

**Testimony of Donald D. Gilligan**

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**Hearing on “Green Jobs Created by Global Warming Initiatives”**

**Committee on Environment and Public Works**

**United States Senate**

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Mr. Chairman and members of the Committee, thank you for providing the opportunity for the National Association of Energy Service Companies (NAESCO) to offer testimony at this hearing. NAESCO is an organization of about 75 companies that deliver more than \$4 billion of energy efficiency, renewable energy and distributed generation projects across the U.S. each year. To put that number in perspective, NAESCO member companies deliver approximately the same dollar volume of energy efficiency projects than all of the utilities in the country combined, according to a recent study published by the Lawrence Berkeley National Laboratory<sup>1</sup>.

NAESCO strongly supports the enactment of greenhouse gas limitation legislation and other legislation being considered by the Senate that will increase the amount of energy efficiency that is implemented in the U.S. We believe that such legislation will increase energy security, lower consumer prices and provide significant job growth. My testimony today will focus on the potential scale of energy efficiency implementation and the employment and economic development effects of such implementation.

### **Potential Scale of Energy Efficiency**

Few people today are aware of the contribution that energy efficiency has made to our national economy during the past three decades. Since 1980, improvements in energy efficiency have provided more than 50% of the U.S. growth in energy use<sup>2</sup>. Much of this improvement has been due to the mandates and guidance provided by the Congress and federal and state government agencies, in the form of appliance and equipment standards, building codes and industrial technology innovation programs. These federal initiatives have been complemented by state initiatives, utility energy efficiency incentive programs, and performance contracting programs. Improved energy efficiency has not been a brake on our economic growth, but has in fact contributed to our industrial competitiveness, made our workplaces and schools more productive, and made our homes more comfortable. Imagine for a minute what our nation would be like

today if we needed 50% more energy supply. It is not a pretty picture. Our economy would be hamstrung and our national security would be threatened.

However, we have not, despite this accomplishment, come close to exhausting the potential for energy efficiency. Last year, the U.S. Department of Energy and the U.S. Environmental Protection Administration convened the National Action Plan for Energy Efficiency (NAPEE) Leadership Group, about 70 experts from utilities, regulatory agencies, customer groups, environmental groups, consumer groups, energy efficiency organizations and industry. The Co-Chair of NAPEE was Jim Rogers, CEO of Duke Energy and, at the time, Chairman of the Edison Electric Institute. NAPEE collected the best available information from studies around the country and determined that potential savings from electric energy efficiency improvements ranged from 10% to more than 40%, and from 10% to 19% from natural gas efficiency improvements.

The cost of these improvements is estimated to average about \$.04/kWh for electricity and \$3/MMBtu for natural gas. NAPEE found that a national effort by utilities to invest about \$7 billion a year in energy efficiency, which would leverage an additional \$20-30 million of non-utility investment, would yield annual savings to consumers of about \$22 billion in 2017 and have a net present value of about \$344 billion<sup>3</sup>. The program would produce the equivalent of 20,000 megawatts of new electric generation and could be financed through utility bills, adding approximately 2% to current electric utility revenues and .5% to current gas utility revenues.

It is important to note that the NAPEE estimates are based on currently available technology. But we all know that technology does not stand still. A review of studies conducted over the past two decades shows consistent estimates of energy efficiency potential in the range of 10-30%, despite the achievements we have made. For example, we are now at the cusp of the fourth generation of lighting efficiency improvements (electronic lighting or white LEDs) to be commercialized since the early 1990s. Each generation replaced the previous generation cost-effectively, that is, it paid for itself from energy savings.

## **Employment and Economic Development Effects**

There is not, as some people believe, a trade-off between energy efficiency and economic growth. Improved energy efficiency does not levy penalties on our economy; it provides new jobs and economic growth. Let me give you three examples.

The first example is the building in which we sit today. About ten years ago, the Architect of the Capitol in conjunction with an ESCO designed and implemented a lighting retrofit program in the Capitol Complex. The project employed a dozen surveyors for about four months (4 man-years of work) in the survey and design phase and another ESCO provided about 30 man-years of skilled labor retrofitting or replacing hundreds of thousands of fixtures.

The second example is from my home town, Sharon, Massachusetts, where our School Committee, of which I am a member, has instituted an energy efficiency program. Last year we saved \$80,000, enough to hire two new teachers; this year we are adding a skilled mechanical technician, who, we expect, will repay double his or her salary in annual savings. The efficiency of our schools before we started our program was about average, according to a survey of the schools in one New England state. If our program were mirrored across the state, it would result in the hiring of nearly a thousand teachers and technicians. These are good-paying jobs that can never be sent off shore.

A third example is the \$150 million per year statewide Energy \$mart program operated by the New York State Energy Research and Development Authority (NYSERDA). This program, which has been operating since 1998, has resulted in the creation of 3,700 permanent new jobs, \$275 million in annual energy bill savings and \$244 million annually in economic growth<sup>4</sup>. These permanent jobs are net of the jobs that would have been created in the utility industry without the improved energy efficiency from the Energy \$mart program and do not include the new jobs created by energy efficiency programs operated by either the New York Power Authority or the Long Island Power Authority, whose combined annual budget is about equal to NYSERDA's.

The table below, excerpted from a recent annual evaluation report summarizes the job creation by category from the New York Energy \$mart program.

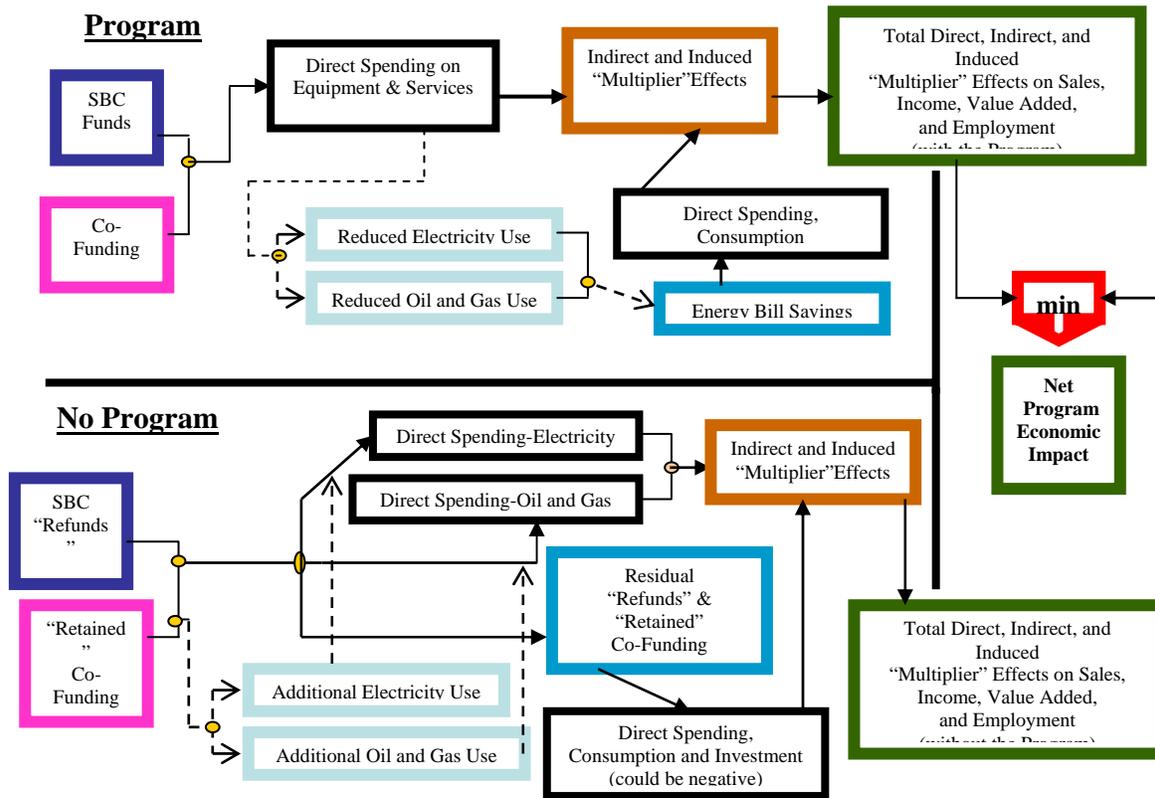
**Table 3-7. 2005 Update – Net Employment Impacts of New York Energy \$mart<sup>SM</sup> Program by Industry Sector**

Economic Sector	Average Net Jobs per Year	
	Program Implementation Years 1999-2007	Years Following Implementation 2008-2017
Agriculture, Forestry, and Mining	19	28
Construction	876	261
Products Manufacturing	191	207
Equipment and Instrument Manufacturing	428	129
Transportation, Communication, and Other Public Services	151	119
Wholesale and Retail Trade	1,323	1,383
Personal and Business Services	2,024	2,235
Electric Utilities	(336)	(656)
Total <sup>1</sup>	4,677	3,706

<sup>1</sup> Totals may not sum due to rounding.

NYSERDA's estimates of the jobs created by its statewide energy efficiency program are not "back of the envelope" calculations, but are the products of a sophisticated macroeconomic model of the New York state economy. The estimates were reviewed and approved for submittal to the New York Public Service Commission by the System Benefits Charge Advisory Group, a stakeholder group whose members include the states major utilities and representatives of all classes of consumers. The methodology used to produce the estimates is represented in the graphic below.

## NYSERDA Macroeconomic Model



The results achieved in New York are to a large extent due to the strong, bi-partisan state government policy on energy efficiency, initiated by Governor Pataki, expanded by Governor Spitzer, and supported by the legislature. The policy sets specific targets for greenhouse gas reductions and energy efficiency implementation, and provides the programmatic infrastructure required to achieve the targets.

A larger-scale estimate of the employment effects of energy efficiency programs has been generated by the American Council for an Energy Efficient Economy (ACEEE) in its recent study of the impact of energy efficiency programs designed to save natural gas in eight Midwestern states<sup>5</sup>. The study's estimates of the potential for job creation and economic growth from a program that invests \$1.1 billion per year for five years in gas and electric energy efficiency in the eight states are summarized in the table below. Please note that the "Number of Jobs" and "Employee Compensation" estimates in the table are net of any job

losses that would result from reduced energy use. These large effects are due to the fact that the affected states import almost 90% of their natural gas from other regions of the U.S. or from Canada, at a cost of nearly \$40 billion per year, which is huge drain on the state economies. Efficiency programs enable the states to keep some of that money in circulation in the state economies.

**Table 25. Projected Economic Benefits of Energy Efficiency Programs by State**

State	2010		2015		2020	
	Number of Jobs	Employee Compensation in Millions \$ <sup>a</sup>	Number of Jobs	Employee Compensation in Millions \$	Number of Jobs	Employee Compensation in Millions \$
IL	6,480	\$220	9,720	\$300	13,160	\$440
IN <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A
IA <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A
MI	5,170	\$130	7,630	\$200	11,380	\$330
MN	2,570	\$70	3,570	\$90	5,260	\$140
MO <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A
OH	5,300	\$100	9,590	\$220	12,430	\$290
WI	3,320	\$70	4,750	\$110	7,060	\$160
<b>Total Region<sup>c</sup></b>	<b>30,220</b>	<b>\$750</b>	<b>48,270</b>	<b>\$1,230</b>	<b>66,620</b>	<b>\$1,770</b>

<sup>a</sup> All dollar values cited in the table are expressed in 2001 dollars.

<sup>b</sup> State-specific data not available (N/A) for Indiana, Iowa, or Missouri.

<sup>c</sup> "Total Region" includes aggregate results for Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin.

Extrapolating the results of the NYSEERDA program and the estimates in the ACEEE report enables us to provide an estimate of the potential economic effects of a national program of the scope envisioned by NAPEE (\$7 billion in utility energy efficiency investment per year), as summarized in the table below.

**Estimated Job Creation from NAPEE Program**

Program	Program Budget	Jobs Created by Program	Extrapolation to \$7 Billion NAPEE Program
NYSEERDA Energy Smart	\$150 Million	3,700	173,000
ACEEE Midwest Natural Gas	\$1.1 Billion	66,260	422,000
Mid-range Estimate of National Employment	---	---	297,500

### **Additional Observations**

One objection that might be raised this line of reasoning is that the job creation by large-scale energy efficiency programs is, in fact, a zero-sum game: for every job created by improvements in energy efficiency, a job is lost in energy production and distribution. The NYSERDA and the ACEEE reports estimate net jobs created in a state or region, but do not estimate net jobs created in the nation. Will we just be substituting new jobs in energy consuming regions of the country for jobs lost in energy producing regions?

NAESCO believes that the answer to this question is no, for several reasons.

First, the marginal energy production jobs displaced by efficiency programs are going to be largely overseas, not in the U.S. We are dependent on foreign sources for more than half of our oil supply and are increasingly on imported Liquefied Natural Gas (LNG) to supply fuel for heating and electric generation. These imports are a drain on our national economy and a threat to our national security. Replacing imports with good jobs in energy efficiency is a benefit to the whole country.

Second, the NAPEE scenario described above does not result in the elimination of the need for all new electric generating plants. It provides the equivalent of about 20,000 MW, or about 15% of the estimated national requirement of 135,000 MW. Even if we estimate that a national greenhouse gas reduction program would double or triple the size of the NAPEE program, we would still not be displacing half of the estimated new power plants.

Third, in no scenario that NAESCO has seen for the growth of energy efficiency does the utility industry project layoffs of skilled trade workers, the men and women who build and maintain power plants and transmission and distribution systems. In fact, less than a month ago, the U.S. Department of Labor Assistant Secretary for Employment and Training and Mississippi Governor Haley Barbour convened a two-day Energy Skilled Trades Summit in conjunction with a meeting of the Southern Governors' Association. The Summit

brainstormed how the utility and energy production industries can meet their daunting needs for new skilled workers during the next decade. One utility executive predicted that his industry could lose half of its skilled trade workers in the next seven to eight years, and has no obvious source for replacing these retirees. So it appears that rather than threatening the jobs of utility workers, increased energy efficiency programs, which required different workers with skill sets than utility construction projects, may be required to keep the lights on.

Fourth, the new energy production and generation technologies on which we are all depending – widespread renewables, clean coal, nuclear fuel, oil from shale or tar sands – all require substantial research and development efforts, and will not come on line, if successful, for as long as a decade. And none of these technologies will be inexpensive enough to use inefficiently. Large-scale energy efficiency programs will enable the U.S. to bridge this R&D decade and to provide the skilled labor and technology infrastructure that will make the best use of these precious new energy resources.

### **Conclusion**

NAESCO is grateful to the Committee for the opportunity to present this testimony. We urge the Committee to act favorably on climate change and other energy legislation that will substantially increase the implementation of energy efficiency across the U.S. We believe that a major national implementation will create hundreds of thousands of high-skill, high-wage jobs, will provide a substantial boost to our national economy, and will increase our national security.

## Endnotes

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<sup>1</sup> "A Survey of the U.S. ESCO Industry: Market Growth and Development from 2002 to 2006, available at: <http://eetd.lbl.gov/ea/EMS/reports/62679.pdf>

<sup>2</sup> "Realizing the Potential of Energy Efficiency," July 2007, U.N. Foundation, available at: <http://www.unfoundation.org/energyefficiency/>

<sup>3</sup> "National Action Plan for Energy Efficiency," July 2006, available at: <http://www.epa.gov/cleanenergy/actionplan/eeactionplan.htm>

<sup>4</sup> "New York Energy \$mart Program Evaluation and Status Report," May 2006, available at [http://www.nyserda.org/Energy\\_Information/06sbcreport.asp](http://www.nyserda.org/Energy_Information/06sbcreport.asp)

<sup>5</sup> "Examining the Potential for Energy Efficiency to Help Address the Natural Gas Crisis in the Midwest," January 2005, available at: <http://www.aceee.org/store/proddetail.cfm?CFID=987754&CFTOKEN=91189203&ItemID=386&CategoryID=7>