U.S. House of Representatives
"Energy Efficiency: Complementary Policies for Climate Legislation"

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Testimony of Thomas B. King
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Mr. Chairman, Ranking Member Upton, and Members of the Committee, I want to thank you for including National Grid in this very important hearing on energy efficiency.

National Grid is an international energy delivery company. In the U.S., National Grid delivers electricity to approximately 3.3 million customers in Massachusetts, New Hampshire, New York and Rhode Island, and operates the electricity transmission and distribution network on Long Island, serving an additional 1.1 million customers. We are the largest distributor of natural gas in the northeastern U.S., serving approximately 3.4 million customers in Massachusetts, New Hampshire, New York and Rhode Island. National Grid also owns and operates over 4,000 megawatts of electricity generation under contract with the Long Island Power Authority.

May I first congratulate you and your Congressional colleagues for your focus and success with important initiatives on energy efficiency, renewables, infrastructure such as smart grid, and other critical energy support in last week's stimulus bill. The $3.1 billion for state matching grants on energy efficiency and the focus on weatherization and energy efficiency for affordable housing are critical steps towards moving energy efficiency to the forefront of a comprehensive national energy policy.

Mr. Chairman, we are also pleased with the directional approach you have introduced with initiatives that address both an Energy Efficiency Resource Standard (EERS) and renewable energy. While investments in conservation and efficiency are the most affordable way to reduce carbon emissions and energy costs, we must also address the challenging but critical investment needed in renewables.

We have always said, when asked to prioritize between solution strategies, "We need it all." We need more expansive, robust energy efficiency programs. We need significant new sources of renewable energy: wind, solar, biomass and geothermal. We need a comprehensive strategy to address our transmission

infrastructure, including policies that will enable us to bring renewable energy resources, which are often isolated, to dense urban areas and other load centers. We need smart grid technology and smart meters to maximize the potential of current and future energy efficiency technologies to automate the most efficient use of energy and to remotely turn demand off during peak use and pricing periods. All of these actions lower emissions, lower customers' bills and play an important role in an effective national energy policy.

While a national energy strategy must be multifaceted, my comments today will focus on energy efficiency. Our company stands with many other energy providers, particularly those who belong to the Clean Energy Group, and the environmental community in recognizing that energy efficiency uniquely addresses many of our nation's core energy issues – it is more cost-effective than building new power plants, has the potential to dramatically lower greenhouse gas emissions and provides consumers with long-term savings on their energy bills. The importance of energy efficiency as a key component of our national energy policy is underscored by industry-wide energy efficiency commitments made by our leading national trade associations, the American Gas Association and the Edison Electric Institute.

National Grid's experience in Massachusetts demonstrates that energy efficiency expansion is readily available as a solution <u>today</u> with the right mix of policies and incentives. Energy providers like National Grid have decades of success in delivering cost savings and believe those same savings can be readily scaled up on a national level. The certainty available from federal legislation, a state regulatory compact that encourages energy efficiency, the ability to rate base energy efficiency technologies in order to expedite and expand their market penetration and a tax and grant structure designed to stimulate investment will all assure the success of a concerted effort to use energy more efficiently.

Let me begin with the simple facts on the cost-effectiveness of energy efficiency. Energy efficiency can cost as little as 3 cents per kWh saved, while electricity costs 6 to 12 cents per kilowatt hour. Thus, energy efficiency measures are often the most effective way to avoid unnecessary energy supply investments and lower customers' energy bills on a sustainable basis. Despite the obvious advantages of energy efficiency, we spend about $215 billion annually on the production of electricity, but invest only $2.6 billion in securing electricity savings through efficiency programs. The savings are similar for natural gas, where efficiency costs $1 to $2 per thousand cubic feet (Mcf), compared to a typical market cost ranging from $6 to $8 per Mcf. Yet we spend approximately $91 billion annually on natural gas supplies and only $500 million annually on natural gas efficiency.

While spending on energy efficiency is increasing, it remains but a small fraction of what the total country spends on energy requirements, effectively leaving billions of dollars in potential savings on the table. This country must take better

advantage of this opportunity and prioritize energy efficiency. Our country's utility industry can play a central role in implementing this strategy.

We believe National Grid's experience with energy efficiency programs in Massachusetts can be a model for the rest of the country. Our Massachusetts programs date back twenty years on the electric side and fifteen years on the natural gas side. Successful electricity programs have included:

- Comprehensive "whole house" efficiency approaches;
- Energy audits with follow-up services;
- High efficiency lighting;
- HVAC quality installation to assure maximization of efficiency gains;
- Partnerships with local Community Action Agencies to deliver energy efficiency services to low-income consumers, helping them to save energy, reduce fuel bills, and free-up scarce resources for other necessities;
- Business customer assistance to identify and implement energy saving measures and practices that reduce operating costs and to help the businesses become more competitive in the global marketplace; and
- Weatherization incentives.

On the gas side, National Grid's programs include:

- High efficiency appliances (such as 96% efficient furnaces and tankless water heating);
- Weatherization incentives; and
- System controls including automatic thermostats.

I congratulate Governor Deval Patrick and the Massachusetts Executive Office of Energy and Environmental Affairs for passing the first state comprehensive energy and environmental legislation, the 2008 Green Communities Act. The provisions of the act will allow National Grid to expand our energy efficiency programs by 300% to 400% over the next five years, partner in solar initiatives and offer efficiency programs which integrate the delivery of electric and gas efficiency for the first time, an opportunity on which we are already acting.

To see how these types of policies can ultimately be successful, one must only look to California, where the population has grown by 30% with a flatline in per capita energy consumption. This has been achieved through consumer behavior driven by effective energy policy backed by strong state support to achieve these targets.

Energy efficiency must also play a central role in climate change policy, not only because energy efficiency programs are among the most cost-effective ways to reduce greenhouse gas emissions and a critical component of any climate change strategy, but because energy efficiency programs can provide a direct economic benefit to consumers.

National Grid, in partnership with other leading energy companies such as PG&E and DTE, and environmental groups such as Natural Resources Defense Council and Environmental Defense, worked with McKinsey & Co to look at energy efficiency. The landmark study "Reducing U.S. Greenhouse Gases: How Much, At What Cost?" found that the U.S. can make substantial emission reductions by 2030 without damaging the economy with the help of energy efficiency. A chart summarizing the study is attached, and the report itself is available via www.mckinsey.com/mgi/publications/Curbing_Global_Energy/executive_summary.asp.

The Electric Power and Research Institute recently introduced its own energy efficiency savings analysis. By analyzing the impact of codes and standards, as well as market driven efficiency, the study shows measurable reductions in energy consumption. Opportunities in the EPRI study range from commercial lighting to massive reductions in consumption through residential appliances and standby wattage. It demonstrated consumer response to utility based programs to encourage increased adoption of energy efficiency savings. The full EPRI study can be found via http://my.epri.com/portal/server.pt?space=CommunityPage&cached=true&parentname=ObjMgr&parentid=2&control=SetCommunity&CommunityID=277&PageID=0&RaiseDocID=000000000001016987&RaiseDocType=Abstract_id.

Energy efficiency alone will not solve the climate change issue. In addition to energy efficiency, we will need a national policy, such as a mandatory cap-and-trade program. Consumers, however, will ultimately bear the costs of addressing climate change in the form of higher energy prices and climate change policies must be designed to mitigate that impact.

One of the most effective and transparent ways to simultaneously address consumer cost and energy efficiency is to distribute allowances to local distribution companies ("LDCs") with a mandate that the value be returned expeditiously to customers. Accordingly, we support distributing a significant share of the overall allowances to LDCs and requiring them to auction the allowances in a transparent, timely manner. LDCs would use the proceeds to offer consumers incentives for energy efficiency upgrades and distributed generation resources as well as provide rebates to low- and middle-income consumers and small business. These mechanisms will offer immediate financial support to consumers as well as a long-term reduction in consumer energy costs.

Accountability for such a program is essential and should be designed around existing state utility oversight authority coupled with enforcement authority (e.g., financial penalties) and reporting requirements. Leveraging state expertise, resources, and familiarity with LDCs will reduce administrative costs. Real enforcement power and rigorous, open reporting will ensure that all of the allowance value allocated to LDCs benefits consumers and the allowances do not distort competitive electric power markets.

Market distortions should also be minimized by distributing the allowances to LDCs based on a company's proportionate share of electricity sales after adjusting for successful energy efficiency programs. Electricity sales data are publicly reported, providing a transparent mechanism for apportioning emission allowances. Adjusting for energy efficiency will ensure that the LDCs that are most effective in reducing consumption are not subsequently punished with fewer allowances. To further preserve market efficiency, the distribution of allowances to LDCs should be phased out and replaced with a federal auction. As my colleague Ralph Izzo has previously testified, the phase-out should be done within ten years.

LDCs are uniquely positioned to administer community-based energy programs because they already have the necessary experience, communication channels, marketing expertise, funding and oversight processes and access in place to move forward quickly. For example, National Grid already has efficiency programs in place that are saving customers in New England over $250 million annually, after an expenditure of $1.5 billion on efficiency technologies.

As a result of these programs, more than 4.6 million National Grid customer projects have been completed in New England to date, saving more than $3.6 billion in energy costs. This includes converting almost all of Boston's public schools from oil to natural gas, helping cash strapped schools focus their limited resources on education, and residential boiler conversions that reduce CO_2 and other emissions by up to 40%. In 2007 alone, our gas programs saved 4.6 million thermal units and avoided 27,000 tons of CO_2 and our electricity program saved 380,000 megawatts, avoiding 218,000 tons of CO_2. The total carbon emissions equate to 48,000 cars off the road for a year.

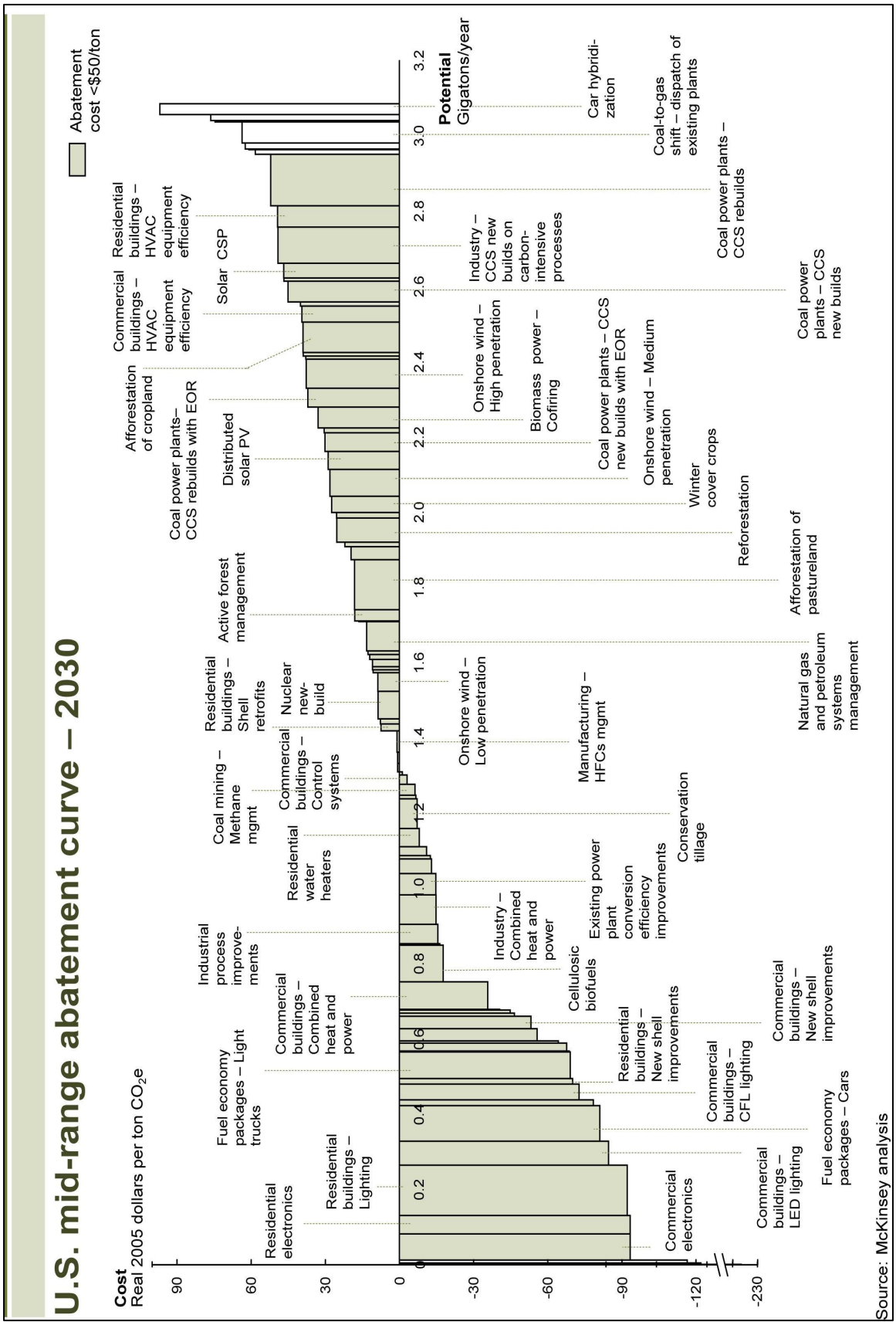
All of these programs are well tested, effective, and readily scalable with the aid of policy mechanisms, such as distributing allowances to LDCs, federal incentives, and energy efficiency standards. Expansion of such programs will result in green jobs, immediate and long-term energy savings, a reduction in our dependence on imported fuel and carbon energy and an effective response to our climate change concerns.

Additionally, these policies will spur the growth of new technologies. For example, the Select Committee on Energy Independence and Global Warming heard testimony last year from the Honda Corporation which has developed high efficiency combined heat and power residential energy units called "Free-Watt". This natural gas fired generator provides electric energy for the home, and captures all of the waste heat from the generating unit. The accompanying heating unit made in the U.S. provides efficient heat to the home, rendering the electric energy essentially "free". The technology has been extremely popular in Japan and has been deployed in Massachusetts, but in very small numbers. With the right policies, like CO_2 allowance distribution to LDCs, we could see a high

volume of units deployed, significantly reducing emissions, fuel use, and home energy costs.

Mr. Chairman and Members of the Committee, we believe the current global recession provides a real opportunity to respond to a multitude of challenges in our economy. Driving economic activity in the energy sector can create significant employment, all here at home, while reducing our dependence on foreign fuels and the release of harmful emissions into our atmosphere. Energy efficiency should act as a foundation of our national energy policy as we take other key steps to develop and implement innovative investments to ensure a reliable low carbon and efficient energy strategy for America. Importantly, these programs can be quickly expanded to provide much needed jobs and energy savings in the near term. The existing programs are not nearly sufficient to reorder our economy for a greener future.

We commend your work, and we thank you for the opportunity to answer your questions.


U.S. mid-range abatement curve – 2030
Abatement cost <$50/ton
Cost
Real 2005 dollars per ton CO_2e
Potential
Gigatons/year
90
60
30
0
-30
-60
-90
-120
-230
0.2
0.4
0.6
0.8
1.0
1.2
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Residential electronics
Residential buildings – Lighting
Fuel economy packages – Light trucks
Industrial process improve-ments
Commercial buildings – Combined heat and power
Coal mining – Methane mgmt
Residential water heaters
Commercial buildings – Control systems
Residential buildings – Shell retrofits
Nuclear new-build
Active forest management
Coal power plants– CCS rebuilds with EOR
Distributed solar PV
Afforestation of cropland
Commercial buildings – HVAC equipment efficiency
Solar CSP
Residential buildings – HVAC equipment efficiency
Commercial electronics
Commercial buildings – LED lighting
Fuel economy packages – Cars
Commercial buildings – CFL lighting
Residential buildings – New shell improvements
Cellulosic biofuels
Industry – Combined heat and power
Existing power plant conversion efficiency improvements
Onshore wind – Low penetration
Manufacturing – HFCs mgmt
Conservation tillage
Onshore wind – High penetration
Biomass power – Cofiring
Industry – CCS new builds on carbon-intensive processes
Coal power plants – CCS new builds with EOR
Onshore wind – Medium penetration
Winter cover crops
Reforestation
Afforestation of pastureland
Natural gas and petroleum systems management
Commercial buildings – New shell improvements
Coal power plants – CCS new builds
Coal power plants – CCS rebuilds
Coal-to-gas shift – dispatch of existing plants
Car hybridi-zation
Source: McKinsey analysis

Mr. Thomas B. King

Tom King joined National Grid as Executive Director, Electricity Distribution & Generation in July 2007.

Tom was President of PG&E Corporation and Chairman and CEO of Pacific Gas and Electric Company from 2003-07. Before that, he served as Senior Vice President of PG&E Corporation, and as President of PG&E National Energy Group; having joined PG&E Gas Transmission as President in 1998.

Prior to PG&E, he served as President and Chief Operating Officer of Kinder Morgan Energy Partners. He previously spent eight years, from 1989 to 1997, with Enron in a series of senior operating positions with its affiliates, Enron Liquid Services, Northern Natural Gas Company, Transwestern Pipeline Company and Northern Border Pipeline Company. He also held positions at Cabot Corporation's natural gas unit, Cabot Transmission Corporation, and the Panhandle Eastern Corporation.

Tom serves as a Board member of Jobs for Mass, Alliance to Save Energy and the Edison Electric Institute.

Tom was awarded a bachelor's degree in business administration from Louisiana State University and is a graduate of the University of Michigan's Executive Management Program. He also successfully completed the Nuclear Reactor Technology Program at the Massachusetts Institute of Technology.

Tom resides in Weston, Massachusetts, with his wife Michelle and three daughters.