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Mr. Chairman, Ms. Vice-Chair, Ranking Members and Members of the Committee, my name is Dan Reicher, and I am pleased to share my perspective on the opportunities and challenges of energy efficiency. I serve as Director of Climate Change and Energy Initiatives for Google.org, a unit of Google which has been capitalized with more than $1 billion of Google stock to make investments and advance policy in the areas of climate change and energy, global poverty and global health. At Google we have been working to lower the cost and increase the deployment of renewable energy, and to accelerate the deployment of plug-in vehicles. We have also been working to increase our use of clean power and energy efficiency at Google data centers and offices in the U.S. and other countries. Together with other technology companies and organizations, Google launched the Climate Savers Computing Initiative last year to reduce the power consumption of computers and servers.

Prior to my position with Google, I was President and Co-Founder of New Energy Capital, a private equity firm investing in clean energy projects. New Energy Capital has made equity investments and secured debt financing for ethanol and biodiesel projects, cogeneration facilities, and a biomass power plant. Prior to this position, I was Executive Vice President of Northern Power Systems, one of the nation's oldest renewable energy companies. Northern Power has built almost one thousand energy projects around the world and has also developed path-breaking energy technology.

Prior to my roles in the private sector, I served in the Clinton Administration as Assistant Secretary of Energy for Energy Efficiency and Renewable Energy, the Acting Assistant Secretary of Energy for Policy, and Department of Energy (DOE) Chief of Staff and Deputy Chief of Staff.

My message today is simple: to meet the critical challenges of the 21st Century – climate change, energy security, and economic development – we need a bold new vision for how America generates and uses electricity. The core of that vision must be a 21st Century electricity system that is clean, efficient, reliable and secure. Such a system must:

- Drive the development and optimization of renewable energy generation and related transmission;

- Encourage utilities to reduce peak loads, institute real-time pricing, and advance demand-side management;

- Empower and incentivize businesses and consumers to monitor and reduce their own energy use; and

- Enable the electrification of vehicles - including vehicle-to-grid capabilities - without a major increase in new generation.

Energy efficiency is fundamental to the changes we must make in our energy system. By many measures, it is our fastest, cheapest and cleanest opportunity to address our energy challenges – the real low-hanging fruit in the U.S. and global economy. From cars and homes to factories and offices, we know how to cost effectively deliver vast quantities of energy savings today. And the exciting fact is that this low hanging fruit grows back. The air conditioner we replace today with a more efficient model, we will be able to replace again with one that uses even less energy and "talks" to the electric grid to better manage peak electricity demand. Similarly, we can trade our inefficient SUV today for a more efficient full-featured hybrid gas-electric model. And down the road we will replace the hybrid with an even more efficient model that plugs into the electric grid.

We have made an important transition in this country away from a focus on "energy conservation" and toward the more recent concept of "energy efficiency" (or "energy productivity"). In the era of energy conservation in the 1970's and 1980's, we were asked to "do less with less" – to lower the thermostat, turn off the lights, don a sweater and leave the car in the garage. Energy efficiency takes a different approach, offering the opportunity to "do more with less". As McKinsey and Company stated in a 2007 report, "By looking merely in terms of shrinking demand, we are in danger of denying opportunities to consumers – particularly those in developing economies who are an increasingly dominant force in global energy-demand growth. Rather than seeking to reduce end-user demand – and thus the level of comfort, convenience and economic welfare demanded by consumers – we should focus on using the benefits of energy most productively." As energy guru Amory Lovins puts it: "All people want is cold beer and hot showers. We are interested in the results of energy use, not the energy itself. How much energy we use to cool the beer and heat the water is a choice we make."

The increasing interplay between energy hardware and information software – and the corresponding rise of the Internet and the connectivity it brings – adds to the potential to make and to use energy more productively. From smart meters and smart appliances to smart homes and a smart grid, we are poised to significantly advance our ability to monitor and manage energy. As one commentator recently put it, we are "moving from odometers to speedometers," from an after-the-fact record of our energy use to real-time metering and intelligent response.

The main finding of the 2007 McKinsey report is that while energy demand will continue to grow, "there are sufficiently economically viable opportunities for energy-productivity improvements that could keep global energy-demand growth at less than 1% per annum – or less than half of the 2.2% average growth to 2020 anticipated in our base-case scenario." This would

cut global energy demand by the equivalent of 64 million barrels of oil per day, or almost 150 percent of today's entire U.S. energy consumption.

As McKinsey recognizes, we can gain energy-productivity improvements either from reducing the energy inputs required to produce the same level of energy, or from increasing the quality or quantity of economic outputs. The report concludes that globally the largest untapped potential for cost-effective energy productivity gains (>10% Internal Rate of Return) lies in the residential sector (e.g. better building shells and more efficient water heating and lighting), power generation sector (e.g. more efficient power plants and electricity distribution) and industrial sector (e.g. less energy-intensive oil refineries and steel plants).

However, McKinsey also rightly recognizes that capturing this vast potential will require a significant policy push. The inefficiencies working against energy productivity include market-distorting subsidies, information gaps, and agency issues. Acknowledging that "the small share of energy costs for most businesses and consumers reduces end-use response to energy-price signals," McKinsey recommends that "shifting global energy demand from its current rapid growth trajectory will require the removal of existing policy distortions; improving the transparency in the usage of energy; and the selective deployment of energy policies, such as standards."

As we consider this policy dimension, we also need to consider how to harness an important and encouraging new trend – the unprecedented flow of private capital into clean energy in the past few years from major banks, pension funds, insurance companies and venture capital firms. Much of this increasing investment in technologies and projects has been on the supply side involving key technologies like solar, wind, and biofuels. Less investment has found its way to commercializing or deploying energy efficiency technologies despite their cost-effectiveness and reliability. Aggressive federal policy can make a major difference in the deployment of energy efficiency by increasing the attractiveness of investment, from early stage venture capital investment in the development of high risk technology to the financing of large-scale projects.

A new McKinsey study from February of this year makes clear the attractive economics and climate benefits of investments in energy efficiency. McKinsey concludes that additional investments of $170 billion annually for the next thirteen years would be sufficient to capture the energy productivity opportunity identified in the 2007 report – i.e. cutting projected global energy demand to 2020 by at least half. While this sounds daunting, according to McKinsey, these investments – made in the industrial, commercial, residential, and transportation sectors – would have an average annual internal rate of return (IRR) of 17% and would collectively generate annual energy savings ramping up to $900 billion by 2020. Importantly, McKinsey also concluded that these investments could deliver up to half of the abatement of global greenhouse gases required to cap the long-term concentration in the atmosphere to 450 to 550 parts per million. And according to McKinsey, we would also avoid investment in energy generation infrastructure that would otherwise be required to keep pace with accelerating demand. The International Energy Agency estimates that on average an additional $1 spent on more efficient electrical equipment, appliances, and buildings avoids more than $2 in investment in electricity supply. The report quotes Chevron CEO David O'Reilly who recently said that energy efficiency is the cheapest form of new energy we have.

I should emphasize that by moderating demand growth through energy efficiency, and at the same time increasing clean generation using renewable sources, we can slow and begin to decrease carbon emissions while we work to adopt and implement a comprehensive approach to addressing climate change and our nation's energy security. The Administration and Congress should pay careful attention to this complementary strategy involving both energy efficiency and renewable energy as an important down payment on reducing carbon emissions, while advancing the more complex agenda involved in enacting and implementing an economy-wide climate and energy security policies.

Federal Policies to Increase Investment in Energy Efficiency

The federal government has the power to stimulate vastly more private sector investment in energy efficiency and thereby dramatically increase U.S. competitiveness, improve national security, and confront climate change. There is a broad range of federal policies that can increase investment in energy efficiency including standards, tax credits, R&D funding, procurement and financial support mechanisms. Below I outline a number of the most promising approaches.

Automobile Fuel Efficiency – The Role for Plug-in Vehicles

Since its adoption in 1975, the Corporate Average Fuel Economy requirement (CAFE) has cut U.S. oil consumption by over 1 billion barrels each year. Even with this progress, passenger vehicles today consume approximately 40% of the petroleum in the United States – with the transportation sector projected to generate 89% of the growth in petroleum demand through 2020. In late 2007, federal energy legislation requires that automakers boost fleet-wide gas mileage to 35 mpg by the year 2020 for all passenger automobiles, including light trucks.

This increase in CAFE standards is a definite step forward, but we can do even better. Existing technologies – hybrid electric automobiles, drive train improvements, lighter weight materials – can today get us to roughly double the mileage of our current passenger fleet. Perhaps the most exciting technological development has been the recent emergence of plug-in hybrids – a technology that will enable us to exceed any fuel economy proposals under consideration at this time. Plug-in hybrids have a more powerful battery than traditional hybrids and are designed to be connected to the electric grid for recharging. This allows the vehicle to cut gasoline use and, if charged at night, use lower cost and cleaner off-peak electricity. These cars could also benefit electric utilities when plugged in during the day by sending power back to the grid to meet peak power needs, thereby supplanting some of the most costly and often most polluting power generation. According to some analysts, this benefit could be worth hundreds or even thousands of dollars per year per car, a value that could exceed the incremental cost of the vehicle's more powerful battery.

By increasing vehicle use of electricity over liquid fuels, we should have an easier time improving the environmental profile of our automotive fleet. In addition, plug-in hybrid vehicles enabled to run on biofuels can further reduce greenhouse gas emissions and oil consumption. The bottom line is that plug-in hybrids – and down the road all electric vehicles – have the

potential to dramatically reduce America's oil dependence, improve our national security, and help fight global warming.

Google.org's RechargeIT initiative is working to accelerate the commercialization of plug-in vehicles and the widespread adoption of vehicle-to-grid (V2G) technology. We have created our own demonstration plug-in fleet at Google, involving converted Ford Escapes and Toyota Priuses, and made more than $1 million in grants to support the adoption of plug-ins. Last week we announced the initial round of several investments in companies whose innovative approach, team, and technologies will enable widespread commercialization of plug-ins.

Our RechargeIT initiative recently conducted a driving experiment with plug-ins from our fleet to see how well they performed against standard cars. Using a variety of vehicles, professional drivers, and driving routes representing typical trips for U.S. drivers, we conducted a series of controlled tests over seven weeks. Our plug-ins achieved as much as 93 mpg on average for all trips and 115 mpg for city trips. See www.rechargeit.org for more details.

Public policy will also play a crucial role in driving innovation and commercializing new plug-in technologies. In June we co-hosted a conference with the Brookings Institution to showcase plug-ins and explore the role that government can play in accelerating their commercialization. Members of Congress, auto and utility executives, and technology experts discussed the promise of plug-ins and the need for government leadership. We hope that discussions at the conference – along with a serious of policy papers we commissioned with Brookings that will be released later this year – will lead to specific and actionable policy solutions. At a minimum, we believe the following measures are needed:

- **Funding for federal research and development** - Federal R&D support is key to driving development of new technologies. We must further develop power management devices, grid integration technologies, and better batteries to increase the range and efficiency of plug-in vehicles. The federal government can play a critical role in helping to accelerate the necessary R&D efforts.

- **Investment in infrastructure** - Putting millions of plug-in cars and trucks on the road will require deployment of recharging stations and new power management hardware and software. The U.S. government should start investing in and incentivizing the infrastructure necessary to support this transformation.

- **Financial incentives to spur adoption** - Federal tax credits jump-started the mass market for hybrid technology. A comparable set of incentives for initial marketability of plug-in vehicles could similarly boost the momentum and mass market availability of plug-ins.

- **Federal procurement** - The federal government should procure large numbers of plug-in vehicles for the federal fleet and develop related charging infrastructure.

- **Modernized regulatory system** - Reform of current utility rate design in many states will permit real-time pricing of electric power, which will assist consumers in choosing to

recharge during off-peak periods.

- **Uniform data protocols** - The U.S. government should foster national uniform data collection and publication protocols for electric vehicles and V2G, including miles per gallon, standards, tailpipe emissions and carbon reductions.

Energy Efficiency Resource Standard (EERS)

Congress should establish a mechanism called the Energy Efficiency Resource Standard (EERS) that would set efficiency resource targets for electricity and gas suppliers over a given period of time. It builds on policies now in place in nine states – California, Texas, Vermont, Connecticut, Nevada, Hawaii, Pennsylvania, Colorado, and most recently, Massachusetts – designed to cut the growth in electricity demand through energy efficiency. The Texas and Vermont policies have been implemented for several years and have been very successful. Texas utilities, for example, are required to meet 10% of their load growth needs through efficiency programs. Utilities are easily exceeding this target. Vermont created an energy efficiency utility that has helped the state in recent years meet more than two thirds of load growth (typically 1.5 to 2% per year) through energy efficiency and the state is on a path to avoid all load growth in the near future.

Under the proposed federal EERS, suppliers would obtain energy savings from customer facilities and distributed generation installations in amounts equal to at least 0.75% of base year energy sales for electricity and 0.50% for natural gas. This requirement would be phased in over three years and would cumulate during the compliance period of 2008-2020. The requirement would apply to retail suppliers (local distribution utilities or competitive energy suppliers) who sell annually at least 800,000 megawatt hours of electricity or 1 billion cubic feet of natural gas.

Eligible energy savings measures include efficiency improvements to new or existing customer facilities, distributed energy technologies including fuel cells and combined heat and power systems, and recycled energy from a variety of defined commercial and industrial energy applications. Savings are determined using evaluation protocols that can be defined by DOE, with state protocols available that the Department can build on.

Suppliers may obtain and trade credits for energy savings under procedures to be defined by DOE. This will enable suppliers with energy savings beyond the requirements of the standard to sell them to suppliers unable to obtain sufficient savings from their customers within a given compliance period.

Integrated EERS and RPS

The EERS is a compelling complement to a national Renewable Portfolio Standard. EERS moderates demand growth so that RPS targets can actually reduce fossil fuel consumption. The RPS provision the Senate supported in 2005 calls for 10% of U.S. electricity generation to be generated from non-hydro renewable energy sources in 2020. However, the Energy Information Administration forecasts electricity demand to grow more than 22% by 2020. So bringing down demand growth is crucial to reducing overall fossil energy consumption and carbon emissions. The EERS proposal, as analyzed by the American Council for an Energy Efficient Economy,

would reduce 2020 peak electricity demand by about 10% or about 133,000 MW – equivalent to almost 450 power plants at 300 MW each. This would bring demand growth down to a level where a 10% RPS could meet all new electricity generation needs. ACEEE also estimates that by 2020, this provision will reduce natural gas needs by about 2 billion cubic feet, reduce CO_2 emissions by more than 340 million metric tonnes, and result in cumulative net savings to electricity and natural gas consumers of about $29 billion. Moving to a 15% or 20% RPS level, as proposed in bills in 2007, would further accelerate the move to a less carbon-intensive electricity system.

These two policies, EERS and RPS, figure prominently in a 2007 report that explores the synergies between energy efficiency and renewable energy. It was prepared by the American Council for an Energy Efficient Economy and the American Council on Renewable Energy and supported by the Rockefeller Brothers Fund. Calling energy efficiency and renewable energy the "twin pillars" of sustainable energy policy, the report emphasizes that both resources must be developed aggressively if we are to stabilize and reduce carbon dioxide emissions in our lifetimes.

Energy efficiency and renewable energy offer a highly complementary approach to managing the challenges of the U.S. power sector in the coming decades. Efficiency is essential to slowing energy demand growth so that rising clean energy supplies can make deep cuts in fossil fuel use. If energy use grows too fast, renewable energy development will chase a receding target. Likewise, unless clean energy supplies are deployed rapidly, slowing demand growth will only begin to reduce total emissions; reducing the carbon content of energy sources is also needed.

By moderating demand growth through an EERS and increasing clean generation through an RPS, we can slow and begin to decrease carbon emissions in the utility sector, while we work to adopt and implement a comprehensive cap-and-trade system. Policymakers should give strong consideration to this EERS-RPS approach as a straightforward down payment on reducing carbon emissions, while deliberating the more complex issues entailed in enacting and implementing an economy-wide climate policy.

Appliance Efficiency Standards

One of the nation's least-heralded energy success stories involves federal appliance efficiency standards. In the last 15 years, Congress and the Department of Energy have set new standards for a number of products. Refrigerators sold since 2001 in the U.S. use just one-third the energy of comparable models sold in 1980. Home air conditioners are nearly twice as efficient as those sold in 1980.

Standards in place today will save American families and businesses about $200 billion cumulatively by 2020, cutting electricity demand and carbon emissions substantially. The standards for the sixteen products in the Energy Policy Act of 2005 will save another $50 billion, and will cut carbon emissions by another 16 million tons in 2020.

Unfortunately, DOE has issued only three new appliance efficiency standards in recent years. In the settlement of litigation brought by states and environmental groups, DOE agreed in 2006 to a

schedule for issuing all 22 overdue standards by 2011. Congress should ensure that DOE has the funds to conduct the necessary analysis, that the Department stays on schedule, and that it adopts rigorous final standards. Indeed, recent standards are not models of great rigor: the standard for furnaces can be met by virtually all existing products on the market; the one for boilers rejected a tougher joint proposal by manufacturers and advocacy groups; and the one for distribution transformers rejected a significantly more stringent recommendation from the electric utility industry itself.

Tax Credits for Efficient Buildings

The Energy Policy Act of 2005 (EPACT) provided important tax incentives for efficient buildings and equipment, in addition to significant support for renewable energy and other advanced energy technologies. Most of the energy efficiency incentives, however, expired at the end of 2007. Legislation introduced by Senators Snowe and Feinstein, called the EXTEND Act (S. 822), would have extended and expanded these building-related incentives. These provisions, however, were not ultimately adopted in 2007 federal energy legislation. In February 2008, the House passed $18.1 billion in renewable energy tax incentives (H.R. 5351), including an extension of the tax credits for energy-efficient home improvements. The Senate has also taken up tax credit extensions. These tax credit packages, however, are still pending.

Commercial buildings and large residential subdivisions have lead times for planning and construction of several years, so many businesses will refrain from making investments to qualify for tax incentives if the duration of the incentive is only two years. The EXTEND Act provides four years of assured incentives for most situations and some additional time for projects with particularly long lead times, such as commercial buildings.

Significantly, the EXTEND Act also phases out incentives based on the cost incurred in saving or producing energy and replaces them with incentives based on the actual performance (measured by on-site ratings for whole buildings and factory ratings for products like air conditioners, furnaces, and water heaters.) The legislation provides a new home retrofit tax incentive for ambitious levels of energy savings that are verified by a third-party rater.

The bill is intended to transition from the EPACT 2005 retrofit incentives, which are based partially on cost and partially on performance, to a new system that provides greater financial incentives based on performance. These larger incentives should not cost the Treasury more because the ambitious requirement of a minimum 20% savings will effectively eliminate free-ridership, which is the problem that caused the current EPACT incentives to be scored as high as they were.

The Snowe-Feinstein bill also extends the applicability of the EPACT incentives so that the entire commercial and residential building sectors are covered. The current EPACT incentives for new homes are limited to owner-occupied properties or high rise buildings. The Snowe-Feinstein bill extends these provisions to rental property and offers incentives whether the owner is an individual taxpayer or a corporation. This extension does not increase costs significantly, but it does provide greater fairness and clearer market signals to builders and equipment manufacturers.

GDS Associates estimates that if the EXTEND Act had been adopted, the two-year EPACT incentives plus the additional EXTEND incentives, over the 2006-2020 timeframe, would have reduced U.S. natural gas use by about 4.65 trillion cubic feet (almost enough to serve California and New York for a year), decrease consumer energy bills by about $93 billion, and avoid 657 million metric tons of carbon dioxide (equivalent to 142 million passenger cars not being driven for one year). GDS also estimates that EXTEND would have reduced peak electric demand by about 15,500 megawatts by 2020 (equivalent to 52 power plants of 300 MW each).

Low Income Home Weatherization

Across the nation, poor families increasingly face the choice between heating and eating as prices for natural gas, heating oil, propane and electricity have risen and millions of Americans have found themselves spending more than one-quarter of their income to run their furnaces, air conditioners and keep the lights on. In a survey of low income families – before the energy price spike in 2005-2006 as well as more recent ones – 32% went without medical or dental care, 24% failed to make a rent or mortgage payment, and 22% went without food for at least one day due to energy bills.

Congress continues to debate the traditional fix for this problem: additional funding for the Low Income Home Energy Assistance Program (LIHEAP). LIHEAP is essentially a one-shot buy-down of energy bills that covers a modest percentage of eligible families – an absolutely critical but in no way sufficient answer to our nation's energy predicament. Together, federal and state fuel assistance funds provided less than 10% of the total energy costs for low income households in 2006 and even less today.

A long-term answer for low-income families is home weatherization. By upgrading a home's furnace, sealing leaky ducts, fixing windows, and adding insulation we can cut energy bills by 20-40% – and the substantial savings accrue with summer air conditioning as well as winter heating. And by adding energy efficient appliances and lighting the savings are even greater. Replacing a 1970's refrigerator with a new energy efficient model will cut an average home electricity bill by 10-15%. Weatherizing low-income homes also improves comfort, reduces illness and creates jobs.

Unfortunately, the benefits of low-income weatherization are not reflected in our national policies. There was about $245 million in the 2006 Department of Energy weatherization budget, enough for only about 100,000 U.S. homes. DOE proposed reductions in subsequent years and actually called for zeroing out weatherization in the 2009 budget. And while the nation has weatherized about 6 million low-income homes since 1976, more than 28 million remain eligible.

Congress should make a national commitment to weatherize at least one million low-income homes each year for the next decade. This approach would go a long way toward helping the most vulnerable among us. The price tag for retrofitting 10 million low-income homes is relatively modest – about $2 billion annually when fully implemented.

With such a commitment there would be other benefits that directly address our current energy and environmental challenges. Stresses we are seeing today on the U.S. energy system – from blackouts to natural gas shortages – will be improved with every additional home weatherized. For example, weatherizing all the low-income homes that heat with natural gas would cut residential U.S. use of this fuel by about 5%, dampen its price volatility and reduce the call on federal fuel assistance funds.

The advanced technologies pioneered in the federal low income weatherization program can also be readily applied to the U.S. housing stock at large – with even greater energy savings. One technology developed in the Department of Energy weatherization program uses a pressurization device and a simple infrared sensor to pinpoint leaks down to the size of a nail hole for about $100 per home. With this information insulation can be installed in the right places with the least amount of waste.

As we cut energy demand we also cut air pollution. An Ohio study showed that weatherizing 12,000 homes not only cut the average consumer bill by several hundred dollars each year but also avoided annual emissions of 100,000 pounds of sulfur dioxide as well as 24,000 tons of carbon dioxide. As Congress considers changes to the Clean Air Act we ought to create an effective way to encourage investment in weatherization and other "downstream" pollution reduction opportunities. This could leverage substantial additional private sector capital for low-income weatherization and avoid the need for new power plants.

For example, one approach would:

- Aggregate thousands of homes eligible for weatherization in a locality;
- Establish a base-line of energy use as well as associated greenhouse gas and other emissions across the portfolio of homes;
- Install advanced metering to monitor post-investment savings as well as provide utility load control;
- Secure federal and state funding as well as carbon off-set, pollution credits, and utility capacity payments;
- Leverage private sector investment in the aggregated portfolio through a "shared savings" approach or other financial mechanism; and
- Benchmark the investment to enhance replication.

There may also be an opportunity to provide an extra incentive or credit in the Energy Efficiency Resource Standard for investment by an electricity or gas supplier in low income home weatherization.

Federal R&D Funding

Research and development is essential to supplying the "technology pipeline" we need to provide this Century's clean energy and energy independence solutions. Unfortunately, R&D on energy efficiency, as well as other energy technologies, has been falling and did not return to FY2002 levels until FY2008. Total federal spending remains far below the peak of investment that occurred in the 1970s. And the private sector has not yet picked up the slack; efficiency funding in the electricity and gas industries has fallen even faster than federal investment. Some states, like California, Iowa, Wisconsin, and New York, are trying to make a real difference, but their work is no substitute for federal support. Congress should ensure that adequate funds are appropriated to advance critical clean energy and energy independence R&D.

Government-Backed Financial Mechanisms

There are a variety of government-backed financial mechanisms that could be of significant help in dramatically increasing the deployment of clean energy technologies, including energy efficiency. Senator Bingaman recently introduced S. 3233 which would increase the willingness of banks to make loans for clean energy projects by providing a secondary market for their loans through the 21st Century Energy Deployment Corporation. And in March Senator Domenici introduced S. 2730, the Clean Energy Investment Bank Act of 2008, creating a federal investment bank to make investments in eligible clean energy projects using a variety of tools including loans, loan guarantees, purchase of equity shares, and participation in royalties, earnings and profits. The bank builds from the loan guarantee program authorized by Congress in EPACT 2005, which DOE administers but has yet to back any loans.

At a recent hearing before the Senate Committee on Energy and Natural Resources, I testified in support of Senate efforts to greatly increase the debt capital available for clean energy projects, particularly for early higher risk commercialization projects that often have trouble raising capital and frequently perish in what has come to be known as the “Valley of Death”. I urged Senators Bingaman and Domenici to integrate the best aspects of their two bills and thereby provide important mechanisms that will stimulate the massive private sector investment required to take clean energy technologies to scale. We also supported efforts in Senator Bingaman’s bill to develop debt instruments that aggregate smaller clean energy technology deployment projects. This could be particularly helpful to an array of energy efficiency projects which tend to be smaller but often share enough characteristics to be aggregated into larger financeable packages.

State Building Codes

California has demonstrated the significant efficiency gains that can be achieved through state building codes that are well designed and implemented. Title 24 of the California Code has been the national model, helping the state avoid thousands of megawatts of new generation capacity. Despite this impressive track record in California, many states have inadequate state building codes or none at all.

Section 128 of the 2005 Energy Policy Act authorizes $25 million per year for FY2006-FY2010 ($125 million total) for states that have adopted, and are implementing, both residential and commercial building energy-efficiency codes that meet or exceed specific standards. For states where there is no statewide code, the money will be allocated to local governments that have

implemented codes that meet the above standards. Unfortunately, the funding authorized in the 2005 EPACT for state building codes was never appropriated by Congress and therefore this important incentive for adoption of state building codes has not been implemented. Congress should appropriate the funds authorized in the 2005 EPACT.

Utility Revenue Decoupling

The National Action Plan for Energy Efficiency (http://www.epa.gov/cleanrgy/actionplan/eeactionplan.htm) provides joint recommendations from federal agencies, states, the utility industry and environmental groups regarding energy efficiency. One area of focus in the report is the concept of "revenue decoupling". This approach, first instituted in California and most recently ordered in Massachusetts, decouples sales from profits, so that electric and gas utilities do not have a disincentive to promote energy efficiency. The current "throughput" incentive (the more electricity or gas a utility sells, the more it earns) is a significant impediment to energy efficiency. As state utility commissions work to advance decoupling, Congress and the Administration (especially FERC and DOE) should consider further incentives to promote energy efficiency. One important federal role would be to promote "best practices" and provide technical assistance to interested parties to facilitate energy efficiency.

Conclusion

The federal government has a significant role to play in increasing investment in energy efficiency. By adopting a set of policies similar to those outlined above, the federal government can stimulate significant near-term investment in energy efficiency with substantial reductions in energy use and major economic, environmental and security benefits.

Thank you for the opportunity to testify today. I look forward to answering any questions to assist this Committee in its important examination of energy efficiency.