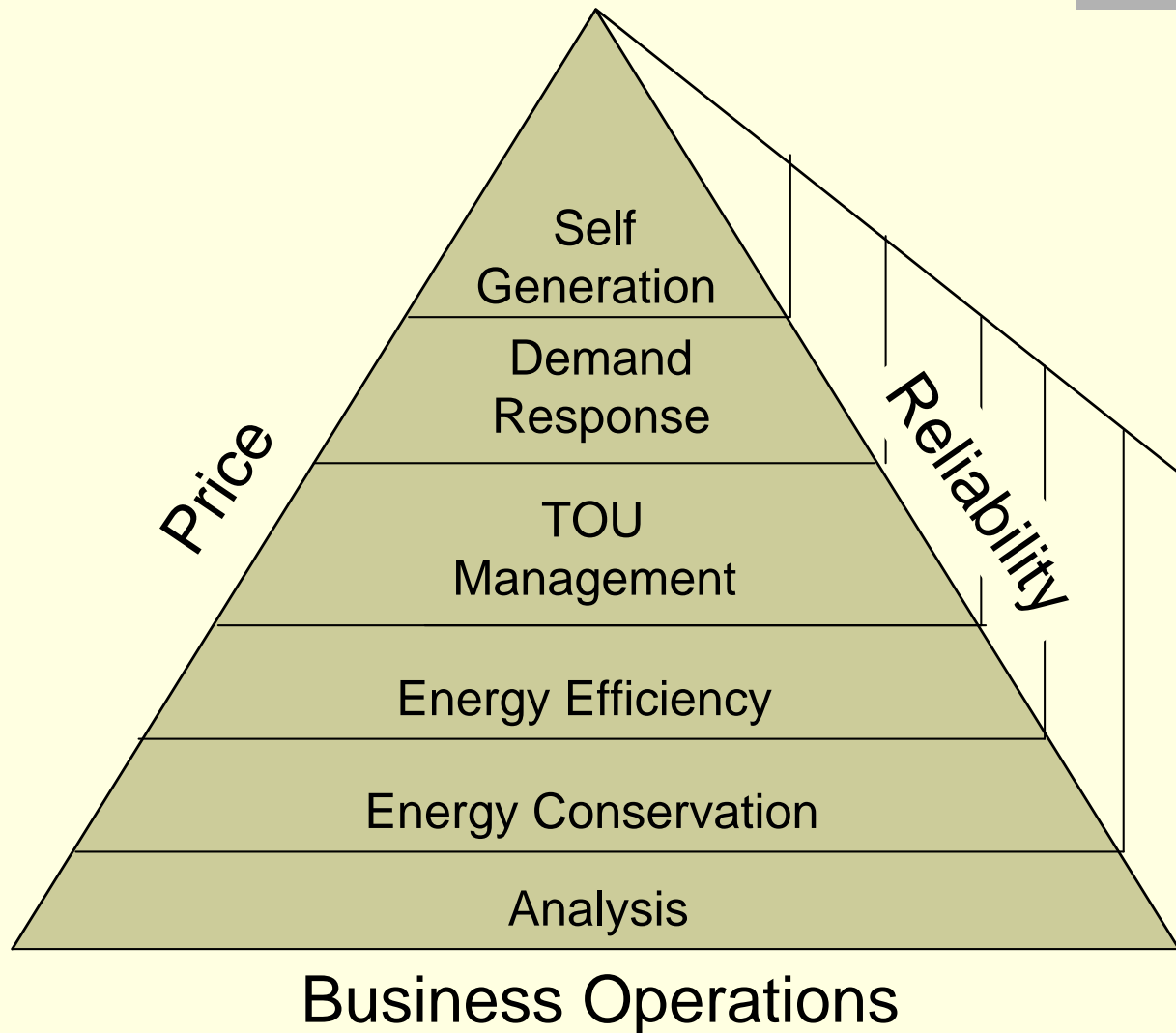


“Balanced portfolios” for the Restructured Electricity Era

- “Demand response”—there’s a lot of interest in pricing and market mechanisms
- “Resource acquisition”—was—and is—still a good thing
- “Market transformation”—yes, it’s important to change products and consumer demand for them (regional groups especially helpful here—MEEA, NEEP, NEEA, SWEEP—along with national programs like ENERGY STAR®)
- All fit within a broad spectrum....



Pacific Gas & Electric Company's Integrated DSM Model

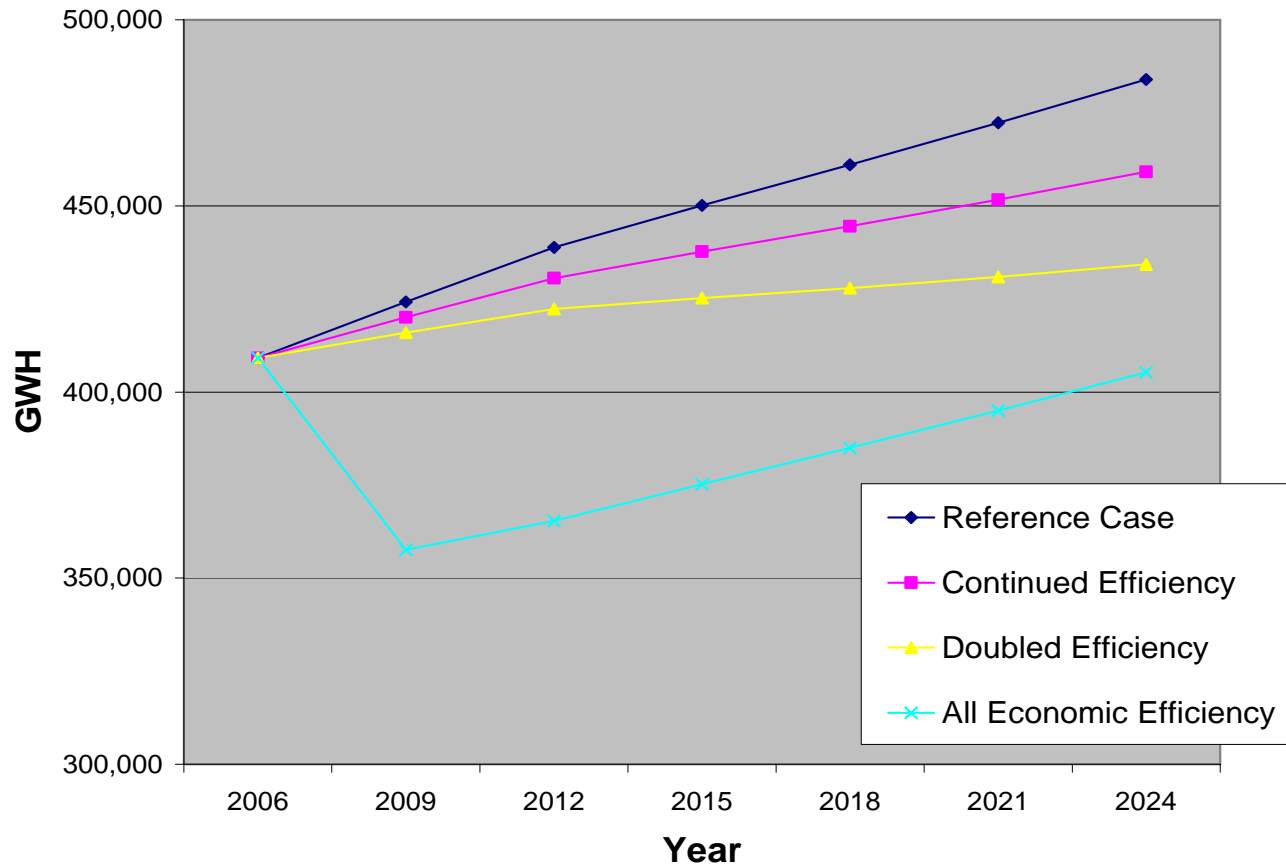


Energy Efficiency is More Important Than Ever

- Energy efficiency is still the least-cost resource compared to new supply options
- Growing risks associated with new power plant construction
 - Construction costs
 - Fuel price risks
 - Future environmental costs
- Increasing evidence of climate change; energy efficiency is a proven, cost-effective means to reduce emissions of green house gases and cut the cost of carbon cap programs

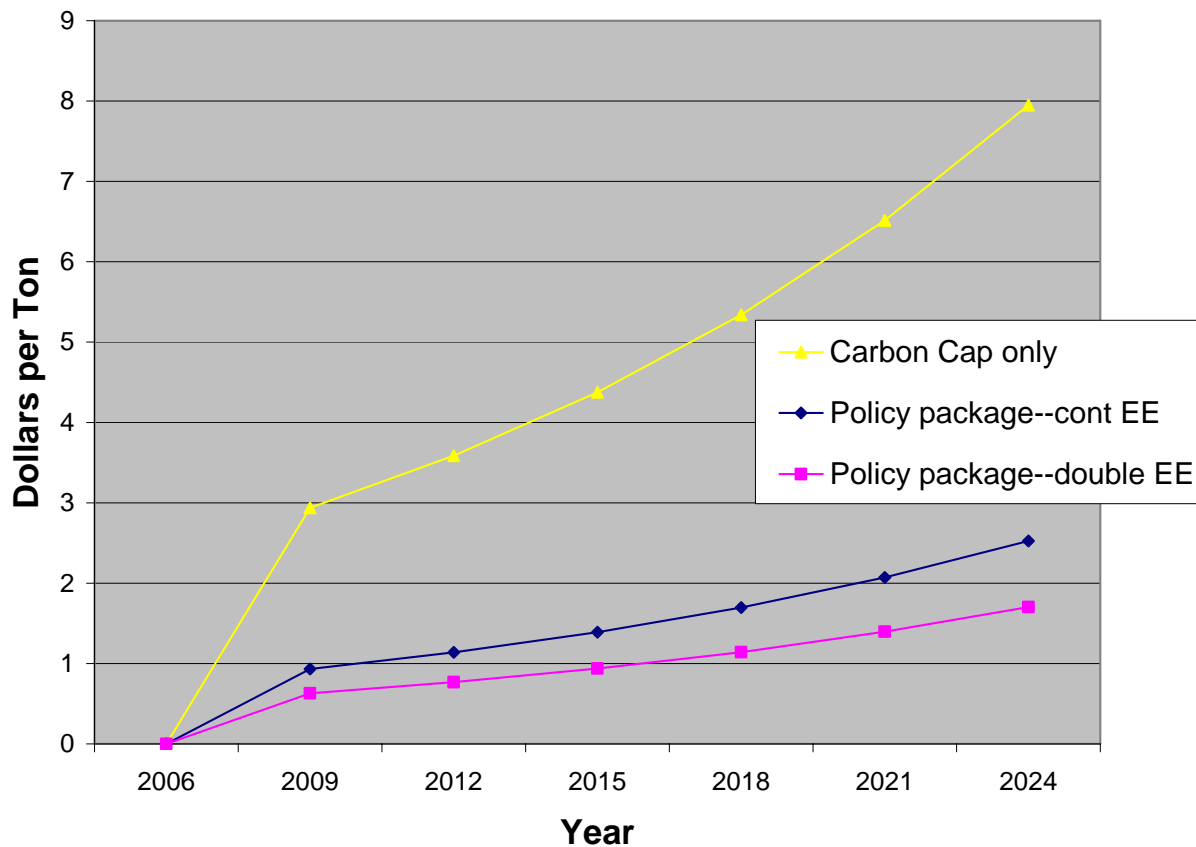
RGGI Modeling Results

Electricity Generation



RGGI Modeling Results

Carbon Allowance Prices



Energy Efficiency is More Important Than Ever

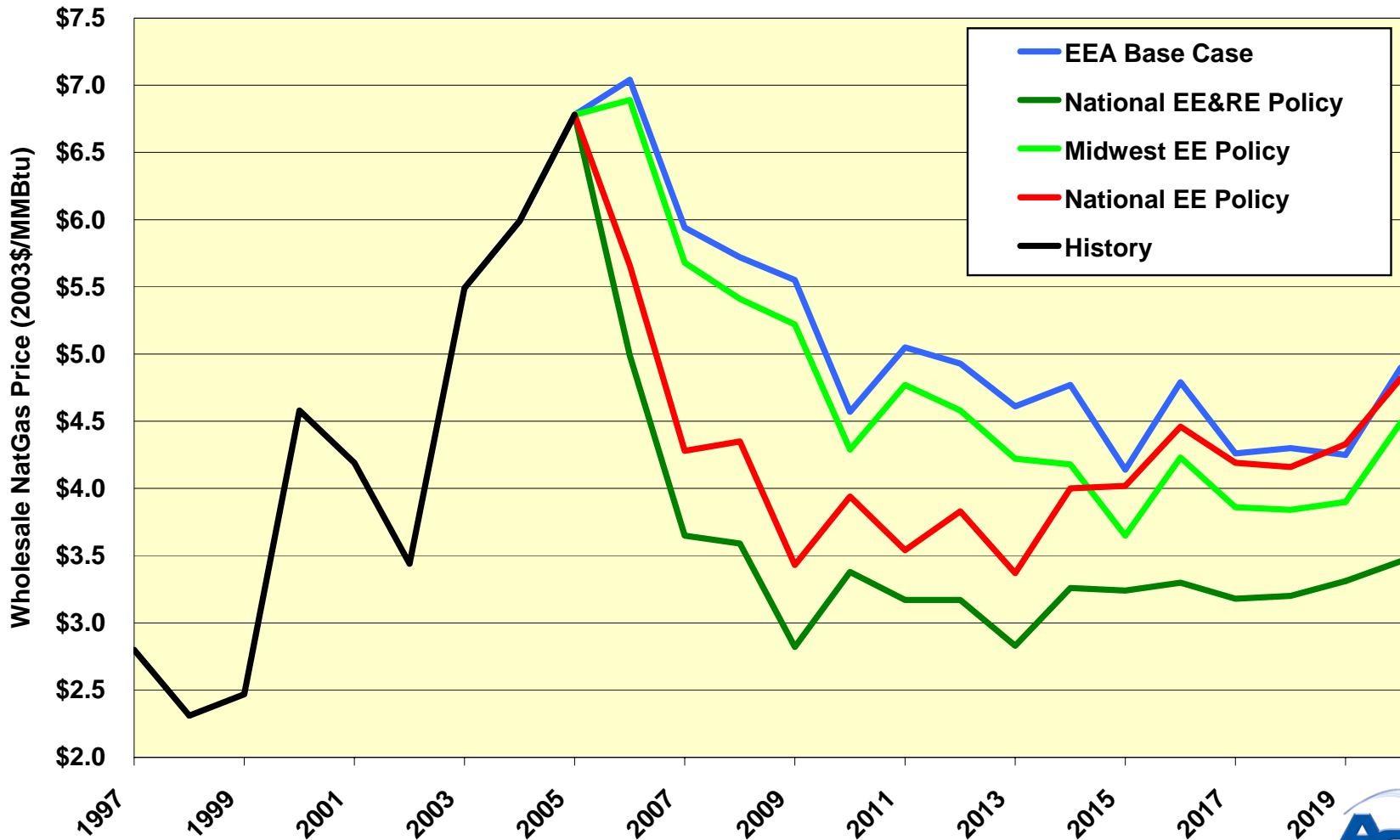
- Energy efficiency can provide T&D system reliability benefits—reduce overall and targeted loads to reduce system stress—reduce scale or delay need for expansions and upgrades
- Energy efficiency can provide broader economic benefits—create jobs and help reduce overall energy prices



Broader Economic Benefits of Energy Efficiency Investment

- ACEEE's recent analysis of market impacts of increased levels of energy efficiency and renewables shows that natural gas costs could be decreased by about 20% by relatively modest energy efficiency savings of about 1% per year
- What's remarkable is that 90% of gas savings come from end-use electricity efficiency, as gas gen units are backed off on the margin

Impacts of EE/RE on Natural Gas Prices (from Elliott et al. 2003, ACEEE)



What Efficiency Programs Need to Keep Thriving

- Stable, adequate funding
- An effective administrative and delivery structure
- Programs that demonstrate success—
effective evaluation in place to monitor and report results
- Support from customers, regulators, utilities and other key stakeholders



A Little Help from the Feds

- Federal initiatives that can help states' efficiency efforts
 - Tax incentives: www.energytaxincentives.org
 - Energy Efficiency Leadership Committee, co-chaired by NARUC President Munns and EEI Chair Rogers
 - EPA's Clean Energy-Environment *Guide to Action*
 - DOE's Save Energy Now program



Conclusions

- Energy efficiency has proven its worth now for over 20 years as a viable resource. After 10 years of restructuring and “free market mania”, many states are trying *resource planning* again
- *Portfolios* of resources have emerged as the key for system planning and operation—including demand side resources