



National Action Plan for Energy Efficiency

A PLAN DEVELOPED BY MORE THAN 50 LEADING
ORGANIZATIONS IN PURSUIT OF ENERGY SAVINGS
AND ENVIRONMENTAL BENEFITS THROUGH
ELECTRIC AND NATURAL GAS ENERGY EFFICIENCY

JULY 2006

The goal is to create a sustainable, aggressive national commitment to energy efficiency through gas and electric utilities, utility regulators, and partner organizations.

Improving energy efficiency in our homes, businesses, schools, governments, and industries—which consume more than 70 percent of the natural gas and electricity used in the country—is one of the most constructive, cost-effective ways to address the challenges of high energy prices, energy security and independence, air pollution, and global climate change.

The U.S. Department of Energy and U.S. Environmental Protection Agency facilitate the work of the Leadership Group and the National Action Plan for Energy Efficiency.



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Executive Summary



This National Action Plan for Energy Efficiency (Action Plan) presents policy recommendations for creating a sustainable, aggressive national commitment to energy efficiency through gas and electric utilities, utility regulators, and partner organizations. Such a commitment could save Americans many billions of dollars on energy bills over the next 10 to 15 years, contribute to energy security, and improve our environment. The Action Plan was developed by more than 50 leading organizations representing key stakeholder perspectives. These organizations pledge to take specific actions to make the Action Plan a reality.

A National Action Plan for Energy Efficiency

We currently face a set of serious challenges with regard to the U.S. energy system. Energy demand continues to grow despite historically high energy prices and mounting concerns over energy security and independence as well as air pollution and global climate change. The decisions we make now regarding our energy supply and demand can either help us deal with these challenges more effectively or complicate our ability to secure a more stable, economical energy future.

Improving the energy efficiency¹ of our homes, businesses, schools, governments, and industries—which consume more than 70 percent of the natural gas and electricity used in the country—is one of the most constructive, cost-effective ways to address these challenges.² Increased investment in energy efficiency in our homes, buildings, and industries can lower energy bills, reduce demand for fossil fuels, help stabilize energy prices, enhance electric and natural gas system reliability, and help reduce air pollutants and greenhouse gases.

Despite these benefits and the success of energy efficiency programs in some regions of the country, energy efficiency remains critically underutilized in the nation's energy portfolio.³ Now we simultaneously face the challenges of high prices, the need for large investments in new energy infrastructure, environmental concerns, and

security issues. It is time to take advantage of more than two decades of experience with successful energy efficiency programs, broaden and expand these efforts, and capture the savings that energy efficiency offers. Much more can be achieved in concert with ongoing efforts to advance building codes and appliance standards, provide tax incentives for efficient products and buildings, and promote savings opportunities through programs such as ENERGY STAR®. Efficiency of new buildings and those already in place are both important. Many homeowners, businesses, and others in buildings and facilities already standing today—which will represent the vast majority of the nation's buildings and facilities for years to come—can realize significant savings from proven energy efficiency programs.

Bringing more energy efficiency into the nation's energy mix to slow demand growth in a wise, cost-effective manner—one that balances energy efficiency with new generation and supply options—will take concerted efforts by all energy market participants: customers, utilities, regulators, states, consumer advocates, energy service companies, and others. It will require education on the opportunities, review of existing policies, identification of barriers and their solutions, assessment of new technologies, and modification and adoption of policies, as appropriate. Utilities,⁴ regulators, and partner organizations need to improve customer access to energy efficiency programs to help them control their own energy costs, provide the funding necessary to deliver these pro-

grams, and examine policies governing energy companies to ensure that these policies facilitate—not impede—cost-effective programs for energy efficiency. Historically, the regulatory structure has rewarded utilities for building infrastructure (e.g., power plants, transmission lines, pipelines) and selling energy, while discouraging energy efficiency, even when the energy-saving measures cost less than constructing new infrastructure.⁵ And, it has been difficult to establish the funding necessary to capture the potential benefits that cost-effective energy efficiency offers.

This National Action Plan for Energy Efficiency is a call to action to bring diverse stakeholders together at the national, regional, state, or utility level, as appropriate, and foster the discussions, decision-making, and commitments necessary to take investment in energy efficiency to a new level. The overall goal is to create a sustainable, aggressive national commitment to energy efficiency through gas and electric utilities, utility regulators, and partner organizations.

The Action Plan was developed by a Leadership Group composed of more than 50 leading organizations representing diverse stakeholder perspectives. Based upon the policies, practices, and efforts of many organizations across the country, the Leadership Group offers five rec-

ommendations as ways to overcome many of the barriers that have limited greater investment in programs to deliver energy efficiency to customers of electric and gas utilities (Figure 1). These recommendations may be pursued through a number of different options, depending upon state and utility circumstances.

As part of the Action Plan, leading organizations are committing to aggressively pursue energy efficiency opportunities in their organizations and assist others who want to increase the use of energy efficiency in their regions. Because greater investment in energy efficiency cannot happen based on the work of one individual or organization alone, the Action Plan is a commitment to bring the appropriate stakeholders together—including utilities, state policy-makers, consumers, consumer advocates, businesses, energy services companies, and others—to be part of a collaborative effort to take energy efficiency to a new level. As energy experts, utilities may be in a unique position to play a leading role.

The reasons behind the National Action Plan for Energy Efficiency, the process for developing the Action Plan, and the final recommendations are summarized in greater detail as follows.

Figure 1. National Action Plan for Energy Efficiency Recommendations

- **Recognize energy efficiency as a high-priority energy resource.**
- **Make a strong, long-term commitment to implement cost-effective energy efficiency as a resource.**
- **Broadly communicate the benefits of and opportunities for energy efficiency.**
- **Promote sufficient, timely, and stable program funding to deliver energy efficiency where cost-effective.**
- **Modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments.**

The United States Faces Large and Complex Energy Challenges

Our expanding economy, growing population, and rising standard of living all depend on energy services. Current projections anticipate U.S. energy demands to increase by more than one-third by 2030, with electricity demand alone rising by more than 40 percent (EIA, 2006). At work and at home, we continue to rely on more and more energy-consuming devices. At the same time, the country has entered a period of higher energy costs and limited supplies of natural gas, heating oil, and other fuels. These issues present many challenges:

Growing energy demand stresses current systems, drives up energy costs, and requires new investments.

Events such as the Northeast electricity blackout of August 2003 and Hurricanes Katrina and Rita in 2005 increased focus on energy reliability and its economic and human impacts. Transmission and pipeline systems are becoming overburdened in places. Overburdened systems limit the availability of low-cost electricity and fossil fuels, raise energy prices in or near congested areas, and potentially compromise energy system reliability. High fuel prices also contribute to higher electricity prices. In addition, our demand for natural gas to heat our homes, for industrial and business use, and for power generation is straining the available gas supply in North America and putting upward pressure on natural gas prices. Addressing these issues will require billions of dollars in investments in energy efficiency, new power plants, gas rigs, transmission lines, pipelines, and other infrastructure, notwithstanding the difficulty of building new energy infrastructure in dense urban and suburban areas. In the absence of investments in new or expanded capacity, existing facilities are being stretched to the point where system reliability is steadily eroding, and the ability to import lower cost energy into high-growth load areas is inhibited, potentially limiting economic expansion.

High fuel prices increase financial burdens on households and businesses and slow our economy. Many household budgets are being strained by higher energy

costs, leaving less money available for other household purchases and needs. This burden is particularly harmful for low-income households. Higher energy bills for industry can reduce the nation's economic competitiveness and place U.S. jobs at risk.

Growing energy demand challenges attainment of clean air and other public health and environmental goals.

Energy demand continues to grow at the same time that national and state regulations are being implemented to limit the emission of air pollutants, such as sulfur dioxide, nitrogen oxides, and mercury, to protect public health and the environment. In addition, emissions of greenhouse gases continue to increase.

Uncertainties in future prices and regulations raise questions about new investments.

New infrastructure is being planned in the face of uncertainties about future energy prices. For example, high natural gas prices and uncertainty about greenhouse gas and other environmental regulations, impede investment decisions on new energy supply options.

Our energy system is vulnerable to disruptions in energy supply and delivery.

Natural disasters such as the hurricanes of 2005 exposed the vulnerability of the U.S. energy system to major disruptions, which have significant impacts on energy prices and service reliability. In response, national security concerns suggest that we should use fossil fuel energy more efficiently, increase supply diversity, and decrease the vulnerability of domestic infrastructure to natural disasters.

Energy Efficiency Can Be a Beneficial Resource in Our Energy Systems

Greater investment in energy efficiency can help us tackle these challenges. Energy efficiency is already a key component in the nation's energy resource mix in many parts of the country. Utilities, states, and others across the United States have decades of experience in delivering energy efficiency to their customers. These programs can provide valuable models, upon which more states,

Benefits of Energy Efficiency

Lower energy bills, greater customer control, and greater customer satisfaction. Well-designed energy efficiency programs can provide opportunities for customers of all types to adopt energy savings measures that can improve their comfort and level of service, while reducing their energy bills.⁶ These programs can help customers make sound energy use decisions, increase control over their energy bills, and empower them to manage their energy usage. Customers are experiencing savings of 5, 10, 20, or 30 percent, depending upon the customer, program, and average bill. Offering these programs can also lead to greater customer satisfaction with the service provider.

Lower cost than supplying new generation only from new power plants. In some states, well-designed energy efficiency programs are saving energy at an average cost of about one-half of the typical cost of new power sources and about one-third of the cost of natural gas supply (EIA, 2006).⁷ When integrated into a long-term energy resource plan, energy efficiency programs could help defer investments in new plants and lower the total cost of delivering electricity.

Modular and quick to deploy. Energy efficiency programs can be ramped up over a period of one to three years to deliver sizable savings. These programs can also be targeted to congested areas with high prices to bring relief where it might be difficult to deliver new supply in the near term.

Significant energy savings. Well-designed energy efficiency programs are delivering annual energy savings on the order of 1 percent of electricity and natural gas sales.⁸ These programs are helping to offset 20 to 50 percent of expected growth in energy demand in some areas without compromising the end users' activities and economic well-being (Nadel et al., 2004; EIA, 2006).

Environmental benefits. While reducing customers' energy bills, cost-effective energy efficiency offers environmental benefits related to reduced demand such as lower air pollution, reduced greenhouse gas emissions, lower water use, and less environmental damage from fossil fuel extraction. Energy efficiency can be an attractive option for utilities in advance of requirements to reduce greenhouse gas emissions.

Economic development. Greater investment in energy efficiency helps build jobs and improve state economies. Energy efficiency users often redirect their bill savings toward other activities that increase local and national employment, with a higher employment impact than if the money had been spent to purchase energy (Kushler et al., 2005; NYSERDA, 2004). Many energy efficiency programs create construction and installation jobs, with multiplier impacts on employment and local economies. Local investments in energy efficiency can offset imports from out-of-state, improving the state balance of trade. Lastly, energy efficiency investments usually create long-lasting infrastructure changes to building, equipment and appliance stocks, creating long-term property improvements that deliver long-term economic value (Innovest, 2002).

Energy security. Energy efficiency reduces the level of U.S. per capita energy consumption, thus decreasing the vulnerability of the economy and individual consumers to energy price disruptions from natural disasters and attacks on domestic and international energy supplies and infrastructure. In addition, energy efficiency can be used to reduce the overall system peak demand or the peak demand in targeted load areas with limited generating or transport capability. Reducing peak demand improves system reliability and reduces the potential for unplanned brown-outs or black-outs, which can have large adverse economic consequences.

utilities, and other organizations can build. Experience shows that energy efficiency programs can lower customer energy bills, cost less than and help defer new energy infrastructure, provide energy savings to consumers, improve the environment, and spur local economic development (see box on Benefits of Energy Efficiency). Significant opportunities for energy efficiency are likely to continue to be available at low costs in the future. State and regional studies have found that adoption of economically attractive, but as yet untapped, energy efficiency could yield more than 20 percent savings in total electricity demand nationwide by 2025. Depending on the underlying load growth, these savings could help cut load growth by half or more compared to current forecasts (Nadel et al., 2004; SWEPP, 2002; NEEP, 2005; NWPCC, 2005; WGA, 2006). Similarly, savings from direct use of natural gas could provide a 50 percent or greater reduction in natural gas demand growth (Nadel et al., 2004).

Capturing this energy efficiency resource would offer substantial economic and environmental benefits across the country. Widespread application of energy efficiency programs that already exist in some regions could deliver a large part of these potential savings.⁹ Extrapolating the results from existing programs to the entire country would yield annual energy bill savings of nearly \$20 billion, with net societal benefits of more than \$250 billion over the next 10 to 15 years. This scenario could defer the need for 20,000 megawatts (MW), or 40 new 500-MW power plants, as well as reduce U.S. emissions from energy production and use by more than 200 million tons of carbon dioxide, 50,000 tons of sulfur dioxide, and 40,000 tons of nitrogen oxides annually.¹⁰ These significant economic and environmental benefits can be achieved relatively quickly because energy efficiency programs can be developed and implemented within several years.

Additional policies and programs are required to help capture these potential benefits and address our substantial underinvestment in energy efficiency as a nation. An important indicator of this underinvestment is that

the level of funding across the country for organized efficiency programs is currently less than \$2 billion per year while it would require about 4 times today's funding levels to achieve the economic and environment benefits presented above.^{11, 12}

The current underinvestment in energy efficiency is due to a number of well-recognized barriers, including some of the regulatory policies that govern electric and natural gas utilities. These barriers include:

- *Market barriers*, such as the well-known “split-incentive” barrier, which limits home builders’ and commercial developers’ motivation to invest in energy efficiency for new buildings because they do not pay the energy bill; and the transaction cost barrier, which chronically affects individual consumer and small business decision-making.
- *Customer barriers*, such as lack of information on energy saving opportunities, lack of awareness of how energy efficiency programs make investments easier, and lack of funding to invest in energy efficiency.
- *Public policy barriers*, which can present prohibitive disincentives for utility support and investment in energy efficiency in many cases.
- *Utility, state, and regional planning barriers*, which do not allow energy efficiency to compete with supply-side resources in energy planning.
- *Energy efficiency program barriers*, which limit investment due to lack of knowledge about the most effective and cost-effective energy efficiency program portfolios, programs for overcoming common marketplace barriers to energy efficiency, or available technologies.

While a number of energy efficiency policies and programs contribute to addressing these barriers, such as building codes, appliance standards, and state government lead-

ership programs, organized energy efficiency programs provide an important opportunity to deliver greater energy efficiency in the homes, buildings, and facilities that already exist today and that will consume the majority of the energy used in these sectors for years to come.

The Leadership Group and National Action Plan for Energy Efficiency

Recognizing that energy efficiency remains a critically underutilized resource in the nation's energy portfolio, more than 50 leading electric and gas utilities, state utility commissioners, state air and energy agencies, energy service providers, energy consumers, and energy efficiency and consumer advocates have formed a Leadership Group, together with the U.S. Department of Energy and the U.S. Environmental Protection Agency, to address the issue. The goal of this group is to create a sustainable, aggressive national commitment to energy efficiency through gas and electric utilities, utility regulators, and partner organizations. The Leadership Group recognizes that utilities and regulators play critical roles in bringing energy efficiency programs to their communities and that success requires the joint efforts of customers, utilities, regulators, states, and other partner organizations.

Under co-chairs Diane Munns (Member of the Iowa Utilities Board and President of the National Association of Regulatory Utility Commissioners) and Jim Rogers (President and Chief Executive Officer of Duke Energy), the Leadership Group members (see Table 1) have developed this National Action Plan for Energy Efficiency, which:

- Identifies key barriers limiting greater investment in energy efficiency.
- Reviews sound business practices for removing these barriers and improving the acceptance and use of energy efficiency relative to energy supply options.
- Outlines recommendations and options for overcoming these barriers.

The members of the Leadership Group have agreed to pursue these recommendations and consider these options through their own actions, where appropriate, and to support energy efficiency initiatives by other industry members and stakeholders.

Recommendations

This National Action Plan for Energy Efficiency is a call to action to utilities, state utility regulators, consumer advocates, consumers, businesses, other state officials, and other stakeholders to create an aggressive, sustainable national commitment to energy efficiency.¹ The Action Plan offers the following recommendations as ways to overcome barriers that have limited greater investment in energy efficiency for customers of electric and gas utilities in many parts of the country. The following recommendations are based on the policies, practices, and efforts of leading organizations across the country. For each recommendation, a number of options are available to be pursued based on regional, state, and utility circumstances (see also Figure 2).

Recognize energy efficiency as a high priority energy resource. Energy efficiency has not been consistently viewed as a meaningful or dependable resource compared to new supply options, regardless of its demonstrated contributions to meeting load growth.¹³ Recognizing energy efficiency as a high-priority energy resource is an important step in efforts to capture the benefits it offers and lower the overall cost of energy services to customers. Based on jurisdictional objectives, energy efficiency can be incorporated into resource plans to account for the long-term benefits from energy savings, capacity savings, potential reductions of air pollutants and greenhouse gases, as well as other benefits. The explicit integration of energy efficiency resources into the formalized resource planning processes that exist at regional, state, and utility levels can help establish the rationale for energy efficiency funding levels and for properly valuing and balancing the benefits. In some jurisdictions, these existing planning processes might need to be adapted or even created to meaningfully

incorporate energy efficiency resources into resource planning. Some states have recognized energy efficiency as the resource of first priority due to its broad benefits.

Make a strong, long-term commitment to cost-effective energy efficiency as a resource. Energy efficiency programs are most successful and provide the greatest benefits to stakeholders when appropriate policies are established and maintained over the long-term. Confidence in long-term stability of the program will help maintain energy efficiency as a dependable resource compared to supply-side resources, deferring or even avoiding the need for other infrastructure investments, and maintain customer awareness and support. Some steps may include assessing the long-term potential for cost-effective energy efficiency within a region (i.e., the energy efficiency that can be delivered cost-effectively through proven programs for each customer class within a planning horizon); examining the role for cutting-edge initiatives and technologies; establishing the cost of supply-side options versus energy efficiency; establishing robust measurement and verification procedures; and providing for routine updates to information on energy efficiency potential and key costs.

Broadly communicate the benefits of and opportunities for energy efficiency. Experience shows that energy efficiency programs help customers save money and contribute to lower cost energy systems. But these benefits are not fully documented nor recognized by customers, utilities, regulators, or policy-makers. More effort is needed to establish the business case for energy efficiency for all decision-makers and to show how a well-designed approach to energy efficiency can benefit customers, utilities, and society by (1) reducing customers' bills over time, (2) fostering financially healthy utilities (e.g., return on equity, earnings per share, and debt coverage ratios unaffected), and (3) contributing to positive societal net benefits overall. Effort is also necessary to educate key stakeholders that although energy efficiency can be an important low-cost resource to integrate into the energy mix, it does require funding just as a new power plant requires funding. Further, education

is necessary on the impact that energy efficiency programs can have in concert with other energy efficiency policies such as building codes, appliance standards, and tax incentives.

Promote sufficient, timely, and stable program funding to deliver energy efficiency where cost-effective. Energy efficiency programs require consistent and long-term funding to effectively compete with energy supply options. Efforts are necessary to establish this consistent long-term funding. A variety of mechanisms have been and can be used based on state, utility, and other stakeholder interests. It is important to ensure that the efficiency programs' providers have sufficient long-term funding to recover program costs and implement the energy efficiency measures that have been demonstrated to be available and cost effective. A number of states are now linking program funding to the achievement of energy savings.

Modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments. Successful energy efficiency programs would be promoted by aligning utility incentives in a manner that encourages the delivery of energy efficiency as part of a balanced portfolio of supply, demand, and transmission investments. Historically, regulatory policies governing utilities have more commonly compensated utilities for building infrastructure (e.g., power plants, transmission lines, pipelines) and selling energy, while discouraging energy efficiency, even when the energy-saving measures may cost less. Within the existing regulatory processes, utilities, regulators, and stakeholders have a number of opportunities to create the incentives for energy efficiency investments by utilities and customers. A variety of mechanisms have already been used. For example, parties can decide to provide incentives for energy efficiency similar to utility incentives for new infrastructure investments, provide rewards for prudent management of energy efficiency programs, and incorporate energy efficiency as an important area of consideration within rate design. Rate design offers

Figure 2. National Action Plan for Energy Efficiency Recommendations & Options

Recognize energy efficiency as a high priority energy resource.

Options to consider:

- Establishing policies to establish energy efficiency as a priority resource.
- Integrating energy efficiency into utility, state, and regional resource planning activities.
- Quantifying and establishing the value of energy efficiency, considering energy savings, capacity savings, and environmental benefits, as appropriate.

Make a strong, long-term commitment to cost-effective energy efficiency as a resource.

Options to consider:

- Establishing appropriate cost-effectiveness tests for a portfolio of programs to reflect the long-term benefits of energy efficiency.
- Establishing the potential for long-term, cost-effective energy efficiency savings by customer class through proven programs, innovative initiatives, and cutting-edge technologies.
- Establishing funding requirements for delivering long-term, cost-effective energy efficiency.
- Developing long-term energy saving goals as part of energy planning processes.
- Developing robust measurement and verification procedures.
- Designating which organization(s) is responsible for administering the energy efficiency programs.
- Providing for frequent updates to energy resource plans to accommodate new information and technology.

Broadly communicate the benefits of and opportunities for energy efficiency.

Options to consider:

- Establishing and educating stakeholders on the business case for energy efficiency at the state, utility, and other appropriate level addressing relevant customer, utility, and societal perspectives.
- Communicating the role of energy efficiency in

lowering customer energy bills and system costs and risks over time.

- Communicating the role of building codes, appliance standards, and tax and other incentives.

Provide sufficient, timely, and stable program funding to deliver energy efficiency where cost-effective.

Options to consider:

- Deciding on and committing to a consistent way for program administrators to recover energy efficiency costs in a timely manner.
- Establishing funding mechanisms for energy efficiency from among the available options such as revenue requirement or resource procurement funding, system benefits charges, rate-basing, shared-savings, incentive mechanisms, etc.
- Establishing funding for multi-year periods.

Modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments.

Options to consider:

- Addressing the typical utility throughput incentive and removing other regulatory and management disincentives to energy efficiency.
- Providing utility incentives for the successful management of energy efficiency programs.
- Including the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that it must be balanced with other objectives.
- Eliminating rate designs that discourage energy efficiency by not increasing costs as customers consume more electricity or natural gas.
- Adopting rate designs that encourage energy efficiency by considering the unique characteristics of each customer class and including partnering tariffs with other mechanisms that encourage energy efficiency, such as benefit sharing programs and on-bill financing.

opportunities to encourage customers to invest in efficiency where they find it to be cost effective and participate in new programs that provide innovative technologies (e.g., smart meters) to help customers control their energy costs.

National Action Plan for Energy Efficiency: Next Steps

In summer 2006, members of the Leadership Group of the National Action Plan on Energy Efficiency are announcing a number of specific activities and initiatives to formalize and reinforce their commitments to energy efficiency as a resource. To assist the Leadership Group and others in making and fulfilling their commitments, a number of tools and resources have been developed:

National Action Plan for Energy Efficiency Report.

This report details the key barriers to energy efficiency in resource planning, utility incentive mechanisms, rate design, and the design and implementation of energy efficiency programs. It also reviews and presents a variety of policy and program solutions that have been used to overcome these barriers as well as the pros and cons for many of these approaches.

Energy Efficiency Benefits Calculator. This calculator can be used to help educate stakeholders on the broad benefits of energy efficiency. It provides a simplified framework to demonstrate the business case for energy efficiency from the perspective of the consumer, the utility, and society. It has been used to explore the benefits of energy efficiency program investments under a range of utility structures, policy mechanisms, and energy growth scenarios. The calculator can be adapted and applied to other scenarios.

Experts and Resource Materials on Energy Efficiency.

A number of educational presentations on the potential for energy efficiency and various policies available for pursuing the recommendations of the Action Plan will be developed. In addition, lists of policy and program experts in energy efficiency and the various policies available for pursuing the recommendations of the Action

Plan will be developed. These lists will be drawn from utilities, state utility regulators, state energy offices, third-party energy efficiency program administrators, consumer advocacy organizations, energy service companies, and others. These resources will be available in fall 2006.

The U.S. Department of Energy and U.S. Environmental Protection Agency are continuing to facilitate the work of the Leadership Group and the National Action Plan for Energy Efficiency. During winter 2006–2007, the Leadership Group plans to report on its progress and identify next steps for the Action Plan.

Table 1. Members of the National Action Plan for Energy Efficiency

Co-Chairs

Diane Munns	Member President	Iowa Utilities Board National Association of Regulatory Utility Commissioners
Jim Rogers	President and Chief Executive Officer	Duke Energy

Leadership Group

Barry Abramson	Senior Vice President	Servidyne Systems, LLC
Angela S. Beehler	Director of Energy Regulation	Wal-Mart Stores, Inc.
Bruce Braine	Vice President, Strategic Policy Analysis	American Electric Power
Jeff Burks	Director of Environmental Sustainability	PNM Resources
Kateri Callahan	President	Alliance to Save Energy
Glenn Cannon	General Manager	Waverly Light and Power
Jorge Carrasco	Superintendent	Seattle City Light
Lonnie Carter	President and Chief Executive Officer	Santee Cooper
Mark Case	Vice President for Business Performance	Baltimore Gas and Electric
Gary Connett	Manager of Resource Planning and Member Services	Great River Energy
Larry Downes	Chairman and Chief Executive Officer	New Jersey Natural Gas (New Jersey Resources Corporation)
Roger Duncan	Deputy General Manager, Distributed Energy Services	Austin Energy
Angelo Esposito	Senior Vice President, Energy Services and Technology	New York Power Authority
William Flynn	Chairman	New York State Public Service Commission
Jeanne Fox	President	New Jersey Board of Public Utilities
Anne George	Commissioner	Connecticut Department of Public Utility Control
Dian Grueneich	Commissioner	California Public Utilities Commission
Blair Hamilton	Policy Director	Vermont Energy Investment Corporation
Leonard Haynes	Executive Vice President, Supply Technologies, Renewables, and Demand Side Planning	Southern Company
Mary Healey	Consumer Counsel for the State of Connecticut	Connecticut Consumer Counsel
Helen Howes	Vice President, Environment, Health and Safety	Exelon
Chris James	Air Director	Connecticut Department of Environmental Protection
Ruth Kinzey	Director of Corporate Communications	Food Lion
Peter Lendrum	Vice President, Sales and Marketing	Entergy Corporation
Rick Leuthauser	Manager of Energy Efficiency	MidAmerican Energy Company
Mark McGahey	Manager	Tristate Generation and Transmission Association, Inc.
Janine Migden-Ostrander	Consumers' Counsel	Office of the Ohio Consumers' Counsel
Richard Morgan	Commissioner	District of Columbia Public Service Commission
Brock Nicholson	Deputy Director, Division of Air Quality	North Carolina Air Office
Pat Oshie	Commissioner	Washington Utilities and Transportation Commission
Douglas Petitt	Vice President, Government Affairs	Vectren Corporation

Bill Prindle	Deputy Director	American Council for an Energy-Efficient Economy
Phyllis Reha	Commissioner	Minnesota Public Utilities Commission
Roland Risser	Director, Customer Energy Efficiency	Pacific Gas and Electric
Gene Rodrigues	Director, Energy Efficiency	Southern California Edison
Art Rosenfeld	Commissioner	California Energy Commission
Jan Schori	General Manager	Sacramento Municipal Utility District
Larry Shirley	Division Director	North Carolina Energy Office
Michael Shore	Senior Air Policy Analyst	Environmental Defense
Gordon Slack	Energy Business Director	The Dow Chemical Company
Deb Sundin	Director, Business Product Marketing	Xcel Energy
Dub Taylor	Director	Texas State Energy Conservation Office
Paul von Paumgarten	Director, Energy and Environmental Affairs	Johnson Controls
Brenna Walraven	Executive Director, National Property Management	USAA Realty Company
Devra Wang	Director, California Energy Program	Natural Resources Defense Council
Steve Ward	Public Advocate	State of Maine
Mike Weedall	Vice President, Energy Efficiency	Bonneville Power Administration
Tom Welch	Vice President, External Affairs	PJM Interconnection
Jim West	Manager of <i>energy right</i> & Green Power Switch	Tennessee Valley Authority
Henry Yoshimura	Manager, Demand Response	ISO New England Inc.

Observers

James W. (Jay) Brew	Counsel	Steel Manufacturers Association
Roger Cooper	Executive Vice President, Policy and Planning	American Gas Association
Dan Delurey	Executive Director	Demand Response Coordinating Committee
Roger Fragua	Deputy Director	Council of Energy Resource Tribes
Jeff Genzer	General Counsel	National Association of State Energy Officials
Donald Gilligan	President	National Association of Energy Service Companies
Chuck Gray	Executive Director	National Association of Regulatory Utility Commissioners
John Holt	Senior Manager of Generation and Fuel	National Rural Electric Cooperative Association
Joseph Mattingly	Vice President, Secretary and General Counsel	Gas Appliance Manufacturers Association
Kenneth Mentzer	President and Chief Executive Officer	North American Insulation Manufacturers Association
Christina Mudd	Executive Director	National Council on Electricity Policy
Ellen Petrill	Director, Public/Private Partnerships	Electric Power Research Institute
Alan Richardson	President and Chief Executive Officer	American Public Power Association
Steve Rosenstock	Manager, Energy Solutions	Edison Electric Institute
Diane Shea	Executive Director	National Association of State Energy Officials
Rick Tempchin	Director, Retail Distribution Policy	Edison Electric Institute
Mark Wolfe	Executive Director	Energy Programs Consortium

Notes

- 1 Energy efficiency refers to using less energy to provide the same or improved level of service to the energy consumer in an economically efficient way. The term energy efficiency as used here includes using less energy at any time, including at times of peak demand through demand response and peak shaving efforts.
- 2 Addressing transportation-related energy use is also an important challenge as energy demand in this sector continues to increase and oil prices hit historical highs. However, transportation issues are outside the scope of this effort, which is focused only on electricity and natural gas systems.
- 3 This effort is focused on energy efficiency for regulated energy forms. Energy efficiency for unregulated energy forms, such as fuel oil for example, is closely related in terms of actions in buildings, but is quite different in terms of how policy can promote investments.
- 4 A utility is broadly defined as an organization that delivers electric and gas utility services to end users, including, but not limited to, investor-owned, publicly owned, cooperatively owned, and third-party energy efficiency utilities.
- 5 Many energy efficiency programs have an average life cycle cost of \$0.03/kilowatt-hour (kWh) saved, which is 50 to 75 percent of the typical cost of new power sources (ACEEE, 2004; EIA, 2006). The cost of energy efficiency programs varies by program and can include higher cost programs and options with lower costs to a utility such as modifying rate designs.
- 6 See Chapter 6: Program Best Practices for more information on leading programs.
- 7 Data refer to EIA 2006 new power costs and gas prices in 2015 compared to electric and gas program costs based on leading energy programs, many of which are discussed in Chapter 6: Program Best Practices.
- 8 Based on leading energy efficiency programs, many of which are discussed in Chapter 6: Energy Efficiency Program Best Practices.
- 9 These estimates are based on assumptions of average program spending levels by utilities or other program administrators, with conservatively high numbers for the cost of energy efficiency programs.
- 10 See highlights of some of these programs in Chapter 6: Energy Efficiency Program Best Practices, Tables 1-1a and 1-1b.
- 10 These economic and environmental savings estimates are extrapolations of the results from regional program to a national scope. Actual savings at the regional level vary based on a number of factors. For these estimates, avoided capacity value is based on peak load reductions de-rated for reductions that do not result in savings of capital investments. Emissions savings are based on a marginal on-peak generation fuel of natural gas and marginal off-peak fuel of coal; with the on-peak period capacity requirement double that of the annual average. These assumptions vary by region based upon situation-specific variables. Reductions in capped emissions may reduce the cost of compliance.
- 11 This estimate of the funding required assumes 2 percent of revenues across electric utilities and 0.5 percent across gas utilities. The estimate also assumes that energy efficiency is delivered at a total cost (utility and participant) of \$0.04 per kWh and \$3 per million British thermal units (MMBtu), which are higher than the costs of many of today's programs.
- 12 This estimate is provided as an indicator of underinvestment and is not intended to establish a national funding target. Appropriate funding levels for programs should be established at the regional, state, or utility level. In addition, energy efficiency investments by customers, businesses, industry, and government also contribute to the larger economic and environment benefits of energy efficiency.
- 13 One example of energy efficiency's ability to meet load growth is the Northwest Power Planning Council's Fifth Power Plan which uses energy conservation and efficiency to meet a targeted 700 MW of forecasted capacity between 2005 and 2009 (NWPPCC, 2005).

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