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EXECUTIVE SUMMARY

OVERCOMING MARKET BARRIERS AND USING MARKET FORCES TO ADVANCE ENERGY EFFICIENCY

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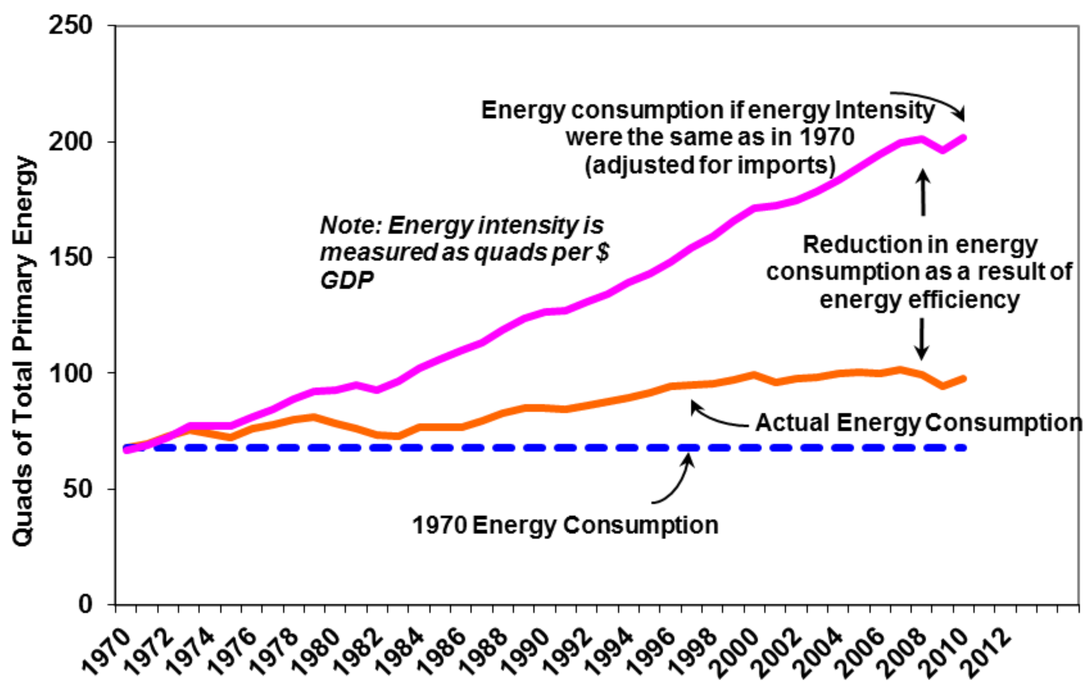
The United States has made much progress in energy efficiency in recent decades. U.S. energy use is approximately half of what it would have been if we had not improved our efficiency over the past 40 years. Still, there are large, cost-effective opportunities to increase energy efficiency much further, thereby helping us to cut energy bills, reduce pollution, and encourage economic growth.

In 1970 the entire country used 68 quadrillion British thermal units (Btu) of energy ("quads"), for an economy-wide intensity of 15.9 thousand Btu per dollar of gross domestic product (GDP, expressed in 2005$). By 2011, consumption had increased to 97 quads, but real GDP had more than tripled, and we used only 7.3 thousand Btu per dollar of GDP. Energy use per unit of GDP declined by 54% over this period. A small portion of this improvement is due to the fact that we import more manufactured goods than in 1970, but even after we adjust for imports, U.S. energy use is approximately half of what it would have been if we had not improved our efficiency over the past 40 years (Figure ES-1).

Figure ES 1. U.S. Energy Use per Unit of GDP, 1970–2010



Source: ACEEE analysis of data in EIA 2012a [AER] and BEA 2012.

But much greater savings are possible, savings that are highly cost-effective. A 2010 National Academy of Sciences study estimated that energy efficiency technologies that exist today or that are likely to be developed in the near future could save considerable money as well as energy. Fully adopting these technologies could lower projected U.S. energy use by 17% to 20% by 2020, and 25% to 31% by 2030.

However, a variety of market failures and market barriers contribute to keeping us from fully realizing our energy efficiency potential. In the past, a variety of policies have been used to rectify these failures and barriers, generally with bipartisan support. For example, American cars can now go much farther on a gallon of gasoline, due in large part to uniform vehicle testing and labeling, fuel economy standards, and tax incentives. Likewise, policies have contributed to efficiency gains for appliances and other energy-consuming equipment and new and existing buildings, improved industrial processes, and emerging development of the "smart grid."

In the past few years, many conservatives have expressed a high level of skepticism regarding government mandates and government spending on incentives. This report responds to these concerns by analyzing several targeted policies that leverage market forces and address specific market failures and barriers to energy efficiency without spending a lot of money or using government mandates. The policies included in this report fall into the following categories:

1. Improving information to aid decision making
2. Removing existing regulatory and legal barriers
3. Addressing externalities
4. Increasing the salience of energy use at point of purchase
5. Reducing energy waste in government
6. Investing in precommercial research and development
7. Enhancing energy efficiency finance

The policies we discuss sometimes make sense at the federal level and sometimes at the state or local level. All of them are intended to improve the functioning of markets. We advance these suggestions as a menu that policymakers can choose among—they are not advanced as an "all or nothing" package.

MARKET FAILURES AND MARKET BARRIERS

While there are large opportunities for cost-effective energy savings, a variety of barriers stand in the way. The most commonly cited market barriers are market failures (or, more subtly, imperfections)—systemic reasons that real markets are less economically efficient than the theoretical perfect competition market described by classical economics. A few key barriers are discussed below.

Imperfect information may be the most widespread barrier to energy efficiency. For energy efficiency, the most obvious information barrier is knowledge of the performance of different equipment, technologies, buildings, and other systems. Energy efficiency cannot be seen. Information related to energy consumption is also imperfect; for instance, energy savings are difficult to measure, future energy prices are unknown, and the energy use of individual devices is often hard to separate, since most customers get all their residential or commercial energy use information rolled into monthly utility bills.

Split Incentives or Principal-Agent Problems In energy efficiency a common problem is that the agent making decisions on efficiency investments or actions does not pay the energy bills, and thus has little incentive to reduce them. The landlord-tenant relationship, in which the property owner purchases equipment but the tenant generally pays the utility bills, is the most commonly cited split incentive for energy efficiency. Another example is how homebuyers pay energy bills, providing limited incentive to builders to improve the efficiency of new homes.

Externalities occur when costs or benefits of a transaction are realized by people outside the immediate participants in the transaction. Energy efficiency reduces large negative externalities due to energy supply and consumption: impacts on the environment, risks to energy security, and other societal costs not built into the price of energy.

Imperfect competition occurs when there is not a fully competitive market for a product or service, so prices may be inefficient or availability may be limited. In some energy efficiency markets there is a limited number of producers or sellers, either an oligopoly or monopoly (in some cases a natural monopoly of necessity), and barriers to entry such as high startup costs or patents.

Below we describe a variety of policies to help to overcome existing barriers in the market and to use market forces to advance energy efficiency.

Policies are grouped according to the categories defined above. Many of these policies work with and seek to leverage market forces. For example, vehicle and appliance labeling seek to address the information barrier by making consumers more informed. Likewise, policies to improve state utility commission regulatory practices, such as interconnection standards, can "level the playing field" so that energy efficiency and energy supply resources compete more fairly in the market. Going forward, there is even more opportunity to shape energy-efficiency policies in ways that unleash the power of markets. Such policies can address market failures without new mandates and with minimal government expenditures. By using markets they can leverage market forces, such as competition, to increase energy efficiency.

The policies we discuss sometimes make sense at the federal level and sometimes at the state or local level. All of them are intended to improve the functioning of markets. We advance these suggestions as a menu that policymakers can choose among—they are not advanced as an "all or nothing" package. Some of these ideas may have broad appeal, while others may prove more controversial. We welcome feedback to help guide us as to which suggestions might be more achievable and to help us refine and improve each of these proposals.

POLICIES TO LEVERAGE MARKET FORCES AND OVERCOME MARKET BARRIERS

1. Improving Information

Improved appliance labeling

Appliance energy labels provide information on product energy use and a mechanism for consumers to compare the energy use of a particular product with the full range of similar models available on the market. Without this information, consumers would be unable to include product operating costs in their purchase decisions.

Appliance labeling programs increase the information available to consumers at the point of purchase. Labels provide information in a standardized format for comparing the energy use or energy efficiency of a given product to similar models available in the market, thereby making product energy use transparent. Well-designed appliance labeling programs aid consumer decision making, motivate consumers to consider energy efficiency, and provide an incentive for manufacturers and retailers to offer and promote higher-efficiency products. Experience with the EnergyGuide program to date, research conducted with U.S. consumers, and extensive research and labeling experience from around the world suggest that the U.S. Energy Guide label for appliances is not as effective as it could be because consumers have difficulty understanding it and it does not motivate action. Experience in dozens of other countries, as well as market research in the U.S., indicates that a much more effective label would group products into categories based on their efficiency (e.g., one to five stars)—an easy-to-understand approach that also motivates consumers to purchase highly rated products.

Building labeling and disclosure

Building labeling and disclosure policies are intended to provide potential buyers, lessees, and financiers with information on a property's energy performance—data that can help these stakeholders compare properties and better understand the true costs of owning or leasing a property. For sellers and landlords, disclosure policies offer an opportunity to demonstrate the value of their investments in energy efficiency and obtain a return on that investment.

Building energy labeling and disclosure policies establish a means to provide market actors with information that has historically been nonexistent or very hard to obtain. In the absence of data on building energy use, the value of energy efficiency (as realized through lower energy bills) is not recognized by prospective building tenants and purchasers, and profitable investments in energy efficiency are therefore neglected. Well-designed labeling and disclosure policies make this information available to decision makers and also provide indicators of how structural and operational factors influence the building's energy performance.

Although such policies are implemented at the state and local level, there is a complementary role for the federal government and for private-sector stakeholders in the development and maintenance of building rating and benchmarking systems and in providing common guidelines for rating and labeling of commercial buildings.

Unfettering energy data

Households, businesses, and institutions can make more-informed energy decisions if they have better information about their energy use and potential savings. Specifically, the more accessible, relevant, and accurate the information, the more easily energy customers can make economically wise and energy-efficient decisions about their operations and capital investments. Utilities are the traditional custodians of energy data, providing buildings with metering equipment to measure energy use and capturing data for billing and other business purposes.

Greater access to energy data by customers, energy efficiency service providers, and software entrepreneurs will spur innovation in programs and services that will help close the information gap for customers. Information should only be made available to third parties with the permission of the customer. Policies ought to reduce regulatory barriers to customer data access at the utility and customer level to ensure that customers, utilities, and third-party applications have accurate information to inform the market.

2. Removing Existing Regulatory and Legal Barriers

CHP interconnection standards

Combined heat and power (CHP) systems generate both heat and electricity at the same time, using more of the energy in the fuel burned than if separate electrical generators and steam boilers were used. Most CHP systems are physically connected to the local utility's electric grid so that power from a CHP system can be shared with the grid and the facility can be supplied by backup electricity in case of CHP system outages or needed maintenance. The business practices of utilities in the interconnection processes are guided by interconnection standards. An interconnection standard provides CHP owners with a clearly delineated path to physically interconnect the CHP system to the grid. An interconnection standard clarifies what each party is responsible for during the interconnection process, and stipulates fees and timelines associated with the different interconnection activities. Well-structured interconnection standards can help encourage use of CHP systems by offering system owners transparency in the interconnection process. State utility commissions should require use of fair interconnection standards such as those developed by the Institute of Electrical Engineers (IEE).

Supplemental and backup power rates

Since CHP systems are most often designed and sized according to the thermal needs of a facility, the electricity production capacity of the CHP system usually does not perfectly match the electricity requirements of the CHP-using facility. If a CHP system is designed only to meet onsite thermal needs, the facility will typically purchase additional electricity from the grid to meet its remaining onsite electricity needs. This power is called *supplemental power*. CHP systems will also occasionally go offline, either during planned downtimes or unexpected emergencies. During these instances, the facility typically purchases additional power from the grid to meet its needs. This power is called *backup power*.

Regulated utilities set, and their regulators approve, the rates at which supplemental and backup power services are delivered. These rates can dramatically affect the economics of a CHP system, and in some cases have been responsible for causing facilities to choose not to invest in CHP. For instance, utilities often set rates based on the assumption that they might need to simultaneously meet the backup power requirements of all CHP-using facilities within their system during the system's peak load. Their rates thus reflect the required investment in infrastructure to meet such a peak demand. However, there is no evidence that such contingencies need to be planned for, as the chance of all CHP systems going down at the same time and moreover, during a system peak is virtually zero. Instead, we recommend fairly designed backup and standby power rates that would help more facilities see an economic incentive for investing in CHP. By transparently and fairly determining the amount of backup power capacity that utilities need to plan for, utilities could encourage new CHP systems while also ensuring that existing systems will have the backup power they require when needed.

Output-based emission standards

The efficiency benefit of a CHP system is due to the fact that more usable energy is generated from a single BTU of energy input. For instance, instead of just producing steam with natural gas, a CHP system can generate steam and electricity from the same natural gas input. Thus, when the same amount of fuel is burned, a CHP system will generate more useful energy than a traditional steam boiler.

Most air regulations set limits for certain pollutants on an *input* basis—that is, pounds of pollutant per measure of fuel input. Since a CHP system is doing more with the same amount of fuel input, such emissions rules fail to reflect the CHP system's increased efficiency. To address this problem, some regulators have developed *output*-based emissions rules, which measure the amount of pollutant per useful energy output. Developing output-based emission regulations helps CHP system owners justify the efficiency and environmental benefits of CHP systems, relative to more traditional thermal or electrical energy-generating systems. Most of the decisions on output-based emissions standards are made at the state level, although EPA has encouraged states in this direction.

Valuation of ancillary services

The environmental and economic benefits of highly efficient CHP systems are well known. Less appreciated are the benefits of CHP to the grid at large, which are not well understood and are rarely calculated. These benefits include higher system reliability, increased power quality and voltage support, high speed of dispatch relative to other generation assets, reductions in the need for transmission and distribution investments, reduced need for reliance on "peaker" reserve generation assets, spinning reserve assets, and higher amounts of "useful" energy due to avoidance of line losses. Because these benefits are time and location specific they can be difficult to calculate and fluctuate widely in value (Kirby 2007). As a result, these benefits usually fail to enter into a utility's cost-benefit calculation when determining whether to support a CHP project with assistance (such as incentives) or to invest in a CHP project itself.

If the various ancillary benefits of CHP systems were to be valued, the economic benefits of CHP would be clearer to customers and utilities alike. At present, no party has the means or incentive to calculate them, because there is no established mechanism to enter them into a utilities' cost-benefit analysis. By ascribing value to something across all systems that has previously been valued only in certain instances, the full economic value of CHP can be understood.

Utility regulatory reform

Investor-owned utilities (IOUs) are subject to regulation of their rates and other aspects of their business operations and investments because they are "regulated monopolies." This status means that regulation is authorized in order to protect and balance the public interest with the rights of IOUs. In addition to serving the public interest, IOUs have a fiduciary obligation to try to earn a profitable return on shareholder investments.

The obligation to earn a profit drives utilities to increase revenues by selling more electricity. Given this, investment in energy efficiency raises financial concerns for IOUs. IOUs need to be able to recover the money they invest in efficiency from ratepayers and just like investments in new power plants; they need to be able to earn a return on investments in energy efficiency. Further, the threat of reduced sales if an efficiency program is successful threatens to cut into utility profits.

In the traditional regulatory structure these concerns hinder a utility's willingness to invest in energy efficiency. No single policy mechanism can adequately remove the existing biases against utility investments in energy efficiency. However, several policies, when used in combination, can properly align financial incentives to remove the major market barriers to energy efficiency. These include cost recovery, decoupling, and providing shareholder incentives.

Restructure the corporate income tax to remove barriers to energy efficiency investments
Corporate income taxes are structured in ways that encourage energy waste and discourage investments in energy efficiency. Businesses are taxed on their profits, and virtually all expenses are deductible, including energy costs. However, capital expenses must be depreciated, meaning they are recovered over a multiyear period—as much as 39 years in the case of commercial buildings and equipment installed in these buildings. If depreciation periods are too long, investment in new efficient equipment is discouraged, since many businesses are reluctant to replace equipment until it is fully depreciated.

Furthermore, since energy bills count as a business expense and are subtracted from the total amount of taxable income, the federal government is effectively typically "paying" 25% of business energy costs (based on the average effective business tax rate of about 25%) and sometimes as much as 35% of a business's energy costs (the maximum business tax rate). Subsidizing energy costs enables higher energy consumption. When businesses do invest in energy efficiency, a portion of the energy savings go to the federal government in the form of higher taxes (e.g., 25% for a business with the typical effective rate of 25%, before adjusting for the effects of depreciation). When the full value of the savings does not accrue to the firm, the incentive to make investments goes down. Similarly, when a firm makes capital investments, these expenses must be depreciated, meaning that they are gradually charged against income.

Revising depreciation periods so they are based on the average useful lives of different types of equipment will address the depreciation barrier. To address the fact that energy costs are deductible, the corporate income tax could be based on tax revenue rather than profits. Such a step would dramatically simplify the code (since the hundreds of pages that define deductible expenses would no longer be needed) and would also mean that the marginal tax rate could be reduced to about 3.5% of revenue instead of 25% of profits.

3. Addressing Externalities

Markets sometimes create externalities—costs and benefits incurred by those not directly involved in a given market transaction. A cost imposed on an individual, group, or society as a whole is known as a negative externality (e.g., pollution and traffic). Rather than tax things whose growth we want to encourage, such as wages and income, it may make sense to tax things we want to discourage, such as pollution and traffic congestion. Correcting for externalities using a market-based approach requires the implementation of a tax or fee to internalize the third-party costs or benefits created by a given transaction. The resulting revenues can be used to reduce taxes on wages or income.

Emissions fees
An emissions fee would place a modest tax on emissions of greenhouse gases or other pollutants. Such a fee would be paid either by fuel producers or by consumers and businesses as they emit pollutants into the atmosphere.

The impact of using fossil fuels in the United States is a classic example of the "tragedy of the commons." When burning these fuels, private entities impact common resources—air, water, and the surrounding environment in general. Thus, we have a market failure: because the negative impacts of using fossil fuels have not been internalized to the energy market, the market on its own has failed to create a socially optimal outcome. An emissions fee is an economically efficient strategy for addressing the market failure stemming from the emissions associated with using fossil fuels.

Mileage charges
Vehicle miles traveled (VMT) fees charge drivers for the actual social cost of the roadway system. Relying on a gasoline tax does little to capture the true cost of traffic congestion or the environmental effects of vehicle emissions. A VMT fee is a form of road pricing levied on drivers for use of the road and highway system. Fees are applied based on the distance each driver travels in a given time period. VMT fees better align the true price of traveling a mile with the personal direct costs incurred by a given driver. Data can be obtained through odometer readings or through the use of GPS systems.

A mileage-based fee that is implemented in addition to the current gasoline tax is one way to efficiently price the highway system so that environmental and highway-related externalities that result from driving are addressed by charging motorists for the true cost of the highway system. The implementation of a complementary VMT fee on top of the federal gasoline tax would provide a sustainable source of funding as revenues from the gasoline tax decline with improved vehicle fuel efficiency and increased use of alternative technology vehicles.

4. Increasing the Salience of Energy Use at the Point of Purchase

Feebates
Many consumers focus on the initial cost of a product, such as a car, and not its long-term operating costs, such as fuel costs. If consumers do not fully value fuel economy improvements, manufacturers see limited benefit to increasing the fuel economy of their vehicles using existing, fuel-efficient technologies. Feebate programs are a market-based strategy to encourage the purchase of fuel-efficient vehicles by either charging new vehicle buyers a fee or providing them with a rebate based on the vehicle's fuel economy. They are typically revenue neutral, so that the fees fund the rebates. Feebates make fuel costs more salient by tying the upfront cost of the vehicle to its fuel economy, effectively shifting some of the price signal from fuel use to the vehicle itself. Such policies have been implemented in several European countries and Canada.

5. Reducing Energy Waste in Government

Federal, state, and local governments consume large amounts of energy in their facilities and vehicle fleets and represent a great opportunity to reduce waste and avoid cost to the taxpayer. The U.S. federal government is the largest single consumer of energy in the world. In 2007, federal agencies had an energy bill of approximately $14.5 billion. About 40% of those energy costs are for heating, cooling, and powering more than 500,000 federal buildings around the country. Many government facilities are old and technologically out of date. Improving the energy efficiency of these facilities could substantially reduce government expenses and reduce taxpayer burden.

Similarly, government vehicles represent half of the total government energy use and therefore a large potential for energy savings through efficiency. Governments may also set a mile-per-gallon requirement for their vehicle fleets. Government vehicles account for half of total government energy use and are therefore an important component in reducing energy consumption and costs.

In many cases, obtaining the necessary capital is the main barrier to making efficiency upgrades. Additionally, legislative requirements are often not translated into agency implementation action plans, because they do not offer incentives for meeting or disincentives for failing to meet the requirements. Finally, there are issues with split incentives where the government rents a facility or building owned by a private entity. To address these issues, the president, Congress, governors, and mayors should institute policies to steadily reduce waste in government facilities and vehicles.

6. Precommercial Research and Development

Science and technology are key drivers of economic growth, improved health and the quality of life throughout the world. Innovation in energy efficiency includes high-efficiency vehicles, appliances, manufacturing equipment, buildings, and much more. We have seen historically that there are places in the innovation process where market risks inhibit innovation. For example, a key market failure is the disincentive to invest in precommercial R&D because of the risk of others copying the technology. Government-funded precommercial research and development removes that type of risk and several others, helping foster innovative research and new technology and making them viable options on the market.

Government-funded research, development, and deployment (RD&D) efforts can address a number of barriers that impede the introduction of new, energy-efficient technologies and practices. Private industry investments can be too fragmented to fund significant energy efficiency innovation in a particular sector. Deployment time frames may be too long, or investment risk may be too great for any one business. Competitive and financial market pressures make it increasingly difficult for the private sector to take full responsibility for long-term RD&D. Industry can benefit from government and institutional RD&D efforts that provide a nonproprietary knowledge base, specialized resources, and risk sharing.

7. Removing Finance-Related Market Barriers

Capitalizing energy efficiency investment

Capitalizing energy efficiency projects, particularly in the current economic environment, can pose a significant challenge. While energy efficiency improvements are often cost-effective in the long run, challenges to adoption and implementation include high initial costs, budgetary and debt constraints, and split incentives in multitenant properties between those who pay for improvements and those who receive the benefits.

There are many barriers to getting energy-efficiency finance markets to scale, including limited availability of financing (particularly for hard-to-reach markets). In cases where financing is available, it can be difficult and expensive, due in part to high risk premiums and interest rates, to encourage adoption.

Financing for energy efficiency is an attractive option for capitalizing efficiency projects because there are opportunities to leverage private capital and reduce the need for government subsidization. Evidence suggests that energy efficiency loans are low-risk and could attract investors within a secondary market. To create such markets, there is a need for greater experimentation with energy efficiency finance and for standardization of energy savings and, more importantly, loan performance data collected from existing programs. Specific financing mechanisms that merit increased experimentation include Property Assessed Clean Energy (PACE), on-bill financing, and energy service agreements. Credit enhancements will likely be required during this initial experimentation period.

Incorporating energy costs into mortgage underwriting

Energy and transportation costs account for a significant proportion of a household's budget. Yet these costs are not considered when assessing an applicant's ability to pay their mortgage. Currently, energy costs and the impact of potential energy savings are ignored in financing decisions. Homes with high and low operating costs are treated the same during underwriting, even though risks to the lender are higher in homes that will generate higher energy bills.

Understanding the impacts of utility and transportation expenses on household finances and the ability to make mortgage payments will help lenders identify and measure the value of investment in energy efficiency and produce a better sense of a home's value. We recommend that the Federal Housing Administration and other federal- and state-affiliated mortgage programs explicitly include energy and transportation costs as part of loan approval determinations.

CONCLUSION

While substantial progress has been made toward reducing the nation's overall consumption of energy resources, much more can be done to take advantage of existing untapped efficiency potential and to save consumers money on their annual energy bills. This report has provided recommendations to overcome the barriers in the market for efficient technologies and programs that lead to underinvestment in energy efficiency. Spanning all key economic sectors, the included policies target information barriers that may cause consumers to invest in inefficient technologies or not to invest in efficient ones, externalities that result from the undervaluation of energy savings and regulatory and financial barriers that prevent the spread of efficient technologies and efficiency programs. These policies also use market forces to help drive future energy-efficiency savings.

The cost-efficient energy benefits highlighted in Table ES-1 below are order-of-magnitude estimates of potential costs and benefits for each policy. Even using a large-scale approach to estimating the impacts of each policy, it is apparent that there is plenty of untapped efficiency potential to take advantage of. Across these 16 policies, annual energy savings can be as much as 19 quadrillion Btu of energy by 2030, which is about 19% of projected energy use that year. The discounted net present value savings of such policies total up to $1.4 trillion over the 2014–2030 period.

The majority of potential savings can be achieved through the implementation of a national emissions fee, by adjusting the structure of corporate tax policy, and removing regulatory barriers to CHP projects. These policies also have the largest energy savings, along with financing policies to encourage energy efficiency and building labeling and disclosure.

Historically, energy efficiency has been a bipartisan issue. Several pieces of key legislation have passed in recent years with good collaboration between the Democrats and Republicans. Politically, the market-based interventions described in this report are ripe for bipartisan collaboration, particularly in light of the recent backlash against government mandates and spending on incentives. This report seeks to help to keep energy efficiency at the forefront of the political agenda for the current congress and state legislative sessions.

Table ES-1. Summary of Benefits by Policy

Policy	Percent Energy Savings	Quads of Energy Saved	NPV of Net Energy Savings 2014-2030 (billion 2011$)	Additional Benefits
Improved appliance labeling	10%	.4	$16	Reduced water use for clothes washers and dishwashers
Building labeling and disclosure	20%	1.6	$60	Improved tenant retention, increased net operating income, job creation and business development, water savings
Improved access to energy data	4%	0.1	$6	Improved transparency and control over energy use
Removing regulatory barriers for CHP	4%	2.3	$130	Reduced emissions, increases in power reliability, reduced transmission and distribution losses (not calculated in above), and improved power quality.
Utility regulatory reform	1%	0.2	$8	Over $100 billion in new capacity investments can be avoided by 2030
Adjusted corporate tax policies	5% for depreciation, 10% for taxing revenue	4.5	$165	Equipment turns over more quickly, creating jobs New industrial equipment improves productivity
Emission fees	6%	5.0	$495	GHG emissions reduction; greater certainty on emissions policies so businesses can plan; increased incentive to invest in efficiency and alternative fuels, spurring innovation and job creation
Mileage fees	2%	0.2	$14	Traffic reduction, GHG and criteria pollution reduction, revenue generation for the Highway Trust Fund
Feebates	3%	0.4	$4	Reductions in carbon dioxide emissions, job creation for auto manufacturers, increased vehicle sales
Reducing waste in government	20%	0.2	$13	Reduced emissions and water use. Also, some efficiency measures can reduce maintenance costs or increase in employee productivity.
Investing in pre-commercial research and development	1%	0.7	$17	Reduced technical risk; Reduced market risk; Accelerated introduction of technology into the marketplace.
Financing policies to encourage energy efficiency	20%	3.0	$62	Enhanced building comfort and affordability of energy
Energy costs in mortgage underwriting	16%	0.2	$10	Underwriting improves, allowing some good projects to move forward and bad ones not to
TOTAL		19	$1,000	

Note: The total line is the simple sum for all 13 policies. There is likely some overlap between the policies and therefore this total may be somewhat exaggerated.