

Energy Efficiency Tax Incentives in the Energy Policy Act of 2005

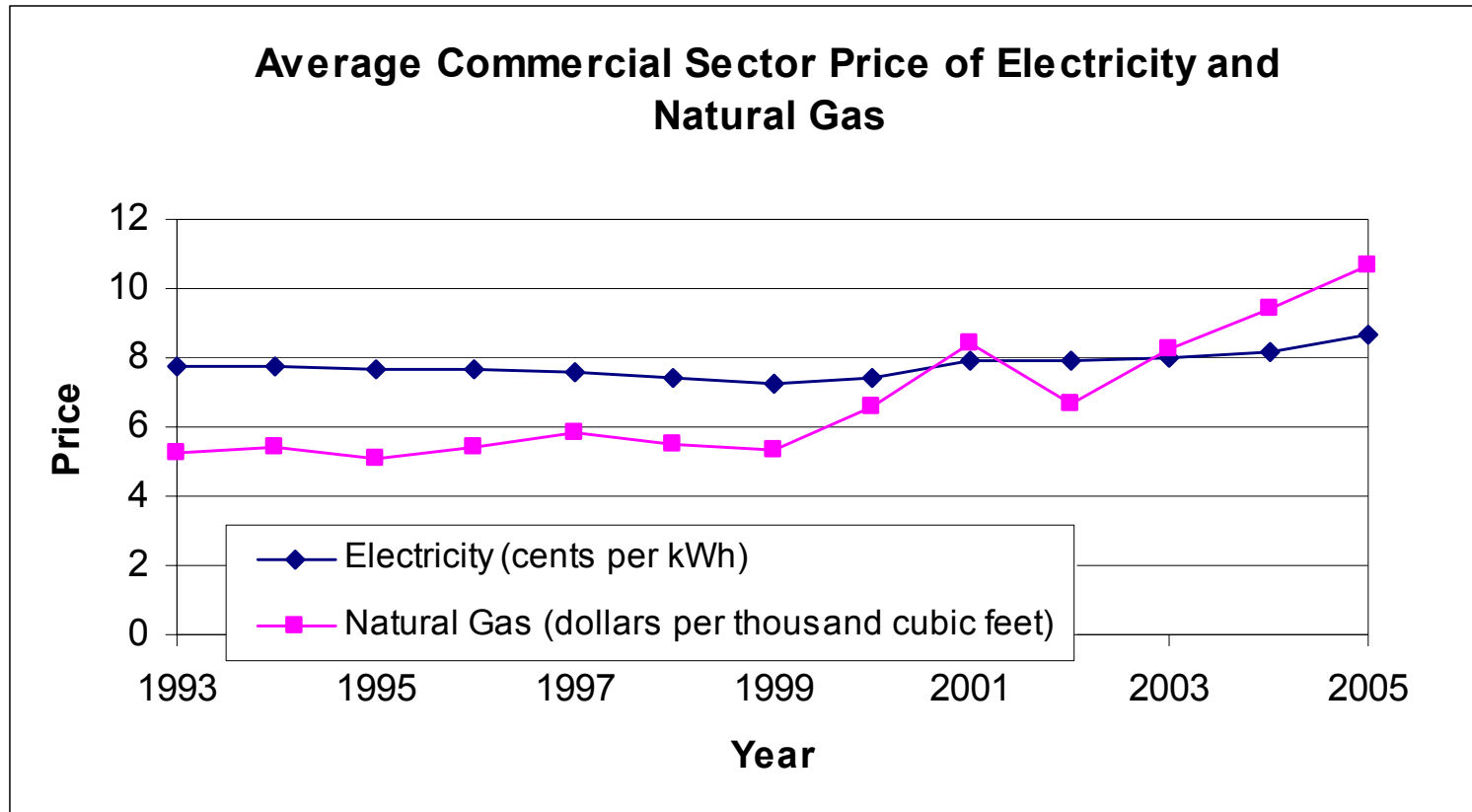
Steven Nadel

American Council for an Energy-Efficient Economy

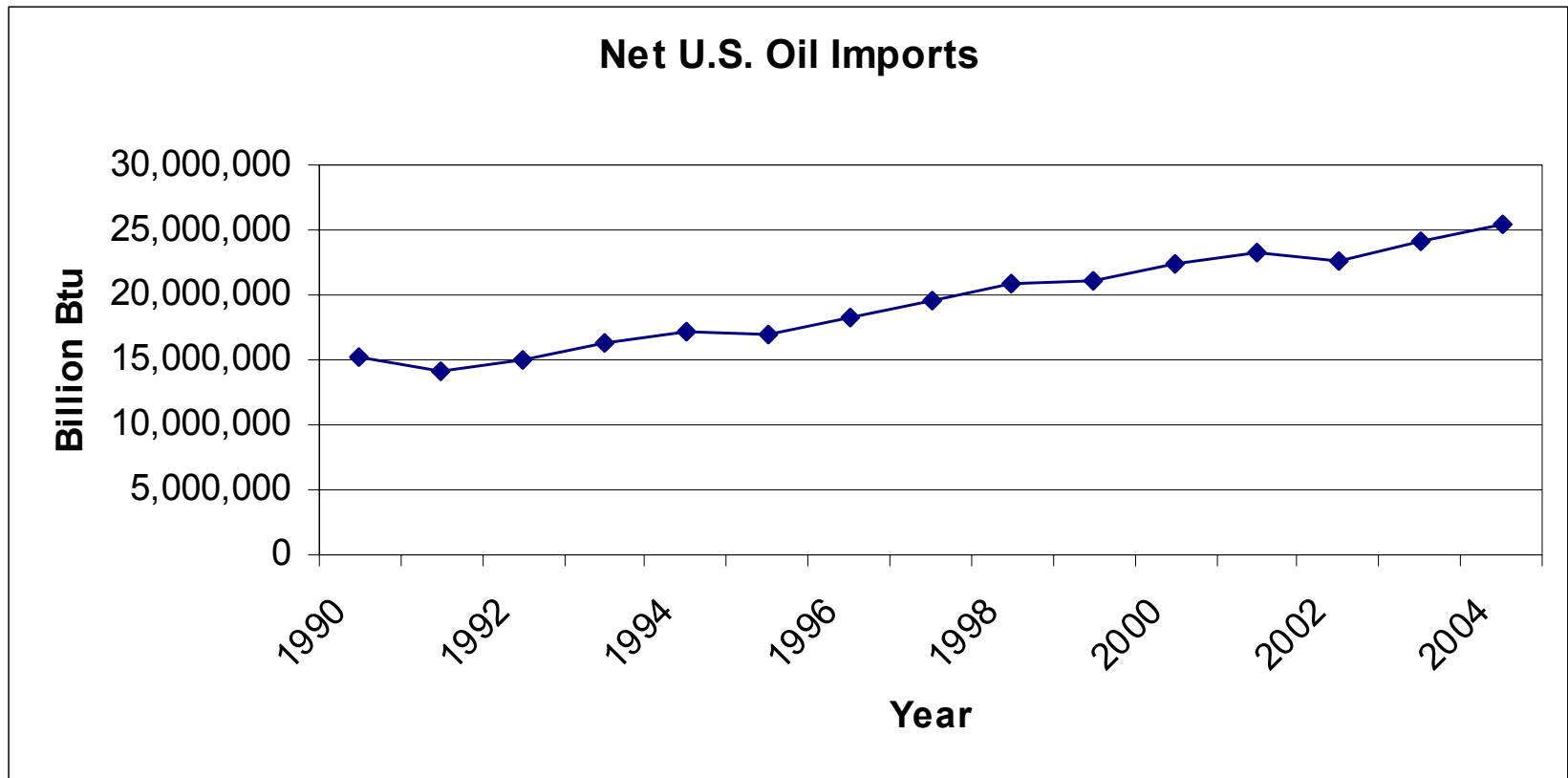
January 24, 2006



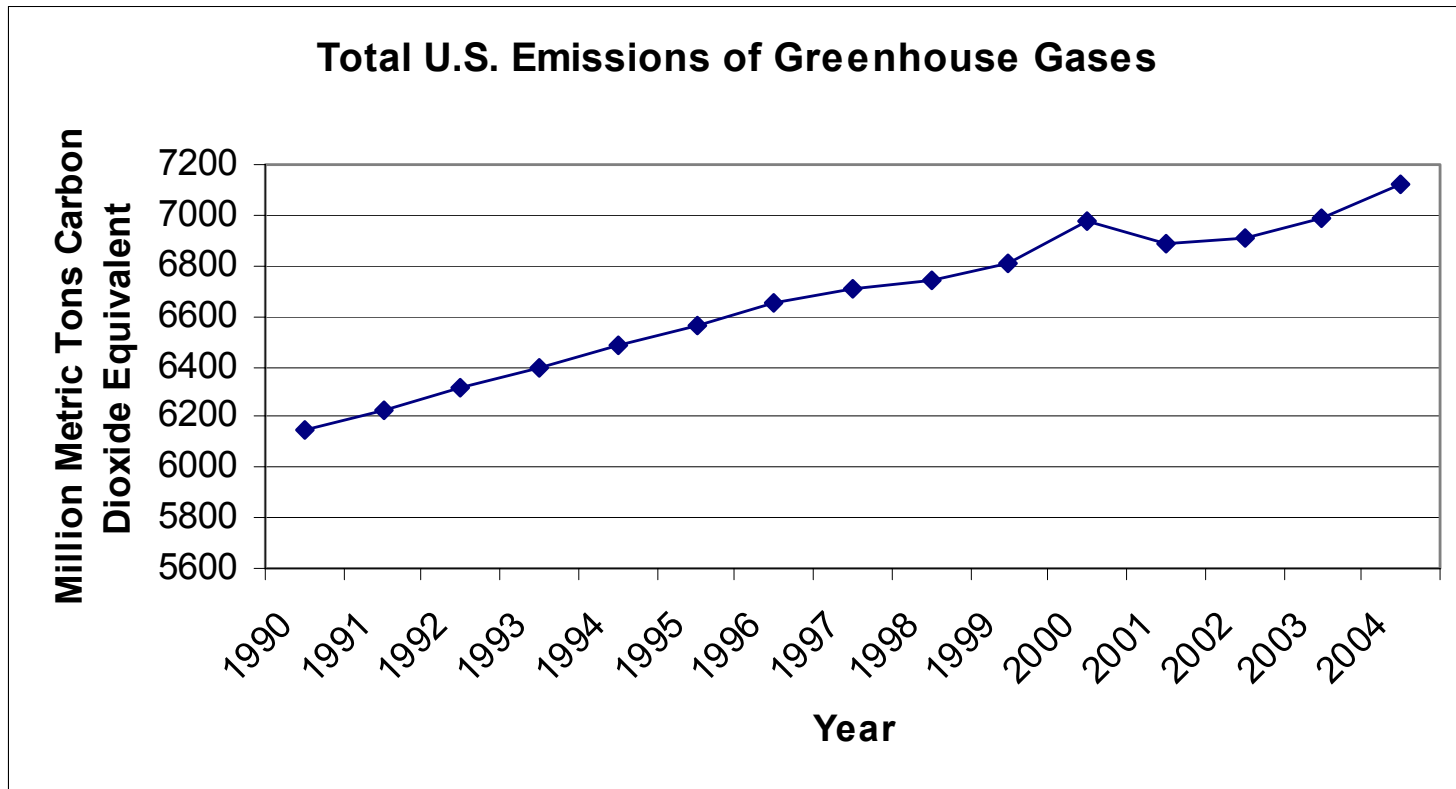
Context – Energy Prices



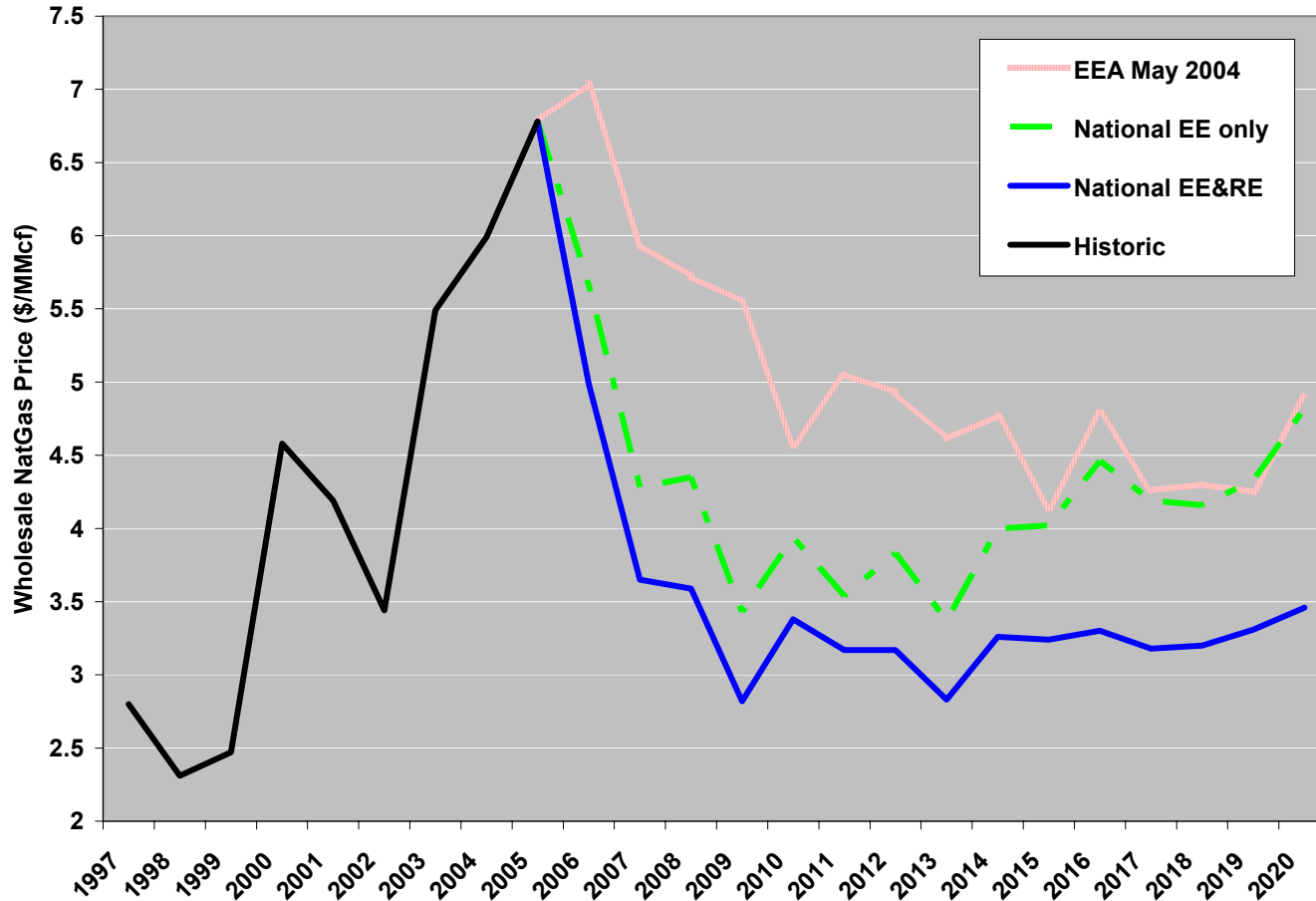
Context – U.S. Oil Imports



Context – U.S. Greenhouse Gas Emissions



Efficiency Can Contribute to Lower Natural Gas Prices



Energy Policy Act of 2005 (EPAct)

- First elements of bill discussed in 1997
- First bill introduced 1999
- First omnibus bill passed 2001 (House)
- First bill conference 2002
- First conference report 2003
- Final bill enactment August 8, 2005



Major Provisions in Efficiency Title

- Appliance/equipment standards
 - Established standards on 16 products
 - DOE to develop standards for 5 additional products
- Federal energy management and public housing
 - Updated targets and provisions
 - Extended ESPC's for 10 years
- Appliance labeling
 - Directed FTC to consider improvements



Other Provisions in Efficiency Title

- Items authorized but not yet funded:
 - Public information campaign on saving energy
 - Voluntary industrial savings initiatives
 - State-based appliance rebate programs
 - Efficient public buildings grants program
 - Energy efficiency resource standard pilot program
- DOE to report to Congress on:
 - Demand response
 - Energy efficiency resource standards
 - Schedule for DOE appliance rulemakings
 - Distributed generation interconnection policies



Efficiency Provisions in Electricity Title

- States required to *consider* improved interconnection policies for CHP and other distributed generation

Efficiency Tax Incentives

- Commercial buildings
- New homes
- Residential heating and cooling equipment
- Shell improvements to existing homes
- High-efficiency appliances
- High-efficiency vehicles
- Stationary fuel cells and microturbines
- Solar systems



Tax Incentive Intent

- Focus mostly on advanced technologies and practices (only exception is residential retrofits)
- Use short-term incentives to promote long-term changes in the market
 - Increase volumes so product prices come down
 - Increase familiarity with products/practices among designers, installers, retailers, consumers



Commercial Buildings



Commercial Building Tax Deduction

- Provides \$1.80/SF *deduction* for buildings exceeding ASHRAE 90.1-2001 by 50%
 - Value of deduction depends on tax bracket
 - In 30% tax bracket, deduction worth \$0.54/SF
- Challenge is that building must be “placed in service” by Dec. 31, 2007; Congress being asked to extend date.
- New and existing buildings covered; public buildings may assign deduction to designer



Commercial Building Tax Deduction (continued)

- Prorated deduction available for HVAC, envelope and lighting systems (\$.60/SF each)
- Further proration available for lighting systems, beginning at 25% better than ASHRAE standards, e.g. \$.30/SF
- IRS guidance on details due shortly



New Homes



New Homes

- \$2000 credit provided for builders of homes that exceed IECC criteria by 50%
- \$1000 credit provided to manufactured home producers exceeding IECC by 30% or meeting Energy Star criteria
- \$1000 credit for builders of homes 30% better than IECC was eliminated in conference
- IRS guidance on details due shortly



Residential Heating and Cooling Equipment



Residential Heating and Cooling Equipment

- \$300 tax credit for:
 - Central AC with 15 SEER, 12.5 EER
 - Central heat pumps with 15 SEER, 13 EER, 8.5 HSPF
 - Ground source heat pumps meeting Energy Star spec and with integrated water heating
 - Electric water heaters with 2.0 EF (e.g. heat pump water heaters)
 - Gas water heaters with 0.80 EF or CEF



Residential Heating and Cooling Equipment (continued)

- \$150 tax credit for furnaces with AFUE 95%
- \$50 furnace fans meeting CEE/GAMA spec (can earn separately or combine with credit above)
- Cap of \$500 per taxpayer for heating/cooling credits *plus* building shell credits



Shell Improvements to Existing Homes



Shell Improvements to Existing Homes

- Overall credit limit is \$500 for a given taxpayer including heating/cooling credits on previous slide
- Envelope measures eligible for 10% of cost, for:
 - Insulation
 - Windows (capped at \$200)
 - Metal roofs with coatings to reduce heat gain
- IRS guidance on details due shortly



Appliances



Appliances

- Credit provided to manufacturers of refrigerators, clothes washers, and dishwashers
- Credits tied to tiered efficiency criteria:
 - For clothes washers, \$100 for meeting 2007 Energy Star specification (1.72 MEF, 8.0 WF)
 - For refrigerators, \$75 for 15% savings relative to federal standard, \$125 for 20% savings, \$175 for 25% savings
 - For dishwashers, ~\$30 for meeting 2007 Energy Star specification (probably 0.65 EF)



Appliances (continued)

- Overall cap of \$75 million per manufacturer
- Consumers should see wider availability and good pricing for these models

Passenger Vehicles



Passenger Vehicles

- Credits offered for hybrid or diesel vehicles, 2006-2009
- Diesels must also meet emissions targets—none on market will do so until (probably) 2007
- Amount based on a formula based on percentage mileage improvement over a base level, plus total fuel savings
- ACEEE estimates highest credit will go to the Prius (\$3150)
- Sets a per-manufacturer cap of 60,000 vehicles; thereafter credit phases out over 16 months
 - Toyota likely to hit its cap in first half of 2006
- Also incentives for fuel cell vehicles, but none on the market yet

Heavy-Duty Vehicles



Heavy-Duty Vehicles

- Hybrid vehicles over 8500 lbs. eligible for tax credits – very few of these vehicles now on market
- Credits based on the weight class of the vehicle, its fuel economy relative to a comparable conventional vehicle, and the incremental cost.
- Heavy-duty vehicles credits fall under the 60,000 vehicle-per-manufacturer cap described for light-duty vehicles.
- EPA helping Treasury develop qualification rules, such as how fuel economy will be determined.



Fuel Cells and Microturbines



Stationary Fuel Cells and Microturbines

- Primarily for business use of this equipment although individuals eligible for fuel cell credit
- For fuel cells, credit is 30% of cost, up to \$1000/kW of output
 - Efficiency must be at least 30% and system at least 0.5 kW
- For microturbines, credit is 10% of cost, up to \$200/kW of output
 - Efficiency must be at least 26% and system less than 2 kW



Solar Systems



Solar Systems

- Photovoltaic systems and solar hot water systems eligible for residential and business credits
- Solar hybrid lighting systems also eligible for business credit.
- Photovoltaic systems must meet applicable fire and electrical codes
- Solar hot water systems must provide at least half of a home's hot water and be SRCC certified
 - Pool and hot tub heaters not eligible
- For individuals, credit is 30%, up to a maximum of \$2000 per system (business credit more complicated)



Where Are the Energy Savings?

National Savings

Tax Incentives	<u>Cumulative Savings Thru 2020</u>		
	Energy (Quads)	Bill Savings (\$ million)	Carbon (MMT)
a. New Homes	0.36	\$2,751	6.3
b. Central AC/HP	0.45	4,587	8.7
c. Gas water heaters	0.13	946	1.8
d. HP water heaters	0.04	333	0.8
e. Furnaces	0.35	2,710	6.5
f. Appliances	0.61	4,642	9.8
g. Comm. Bldgs.	0.29	2,250	5.3
h. Fuel cell cogen.	0.00	5	0.0
i. Fuel cell vehicles	0.00	51	0.1
j. Hybrid vehicles (light duty)	0.48	6,172	8.5
k. Hybrid vehicles (heavy duty)	0.12	1,564	2.2
l. Existing homes	<u>0.08</u>	<u>574</u>	<u>1.2</u>
Total	2.92	\$26,586	51.3



What are Good Consumer Investments?

Item	Base Use	% Savings	Energy Price	Cost Increment for 5 Year Payback*	
SEER 15 Central AC	1773 kWh	13%	0.094	\$411	
95% AFUE furnace	443 therms	16%	1.25	\$585	
Efficient furnace fan	1300 kWh	54%	0.094	\$379	
Gas instant water heater	252 therms	28%	1.25	\$732	
Refrigerator	- saving 15%	500 kWh	15%	0.094	\$35
	- saving 20%	500 kWh	20%	0.094	\$47
	- saving 25%	500 kWh	25%	0.094	\$59
Clothes washer (2007 E-Star)	733 kWh	27%	0.094	\$128	
	8271 gallons	25%	0.0035	In above	
Dishwasher (2007 E-Star)	371 kWh	11%	0.094	\$19	

* Cost increment is before deducting value of consumer tax credits or business tax deduction.

For appliances tax incentives go to manufacturer and should be included in the retail price.

Based on national average values for energy use and energy prices.

Amount that can be paid will be higher for areas with colder winters (for heating), hotter summers (for cooling) or higher rates. Used 10-year payback for new homes.



What are Good Consumer Investments? (continued)

Item	Base Use	% Savings	Energy Price	Cost Increment for 5 Year Payback*
New home saving 50% - heat	540 therms	50%	1.25	\$6,195
	- cooling 1773 kWh	50%	0.094	In above
Replace 6 windows - heating	59 therms	33%	1.25	\$358
	- cooling 236 kWh	33%	0.094	In above
Comm'l lighting upgrade per s	4.2 kWh	35%	0.086	\$0.72
	4.2 kWh	50%	0.086	\$1.08

* Cost increment is before deducting value of consumer tax credits or business tax deduction.

Based on national average values for energy use and energy prices.

Amount that can be paid will be higher for areas with colder winters (for heating), hotter summers (for cooling) or higher rates. Used 10-year payback for new homes.



Implications for States & Other Efficiency Program Administrators

- New tax incentives create an efficiency promotion opportunity
 - Provide local promotion and technical assistance
 - Consider coordinated state or utility incentives (e.g. commit to incentives in 2008 if credits not extended)
 - Promotion coordination via the Tax Incentives Assistance Project (TIAP)
- New federal efficiency standards could affect qualification levels for local incentive programs
- If new federal/state programs are funded, they could create additional partnership opportunities



Possible Extensions to the Tax Incentives

- Many of the credits were cut from 4 years to 2 years as part of final conference negotiations to cut costs.
- For new homes and new commercial buildings in particular will require longer to change design and construction practices.
- Grassley already on record regarding possible extension for commercial building credit.
- Also discussion of new (often higher) appliance tiers to start 2008.
- Other extensions likely to be proposed as well.



Conclusion

- The tax credits create opportunities for consumers, businesses, manufacturers, utilities and states
- Recent market events add urgency to acting now, to reduce impact of high energy prices
- Federal government slow to act on energy policy, but hopefully modest provisions in 2005 bill will provide foundation for more extensive actions in the future



For More Information

- Tax Incentives Assistance Project:
www.energytaxincentives.org
tiap@aceee.org

