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Committee on Energy and Commerce,
U.S. House of Representatives

Hearing on:
The Energy Policy Act of 2005:
Ensuring Jobs for Our Future with Secure and Reliable Energy

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Summary

Energy efficiency is an important cornerstone for America=s energy policy. Energy efficiency has saved consumers and businesses trillions of dollars in the past two decades, including more than half a trillion dollars in 2004 alone. These efforts should now be accelerated in order to:

$ Save consumers and businesses even more money;
$ Change the energy supply and demand balance and put downward pressure on energy prices;
$ Decrease reliance on imported oil;
$ Help with economic development (since savings from energy efficiency generates jobs);
$ Reduce carbon emissions, helping to moderate growth in the gases that contribute to global climate change.

A recent ACEEE analysis found that gas markets are so tight that if we can reduce gas demand by as little as 4% over the next five years, we can reduce wholesale natural gas prices more than 20%. These savings would put over $100 billion back into the U.S. economy. Moreover, this investment would help bring back U.S. manufacturing jobs that have been lost to high gas prices, and would help relieve the crushing burden of natural gas costs experienced by many households, including low-income households. Importantly, much of the gas savings in our analysis come from electricity efficiency measures, because so much electricity is generated by natural gas, often inefficiently.

Likewise, U.S. reliance on oil imports continues to rise and is now above 60% of total U.S. oil demand. A substantial portion of this oil comes from unstable regions of the world. The U.S. Energy Information Administration estimates that imports will account for over 70% of U.S. oil use in 2020 unless current trends are changed. While moderate amounts of new oil are available in hard-to-reach areas of the U.S., much greater amounts of oil are available by increasing the efficiency with which we use oil. Forthcoming analyses by ACEEE and others estimate we can reduce U.S. oil use by more than 2.5 million barrels per day by 2020 through improvements in the residential, commercial, industrial and transportation sectors (the latter including passenger cars, light and heavy trucks, and planes).

The provisions in the draft Energy Policy Act of 2005 (which we assume are virtually identical to the H.R. 6 Conference Language from 2003) take moderate steps to address natural gas and electricity use but do very little to stem oil use. Notable efficiency provisions in this Act include:

- Enactment of consensus equipment efficiency standards on six products plus DOE rulemakings to set efficiency standards on six more products. These standards were negotiated by ACEEE and industry over the 2001-2003 period.
- Tax incentives for advanced energy saving products and buildings including combined heat and power systems, appliances, hybrid, fuel cell and advanced diesel vehicles, and new and existing homes and commercial buildings.

- Enhancements to the appliance labeling program, the Federal Energy Management Program and to programs that seek voluntary efficiency commitments from industrial firms.
- Updated authorizations for advanced energy research, including energy efficiency.

We support these provisions, although we believe some of the tax incentive provisions should be refined to produce more energy savings per dollar of tax incentive provided. Taken together, in 2003, we estimated that these provisions will reduce U.S. energy use by about 1.5% over the 2004-2020 period, including approximately a 3% reduction in 2020. By 2020 we estimated that these provisions will also displace the need for nearly 300 new power plants of 300 MW each. We are now in the process of revising our savings estimates and expect to have updated figures within a month.

However, more can and should be done to improve U.S. energy efficiency. We recommend that the following be added to the bill, either before it passes the House or in conference:

$ Adding new consensus efficiency standards on commercial air conditioning and refrigeration systems, ceiling fans, dehumidifiers, and restaurant spray valves based on consensus agreements we have negotiated with industry.

$ Adding additional consensus efficiency standards if negotiations now underway for four additional products can be successfully completed.

$ Clarifying that DOE can set separate furnace efficiency standards for cold and warm states—the U.S. climate is varied enough that dividing the country into two zones can result in substantial energy and economic savings not possible when the same standard applies in Florida and Alaska.

$ Including an Energy Efficiency Resource Standard to set energy saving targets for gas and electric utilities, modeled after Texas legislation signed by then-Governor Bush.

$ Setting a fuel-savings goal of 1 million barrels per day of oil savings by 2013 and authorizing additional tools for achieving these savings such as fuel-economy testing for heavy trucks and "feebates" for passenger vehicles (a revenue-neutral system of fees and rebates based on fuel economy), and modification of passenger vehicle test procedures to better match real-world performance.

$ Addressing barriers to combined heat and power systems by directing FERC and EPA to complete current proceedings on interconnection and output-based emissions permitting.

$ Refining proposed energy efficiency tax incentives in order to better promote advanced equipment and practices, increasing savings while having little or no impact on costs.

These additional provisions would increase energy savings under the bill about fourfold. Failure to take these steps now will make it much more likely that our nation's energy problems will continue and that Congress will have to again address energy issues in the not very distant future.

Introduction

ACEEE is a nonprofit organization dedicated to increasing energy efficiency as a means for promoting both economic prosperity and environmental protection. We were founded in 1980 and have contributed in key ways to energy legislation adopted during the past 20 years, including the Energy Policy Act of 1992 and the National Appliance Energy Conservation Act of 1987. I appreciate the opportunity to appear again before this Committee.

Energy efficiency improvement has contributed a great deal to our nation=s economic growth and increased standard of living over the past 30 years. Energy efficiency improvements since 1973 accounted for approximately 50 quadrillion Btu=s in 2003, which is *more than half of U.S. energy use and nearly as much energy as we now get annually from domestic coal, natural gas, and oil sources combined.* Thus, energy efficiency ran rightfully be called our country's largest energy source. Consider these facts which are based primarily on data published by the federal Energy Information Administration (EIA):

- Total primary energy use per capita in the United States in 2003 was down slightly relative to 1973. Over the same 30-year period, economic output (GDP) per capita increased 74 percent.

- National energy intensity (energy use per unit of GDP) fell 46 percent between 1973 and 2003. About 60% of this decline is attributable to real energy efficiency improvements and about 40% is due to structural changes in the economy and fuel switching.[1]

- If the United States had not dramatically reduced its energy intensity over the past 30 years, consumers and businesses would have spent about $650 billion more on energy purchases in 2003.

- Between 1996 and 2003, GDP increased 25 percent while primary energy use increased just 5 percent. Imagine how much worse our energy problems would be today if energy use had increased 10 or 20 percent during 1996-2003.

Even though the United States is much more energy-efficient today than it was 30 years ago, there is still enormous potential for additional cost-effective energy savings. Some newer energy efficiency measures have barely begun to be adopted. Other efficiency measures could be developed and commercialized in coming years, with proper support:

$ The Department of Energy=s national laboratories estimate that increasing energy efficiency throughout the economy could cut national energy use by 10 percent or more in

[1] Murtishaw and Schipper, 2001, *Untangling Recent Trends in U.S. Energy Use*. Washington, D.C.: U.S. Environmental Protection Agency.

2010 and about 20 percent in 2020, with net economic benefits for consumers and businesses.[2]

$ ACEEE, in our *Smart Energy Policies* report, estimates that adopting a comprehensive set of policies for advancing energy efficiency could lower national energy use from EIA projections by as much as 11 percent in 2010 and 26 percent in 2020.[3]

$ ACEEE and others estimate that passenger vehicle fuel economy could be raised by two-thirds with existing cost-effective technologies. Yet the fuel economy of U.S. vehicles today is the same as it was in 1982.4

$ The opportunity for saving energy is also illustrated by experience in California in 2001. Prior to 2001 California was already one of the most-efficient states in terms of energy use per unit gross state product (ranking 5th in 1997 out of 50 states[5]). But in response to pressing electricity problems, California homeowners and businesses reduced energy use by 6.7% in summer 2001 relative to the year before (after adjusting for economic growth and weather)[6], with savings costing an average of 3 cents per kWh,[7] far less than the typical retail or even wholesale price of electricity.

Unfortunately, a variety of market barriers keep these savings from being implemented. These barriers are many-fold and include such factors as Asplit incentives@ (landlords and builders often do not make efficiency investments because the benefits of lower energy bills are received by tenants and homebuyers); panic purchases (when a product such as a refrigerator needs replacement, there often isn=t time to research energy-saving options); and bundling of energy-saving features with high-cost extra Abells and whistles.@

Furthermore, recent developments indicate that the U.S. needs to *accelerate* efforts to implement energy efficiency improvements:

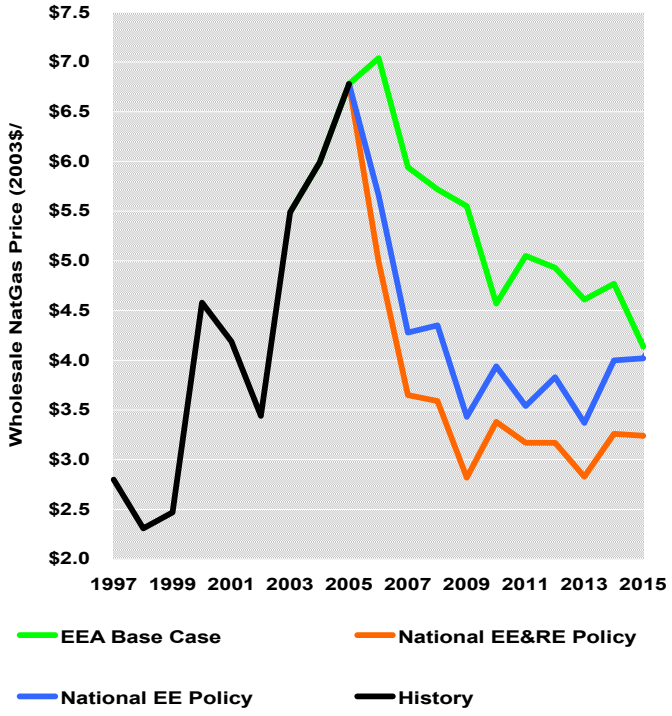
$ Oil, gasoline and natural gas prices have risen substantially in the past couple of years. Energy efficiency can reduce demand for these fuels, reducing upward price pressure and also reducing fuel-price volatility, making it easier for businesses to plan their investments.

[2] Interlaboratory Working Group, 2000, *Scenarios for a Clean Energy Future*. Washington, D.C.: Interlaboratory Working Group on Energy-Efficient and Clean-Energy Technologies, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy.
[3] Nadel and Geller, 2001, *Smart Energy Policies: Saving Money and Reducing Pollutant Emissions Through Greater Energy Efficiency*, www.aceee.org/ energy/reports.htm. Washington, DC: American Council for an Energy-Efficient Economy.
[4] DeCicco, An and Ross, 2001, *Technical Options for Improving the Fuel Economy of U.S. Cars and Light Trucks by 2010-2015*. Washington, DC: American Council for an Energy-Efficient Economy.
[5] Geller and Kubo, 2000, *National and State Energy Use and Carbon Emissions Trends*. Washington, DC: American Council for an Energy-Efficient Economy.
[6] California Energy Commission, 2001, *Emergency Conservation and Supply Response 2001.* Report P700-01-005F. Sacramento, CA.
[7] Global Energy Partners, 2003, *California Summary Study of 2001 Energy Efficiency Programs, Final Report.* Lafayette, CA.

Prices are determined by the interaction of supply and demand—if we seek to address supply and not demand, it's like entering a boxing match with one hand tied behind our back.

- A recent ACEEE analysis found that gas markets are so tight that if we can reduce gas demand by as little as 4% over the next five years, we can reduce wholesale natural gas prices more than 20%. This analysis was conducted by Energy and Economic Analysis, the same analysis firm and computer model that was employed by DOE and the National Petroleum Council for their 2003 study on U.S. natural gas markets. Results of this analysis are shown in the figure below. These savings would put over $100 billion back into the U.S. economy. Moreover, this investment would help bring back U.S. manufacturing jobs that have been lost to high gas prices, and would help relieve the crushing burden of natural gas costs experienced by many households, including low-income households. Importantly, much of the gas savings in this analysis comes from electricity efficiency measures, because so much electricity is generated by natural gas, often inefficiently.

Impacts of Energy Efficiency and Renewable Energy on Wholesale Gas Prices



- The U.S. is growing increasingly dependent on imported oil, with imports accounting for more than 60% of U.S. oil consumption in 2003, of which nearly half came from OPEC countries and more than 20% came from the Persian Gulf.[8] The U.S. Energy Information Administration estimates that imports will account for 72% of U.S. oil use in 2020 unless

[8] Energy Information Administration, 2004, *Annual Energy Review 2004 and Annual Energy Review 2005, Early Release*. Washington, DC: U.S. Dept. of Energy.

current trends are changed. While moderate amounts of new oil are available in hard-to-reach areas of the U.S., much greater amounts of oil are available by increasing the efficiency with which we use oil. Forthcoming analyses by ACEEE and others estimate we can reduce U.S. oil use by more than 2.5 million barrels per day by 2020 through improvements in the residential, commercial, industrial and transportation sectors (the latter including passenger cars, light and heavy trucks, and planes). Energy efficiency can slow the growth in oil use, allowing a larger portion of our needs to be met from sources in the U.S. and neighboring friendly countries.

$ The U.S. economy has had sub-par performance for several years. While the economy is improving, additional boosts will help. Energy efficiency investments often have financial returns of 30% or more, helping to reduce operating costs and improve profitability. In addition, by reducing operating costs, efficiency investments free up funds to spend on other goods and services, creating what economists call the Amultiplier effect@, and helping the economy broadly. A 1997 study found that due to this effect, an aggressive set of efficiency policies could add about 770,000 jobs to the U.S. economy by 2010.[9]

$ Emissions of gases contributing to global climate change continue to increase. Early signs of the impact of these changes are becoming apparent in Alaska. Energy efficiency is the most cost-effective way to reduce these emissions, as efficiency investments generally pay for themselves with energy savings, providing no-cost emissions reductions.

Energy efficiency also draws broad popular support. For example, in a May 2001 Gallop Poll, 47% of respondents said the U.S. should emphasize Amore conservation@ versus only 35% who said we should emphasize production (an additional 14% volunteered Aboth@). In this same poll, when read a list of 11 actions to deal with the energy situation, the top four actions (supported by 85-91% of respondents) were Ainvest in new sources of energy,@ Amandate more energy-efficient appliances,@ Amandate more energy-efficient new buildings,@ and Amandate more energy-efficient cars.@ Options for increasing energy supply and delivery generally received significantly less support.[10]

Furthermore, increasing energy efficiency does not present a trade-off between enhancing national security and energy reliability on the one hand and protecting the environment on the other, as do a number of energy supply options. Increasing energy efficiency is a Awin-win@ strategy from the perspective of economic growth, national security, reliability, and environmental protection.

We are not saying that energy efficiency alone will solve our energy problems. Even with aggressive actions to promote energy efficiency, U.S. energy consumption is likely to rise for more than a decade, and this growth, combined with retirements of some aging facilities, will mean that some new energy supplies and energy infrastructure will be needed. But aggressive

[9] Alliance to Save Energy et al., 1997, *Energy Innovations: A Prosperous Path to a Clean Environment.* Washington, DC: American Council for an Energy-Efficient Economy.

[10] Moore, David, 2001, AEnergy Crisis: Americans Lean toward Conservation over Production.@ Princeton, N.J.: The Gallup Organization.

steps to promote energy efficiency will substantially cut our energy supply and energy infrastructure problems, reducing the economic cost, political controversy, and environmental impact of energy supply enhancements.

Comments on the Energy Policy Act of 2005

The provisions in the draft Energy Policy Act of 2005 (which we assume are virtually identical to the H.R. 6 Conference Language from 2003) take moderate steps to address natural gas and electricity use but do very little to stem oil use. Notable efficiency provisions in this Act include:

1. Enactment of Consensus Equipment Efficiency Standards on Six Products plus DOE Rulemakings to set Efficiency Standards on Six More Products

These standards were negotiated by ACEEE and industry over the 2001-2003 period and draw broad support. In cases where there was clear consensus on what the new standard should be, the specific standard is included in the bill. Placing these standards in the bill speeds up implementation (saving the three or more years for a typical DOE rulemaking) and also provides clear direction for manufacturers on the products they need to produce (with a rulemaking, manufacturers face uncertainty until a final rule is published). In cases where such consensus was lacking, the bill directs DOE to set standards by rule. In a few cases the standards established by H.R. 6 were due to take effect in 2005. These dates need to be pushed back to January 1, 2006. Overall, we estimate that these standards will have a benefit-cost ratio of about six to one (energy bill savings will be about six times greater than the incremental cost of the more efficient equipment).[11]

2. Tax Incentives for Advanced Energy-Saving Products and Buildings

The H.R. 6 Conference agreement includes tax incentives for combined heat and power systems, advanced appliances, hybrid, fuel cell and advanced diesel vehicles, and efficient new and existing homes and commercial buildings. These provisions will expand use of these energy-saving technologies and building practices, helping these technologies and practices to become more established in the market so they can better prosper when the tax incentives end. We see these as a temporary "shot in the arm" for these technologies, and not a permanent entitlement. In 2003 we estimated that these tax incentives will save about 19 quadrillion Btu's of energy over the 2004-2020 period, about 1% of U.S. energy use. By our estimates, the tax incentives account for about two-thirds of the energy savings achieved under the bill. We are now preparing updated estimates and expect to have these available in about a month.

[11] Kubo and Nadel, 2001, *Opportunities for New Appliance and Equipment Efficiency Standards: Energy and Economic Savings Beyond Current Standards Programs*. Washington, DC: American Council for an Energy-Efficient Economy.

3. Enhancements to the Appliance Labeling Program, Federal Energy Management Program and Programs that Seek Voluntary Efficiency Commitments from Industrial Firms

This bill also includes several other useful efficiency provisions. For example, Section 134 directs the Federal Trade Commission to review and improve the Energy Guide label that now is displayed on many types of appliances. The current label is ineffective at educating and motivating consumers and needs updating. ACEEE focus group and survey research has found that an improved label would be easier to understand and would motivate more consumers to purchase high-efficiency appliances.

Subtitle A addresses Federal Leadership in Energy Conservation. It is important for the federal government to continue to lead the nation in energy efficiency by setting an example of energy use in its own buildings. Few federal programs have been as cost-effective as DOE's Federal Energy Management Program (FEMP). At an average cost of only $20 million per year, FEMP has cut federal building energy use by more than 20% over the past two decades -- a reduction that now saves federal taxpayers roughly $1 billion each year in reduced energy costs. Subtitle A updates and strengthens FEMP efforts by: (1) updating agency energy reduction targets; (2) extending and expanding Energy Savings Performance Contract (ESPC) authority; (3) requiring cost-effective metering; (4) increasing performance standards for new federal buildings; (5) strengthening federal procurement requirements; and (6) increasing federal fleet fuel-economy requirements.

Section 107 authorizes the Secretary of Energy to establish a voluntary commitment program to reduce industrial energy intensity. Such programs have proven effective in Europe and are now being implemented in Canada. We recommend that this provision be strengthened by establishing specific goals, authorizing DOE to provide technical assistance and other services and providing that DOE report to Congress on the success of the program. Language along these lines was included in the original bill that passed the House in 2003 but unfortunately this was weakened in conference. The earlier language should be restored.

4. Updated Authorizations for Advanced Energy Research Including Energy Efficiency

Title IX authorizes DOE energy efficiency programs for the next five years. By and large this title contains a variety of useful ideas (we particularly support the work on lighting and distributed energy systems). However, the impact of this title will primarily depend on future appropriations.

Title VIII includes specific authorization for the Freedom Car and Hydrogen Fuel programs. We think these are useful programs, and the draft bill improves upon DOE=s formulation of the program by setting real-world goals for the introduction and performance of fuel cell vehicles. However, it will be at least 2030 before these vehicles have any significant impact. For example, Title VIII sets a goal of 2015 for production decisions and 2020 for selling vehicles that will be accepted by consumers. Since new vehicle technologies take close to a decade to penetrate the market, it will be at least 2030 before these vehicles have a significant presence on the road. In the

interim, increased efforts will be needed to improve the efficiency of gasoline-powered vehicles. Also, it is far from certain that efforts to develop a hydrogen economy will be successful, so that rather than putting all of our Aeggs@ in the hydrogen basket, we recommend that a diverse range of advanced high-efficiency technologies be pursued.

In summary, we support the provisions discussed above, although, as discussed later, we believe some of the tax incentive provisions should be refined to produce more energy savings per dollar of tax incentive provided. Taken together, in 2003 we estimated that these provisions will reduce U.S. energy use by about 1.5% cumulatively over the 2004-2020 period, including approximately a 3% reduction in 2020. By 2020 we estimated that these provisions will also displace the need for nearly 300 new power plants of 300 MW each. These are substantial positive impacts and well worth pursuing. We are now in the process of revising our savings estimates and expect to have updated figures about a month.

Additional Provisions Congress Should Consider

While the provisions discussed above are a reasonable start, much more can and should be done to improve U.S. energy efficiency. We recommend that the following changes be made to the bill, either before it passes the House or in conference:

1. Adding New Consensus Efficiency Standards Negotiated with Industry

ACEEE and industry have a long history of negotiating consensus agreements on new efficiency standards. The H.R. 6 Conference Agreement included all of the consensus agreements negotiated as of November 2003. Since then we have negotiated five additional agreements with industry and recommend they be added to the bill. These agreements cover:

- *Commercial packaged air conditioners.* Agreement with the Air Conditioning and Refrigeration Institute and manufacturers to establish specific new efficiency standards effective in 2010 based on levels in current voluntary programs and state efficiency standards.

- *Commercial refrigeration.* Agreement with the Air Conditioning and Refrigeration Institute and manufacturers to establish specific new efficiency standards effective 2010 and for DOE to set additional standards via rule. The new standards are based on levels in current voluntary programs and state efficiency standards.

- *Residential dehumidifiers.* Agreement with the Association of Home Appliance Manufacturers and their members to establish specific new efficiency standards effective 2007 based on the current Energy Star specification.

- *Ceiling fans.* Agreement with Home Depot (who represents about half of the U.S. market) and manufacturers to establish specific standards effective 2007 based on portions of the Energy Star specification.

- *Pre-rinse spray valves.* Agreement with Plumbing Manufacturers Institute to adopt specific standards effective 2006 based on state efficiency standards and levels promoted in voluntary incentive programs.

In addition, ACEEE is talking to manufacturers of four additional products and expects to have a few additional consensus agreements that should be considered by the Senate and by House-Senate conferees.

2. Clarifying that DOE Can Set Separate Furnace Efficiency Standards for Cold and Warm States

When the federal standards law was passed in 1987, it established uniform national standards for all products, including heating and cooling equipment. However, climate in the U.S. varies enormously from Alaska to Florida, and a one-size fits all approach may not make sense for the entire country. For example, DOE is currently conducting a rulemaking on new standards for residential furnaces, a major consumer of natural gas. Condensing furnaces (e.g., those meeting the Energy Star specification) are generally cost-effective in Northern states but not cost-effective in Southern states. An ACEEE analysis estimates that a condensing furnace standard in cold states would reduce national natural gas use by more than 150 billion cubic feet and will save consumers $3.5 billion (discounted net present value) for equipment sold by 2030. DOE's Office of General Counsel says they lack authority to set separate standards for different regions. Manufacturers claim that imposing separate standards for the North and South would create difficulties for them. However, manufacturers often have separate models for Northern and Southern climates (e.g. furnaces in the south often have larger fans in order to handle larger cooling loads) and thus we think manufacturers are overstating the difficulties. When the federal law was first passed in 1987, Rep. Barton objected to setting the same standard for cold and warm states stating on the House floor:

> The establishment of national appliance efficiency standards also ignores sharp climate variations in different regions of the country. To insist that air-conditioners in Minnesota and Indiana have the same energy efficiency rates as air-conditioners in Mississippi and Texas ignores the fact that an air-conditioner may be operated four or five times as much in warmer climates. For example, a comparison of hours of air-conditioner operation in different cities demonstrates that annual usage in Detroit is 265 hours, while usage in New Orleans is 1,370 hours. Annual heating

hours in these two cities is 2,533 hours and 1.099 hours, respectively. H.R. 87[12] makes no allowance for variation.[13]

To address this problem and the large energy and economic savings that are possible with regional standards, we recommend that current law be amended to grant DOE authority to consider separate standards for the North and South for residential heating and cooling systems. This amendment should require DOE to consider the advantages and disadvantages of regional differentiation based on criteria in the underlying law, and decide whether regionally differentiated standards make sense for a particular product. To limit the impact on manufacturers, we recommend that the amendment permit only two zones and require zones to follow state boundaries and be fully contiguous (except Alaska and Hawaii). We also recommend that current law be amended to authorize (but not require) DOE to regulate combined space and water heating systems, an increasingly common equipment type that may become a "loophole" around separate furnace and water heater standards.

3. Including an Energy Efficiency Resource Standard to Set Energy Saving Targets for Gas and Electric Utilities, Modeled after a Program Now Operating in Texas

Texas's electricity restructuring law (SB-7 1999)[14] created a requirement for electric utilities to offset 10% of their demand growth through end-use energy efficiency. Pennsylvania's new Advanced Energy Portfolio Standard includes end-use efficiency among other clean energy resources. Other states have set targets for energy savings from utility programs. Congress should set electric and gas end-user savings targets for utilities, with flexibility to achieve them through a market-based trading system. With trading, utilities that save more than their target can sell savings credits to utilities that fall short of their savings targets. Trading would also permit the market to find the lowest-cost savings nationwide. We recommend that these targets start at modest levels (e.g. 0.25% of sales annually) and ramp-up over several years to savings levels currently achieved by the most successful states (e.g. 0.75% of sales annually). Peak demand savings should also be included, building on a proposal in H.R. 3406 (section 103) introduced by Rep. Barton in the 107th Congress. To ensure that costs will be moderate, in addition to permitting trading, we recommend that electric and gas utilities be permitted to buy credits for 3 cents per kWh of electricity or 30 cents per therm of gas, which is less than half of the current retail cost of these energy sources. States should also be encouraged to reform their utility regulations, so that utility revenues and profits are sustained regardless of fluctuations in sales—several states have already taken this step.

We estimate that a program like this would save more energy and money than all of the efficiency provisions presently in the bill and thus inclusion of a provision along these lines should be a high priority.

[12] Subsequently adopted as the *National Appliance Energy Conservation Act of 1987*.
[13] *Congressional Record*, March 3, 1987, p. H 892.
[14] See http://texas.efficiencylink.net/ for additional information.

4. Setting a Fuel-Savings Goal of 1 Million Barrels per Day of Oil Savings by 2013 and Authorizing Additional Tools for Achieving These Savings

There are multiple opportunities to save oil in all sectors of the U.S. economy, and we believe a reduction of 1 million barrels per day, relative to EIA projections, is eminently achievable and a good start towards the much deeper cuts needed over the next 15-20 years. One million barrels represents two-thirds of our oil imports from Saudi Arabia today. Both buildings and industry can make substantial contributions to this goal through measures such as updating building codes and efficiency standards for residential heaters, and enhancing the efficiency of industrial boilers.

The greatest opportunity to save oil lies in the transportation sector, however. We cannot afford to pass up this chance to make our passenger vehicles more efficient, and there are a number of approaches to accomplishing this. Simply requiring new vehicles to meet current fuel economy standards in their real-world performance (i.e. with a more accurate test procedure) could save over three-quarters of a million barrels per day by 2013. Strengthening the market for efficiency by extending the gas guzzler tax to the heavier passenger vehicles or by adopting a "feebate" system would also be effective measures. For example, a revenue-neutral feebate system that grants a rebate or charges a fee on vehicle purchases at the rate of $1000 for each one-hundredth of a gallon per mile above or below the average would result in fees and rebates in the hundreds of dollars for most vehicles and could save over three-quarters of a million barrels per day by 2013.[15]

There are good opportunities to save oil by boosting heavy truck efficiency as well, which would help the freight industry save on fuel costs. We estimate that freight trucks could save over 200,000 barrels of oil daily by 2013 and recommend, at a minimum, establishment of fuel economy test procedures for these vehicles in the bill.[16]

Therefore, we recommend that a provision be added to direct the Administration to set policies to achieve savings of one million barrels per day by 2013. A provision along these lines was developed by Senator Landreau in the 108th Congress and received almost unanimous support in the Senate. That provision lacked an enforcement mechanism, however, which should be added this time around. In addition, as part of this provision, authority should be granted to revise the gas-guzzler tax, establish feebates, establish testing and fuel economy standards for heavy vehicles, and modify passenger vehicle test procedures to better match real-world performance. We are not at this point advocating establishment of these specific policies, but instead recommend that they be available to the Administration as it develops its compliance plan.

[15] ACEEE calculations based on data in Greene et al., 2003, *Feebates, Rebates and Gas-Guzzler Taxes: A Study of Incentives for Increased Fuel Economy*. Oak Ridge, TN: Oak Ridge National Laboratory.

[16] More information on energy-saving opportunities in trucks can be found in Langer, 2004, *Energy Savings Through Increased Fuel Economy for Heavy-Duty Trucks*. Washington, DC: National Commission on Energy Policy.

In addition, the current bill expands the list of considerations that DOT must use in determining "maximum feasible" fuel economy when updating CAFÉ standards. The additional items are matters that DOT has consistently taken into account in its past fuel economy determinations, and we believe that the only consequence of altering the list would be to make the process of revising the standards more cumbersome. This provision should be eliminated

5. Addressing Barriers to Combined Heat And Power Systems by Directing FERC and EPA to Complete Current Proceedings

In times of increasing energy costs, combined heat and power (CHP; sometimes also called cogeneration) represents one of the most important opportunities available for improving efficiency, the environment and economic competitiveness. With fair rules, 50,000 MW of CHP capacity can be added by 2010 and an additional 95,000 MW added by 2020, reducing the fuel needed to generate electricity by up to 50%.[17] Major barriers to the expansion of CHP are uneven and sometimes onerous interconnection requirements imposed by some utilities and states and emissions regulations that penalize and do not reward efficient CHP systems. FERC and EPA have recognized these problems and started proceedings to address them. In the case of interconnection, FERC has opened a docket on interconnection rules for generators of 20 MW or less. We recommend that the energy bill direct FERC to complete this rulemaking within one year after the energy bill is enacted. We also recommend that the energy bill direct FERC to develop guidelines for backup power rates charged to CHP and distributed energy systems that are within FERC's jurisdiction (e.g. for electric providers with open-access tariffs on file at FERC). Such rates should be fair, reasonable and non-discriminatory. Likewise, EPA has begun to investigate how CHP systems are treated in emissions regulations. Current regulations limit emissions per unit of fuel input, regardless of how inefficient or efficient a plant is. A better approach is to limit emissions per unit of energy output, which rewards plants that can produce more electricity and useful heat per unit of energy input. We recommend that the energy bill direct EPA to develop output-based emissions requirements for CHP systems within two years of bill enactment.

6. Refining Proposed Energy Efficiency Tax Incentives

Revisions to the tax incentives provisions in the bill are under the jurisdiction of the Ways and Means Committee and not this Committee. However, in the interest of completeness, we provide the following specific recommendations on how these provisions can be improved to increase the energy savings achieved at little if any additional cost to the Treasury.

- *Combined heat and power (CHP).* Schools, hospitals, and businesses can use CHP to cut their energy bills while reducing strain on power grids. High-efficiency CHP systems are also more efficient in their use of natural gas than most central station power plants. Due to these benefits, CHP is a priority in the President's National Energy Policy plan. A CHP

[17] Nadel and Geller, 2001, *Smart Energy Policies: Saving Money and Reducing Pollutant Emissions Through Greater Energy Efficiency*, Www.aceee.org/ energy/reports.htm. Washington, DC: American Council for an Energy-Efficient Economy.

investment tax credit similar to the one included in the H.R. 6 Conference Report should be included in new legislation with two modifications. First, the 15 MW eligibility cap on the provision should be raised to 50 MW. Second, provisions in the original Senate language inadvertently lost in conference that made recycled energy (e.g. waste heat recovery, heat engines and back-pressure turbines) eligible should be restored. The 15 MW cap originally was intended to limit tax expenditures, but the last Joint Tax scoring indicated that the CHP tax credit actually stimulated sufficient economic activity that it provided net tax revenues rather than expenditures at least up to a 50 MW unit. For larger sizes, many systems are likely to be installed without tax credits and costs to the Treasury increase significantly.

- *Commercial buildings.* This provision creates a deduction for businesses that make major efficiency improvements. Since commercial lighting and air conditioning are among the biggest components of peak electricity loads, this incentive will help prevent blackouts and will also save lots of natural gas. This provision was in both the H.R. 6 Conference Report and Senator Domenici's S. 2095 in the 108th Congress. We prefer the S. 2095 version as the incentives and savings are somewhat higher. Based on input from DOE and others, the latest Joint Committee on Taxation analysis shows this provision will cost significantly less than earlier estimates.[18]

- *New and existing homes***.** We build almost two million new homes each year; to keep them from straining power grids and raising energy prices, it is vital that they be as efficient as possible. Efficiency also makes homes more affordable to more families. To get maximum benefit from the credits, we ask that credits be offered for homes both 30% and 50% better than model codes. We recommend the S. 2095 incentive amounts as providing more energy savings per federal dollar, and the Senate language on reference codes and certification as more balanced and complete.

  One small refinement that is badly needed is to clarify that heating and cooling air distribution duct sealing and thermal envelope air sealing are both eligible for new and existing home credits. These measures reduce loss of heated air to the outside and unheated basements and attics. These are two of the largest opportunities to reduce natural gas use in homes but the H.R. 6 and S. 2095 language is ambiguous on whether they are eligible for tax incentives. Clarifying that these measures are eligible will not affect the cost caps per home but will expand the measures that can be used to achieve savings within the cost caps.

- *Home heating and cooling equipment.* The largest direct natural gas use in homes is for furnaces and water heaters. And central air conditioners and heat pumps are a large indirect user of gas since a substantial portion of peak electricity comes from natural gas. S. 2095 contains modest provisions for tax incentives for furnaces and water heaters but air conditioner and heat pump incentives were dropped due to a lack of consensus in 2003. In

[18] Joint Committee on Taxation. May 2, 2004. Estimated Revenue Effects of S. 1637, the "Jumpstart Our Business Strength ('JOBS') Act," As Passed by the Senate. JCX-36-04.

light of our pressing natural gas problems, and an emerging consensus on air conditioner and heat pump incentives, we recommend that the S. 2095 provision for water heaters be retained, the provision for furnaces be strengthened, and a central air conditioner and heat pump provision be added.

For furnaces, S. 2095 provides a $125 incentive for 95% efficient furnaces and boilers plus an additional $50 for an advanced air circulation fan. We believe this can be simplified and provide more gas savings if a single incentive is provided for a furnace or boiler with 92% efficiency[19] and an efficient air circulation fan that meets a new consensus efficiency specification developed by the Consortium for Energy Efficiency (CEE) and the Gas Appliance Manufacturers Association (GAMA).[20] We recommend an incentive of about $200 in the first year when the program begins, declining to $150 in the second year and $100 in the third year as this equipment becomes more popular. To further limit costs, incentives could be limited to replacement of furnaces in existing homes since condensing furnace retrofits are more expensive and more in need of incentives than condensing furnaces in new construction applications. We also recommend that the $50 credit be offered for non-condensing furnaces that meet the CEE/GAMA specification. Such an incentive will be useful in the South where condensing furnaces often are not cost-effective.[21]

For central air conditioners and heat pumps, we have agreed with the Air Conditioning and Refrigeration Institute (ARI) on a consensus recommendation. We recommend that a consumer tax credit be provided for units meeting the Energy Star specification in 2006-2008. This specification is scheduled to be finalized by EPA in March 2005 and will call for significant energy savings relative to the new 2006 federal efficiency standard for these products. We recommend a credit of $250 for the first two years and $100 for the third year for this technology. The credit ramps down in the third year, both to reduce cost to the Treasury and to ease the transition to a post-incentive market.

- *Home appliances.* H.R. 6 and S. 2095 both contain credits for clothes washers and refrigerators. These appliances are two of the largest energy users in the home and the credits could help millions of families control their utility bills while saving substantial energy for the nation. This provision was updated in 2003 to reflect changes in the appliance market and should be updated again. Specifically, we recommend that the clothes washer credit reference the 2007 Energy Star specification (due to be finalized by DOE in spring 2005) and that the refrigerator credit be refined to provide a $50 credit for 15% savings relative to the current federal standard, a $100 credit for 20% savings, and a $150 credit for 25% savings. These changes will better promote advanced equipment and will significantly increase the energy savings per federal dollar. These refinements are needed because the market share of 2004 Energy Star clothes washers and refrigerators has grown substantially in the past two years and the credit needs to be restructured to better

[19] 92% is preferred because there are many more units available at 92% than at 95%.
[20] See http://www.cee1.org/gas/gs-ht/gas_heat_specs.pdf .
[21] For condensing furnaces, the 92% AFUE and fan requirements should be combined in order to keep costs down. If an incentive is offered for 92% AFUE *without* an efficient fan, many more systems will qualify, raising costs.

emphasize advanced equipment. We also recommend that credits for more efficient dishwashers in Senator Smith's S. 2655 from the last Congress be included. We are now discussing changes along these lines with the Association of Home Appliance Manufacturers (AHAM) and hope to have consensus recommendations ready later this month. This consensus may differ in some particulars from what we discuss above.

- *Cars and trucks.* The credits proposed for advanced technology vehicles in H.R. 6 are generally sound. We are particularly supportive of the credits for advanced technology buses and heavy trucks as advanced vehicles in these categories have received less attention than advanced passenger vehicles. The H.R. 6 credits have been trimmed substantially from their original formulation; any further adjustments should tighten the energy and environmental thresholds for receipt of credit rather than reducing the per-vehicle credit for the best performers. Also, an explicit statement should be added to the diesel language clarifying that fuel economy credits should be computed on a miles-per-gallon gasoline-equivalent basis.

Energy Savings from an Enhanced Bill

In 2003, we estimated that the efficiency provisions in the H.R. 6 Conference Report will reduce U.S. energy use by about 1.5% over the 2004-2020 period, including approximately a 3% reduction in 2020 (i.e., savings will gradually ramp up from 0% in 2004 to 3% in 2020, making for an average of 1.5% over the full 17-year period). By 2020 we estimated that these provisions will also displace the need for nearly 300 new power plants of 300 MW each.

This same analysis found that inclusion of modifications along the lines suggested above will increase total savings to about 6% of total energy use over the 2004-2020 period, including approximately 12% savings in 2020. With these modifications, peak power needs will also drop, displacing the near for more than 700 new power plants of 300 MW each. Thus, taken together, the additional provisions and refinements we recommend would increase energy savings under the bill by about a factor of four.

We are now in the process of revising our savings estimates and expect to have updated figures in about a month.

Conclusion

Energy efficiency is an important cornerstone for America=s energy policy. Energy efficiency has saved consumers and businesses billions of dollars in the past two decades, but these efforts should be accelerated in order to:

$ save consumers and businesses even more money;
$ change the energy supply and demand balance and put downward pressure on energy prices;
$ decrease reliance on imported oil;

- help with economic development (since savings from energy efficiency generates jobs); and
- reduce carbon emissions, helping to moderate growth in the gases that contribute to global climate change.

The provisions in the draft Energy Policy Act of 2005 take modest steps in this direction, particularly the sections establishing new appliance and equipment efficiency standards and tax incentives for advanced energy-saving equipment, vehicles and buildings. *Overall, we estimate that this bill will reduce U.S. energy use by about 3% by 2020*.

But much more can and should be done. We recommend that Congress include the following provisions:

- Adding new consensus efficiency standards on commercial air conditioning and refrigeration systems, ceiling fans, dehumidifiers, and restaurant spray valves based on consensus agreements we have negotiated with industry.

- Adding additional consensus efficiency standards if negotiations now underway for several products can be successfully completed.

- Clarifying that DOE can set separate furnace efficiency standards for cold and warm states.

- Including an Energy Efficiency Resource Standard to set energy saving targets for gas and electric utilities, modeled after a program now operating in Texas.

- Setting a fuel-savings goal of 1 million barrels per day of oil savings by 2013 and authorizing additional tools for achieving these savings such as fuel-economy testing for heavy vehicles, "feebates" for passenger vehicles (a revenue-neutral system of fees and rebates based on fuel economy), and modification of passenger vehicle test procedures to better match real-world performance.

- Addressing barriers to combined heat and power systems by directing FERC and EPA to complete current proceedings on interconnection and output-based emissions permitting.

- Refining proposed energy efficiency tax incentives in order to better promote advanced equipment and practices, increasing savings while having little or no impact on costs.

These provisions would increase the savings under the bill by about a factor of four, reducing U.S. energy use by about 12% in 2020. Failure to take these steps now will make it more likely that Congress will again have to address energy problems in the not very distant future.

This concludes my testimony. Thank you for the opportunity to present these views.