

**Testimony before House Select Committee on  
Energy Independence and Global Warming**

**Hearing on “The Green Road to Economic Recovery”  
September 18, 2008**

**Testimony of  
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Dear Chairman Markey, Ranking Member Sensenbrenner, and Members of the Committee:

I am pleased to have the opportunity to testify today before the Select Committee on Energy Independence and Global Warming on the issue of “The Green Road to Economic Recovery.” My testimony today will highlight some of the main themes of the study “Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy,” that I authored along with three other colleagues at the Political Economy Research Institute of the University of Massachusetts-Amherst, Professor James Heintz, Heidi Garrett-Peltier, and Helen Scharber. Our study was commissioned by the Center for American Progress. They released the study last Tuesday, September 9.

I am a Professor in the Department of Economics and Co-Director of the Political Economy Research Institute (PERI) at the University of Massachusetts, Amherst. PERI is an independent unit of the University of Massachusetts, Amherst with close ties to the Department of Economics. Our purpose is to promote human and ecological well-being through our original research.

In my testimony, I would like to address six interrelated questions that you have posed to myself and Bracken Hendricks, my colleague at the Center for American Progress:

1. Do current economic conditions justify enactment of an economic stimulus package at this time?
2. How does investment in energy efficiency measures and renewable energy compare with providing direct tax credits to households or other alternative stimulus measures, in terms of domestic job creation, wage levels and related matters?
3. As between tax breaks for oil production and tax breaks for energy efficiency measures and renewable energy production, which is a more productive use of federal dollars from the perspective of economic growth and job creation?

4. What level of benefits are Americans likely to see in terms of energy savings as a result of near-term investments in energy efficiency and renewables?

5. Can investments in energy efficiency and renewables be done quickly enough to help jumpstart the economy?

6. What funding sources are available in the short- to medium term to fund an economic stimulus package?

For purposes of clarity and compression, I think it is useful to combine questions two and three into one question, that considers together the relative benefits of tax benefits for both households and oil production as against investments in energy efficiency and renewable energy.

***Question 1. Do economic conditions justify enactment of an economic stimulus package at this time?***

The short answer to this question is "yes." For the past year, the U.S. economy has suffered through a serious economic slowdown caused by the collapse of the housing market bubble, the destabilizing effects of the housing implosion on financial markets, and the sharp rise in oil prices.

As of August 2008, there were officially 9.4 people unemployed, producing an unemployment rate of 6.1 percent. This compares with an official unemployment rate of 4.7 one year ago. The situation is worse still when taking into account a labor market where people are working fewer hours than they wish, taking pay cuts, or becoming discouraged from looking for work.

Of course, in addition to these indicators of conditions for working people, we are still deeply enmeshed in a severe financial crisis that shows no signs of abating. As long as the financial crisis proceeds more or less as it has over the previous year, it will act as a drag on U.S. housing construction and the broader investment market. This in turn will serve as a strong headwind against any efforts to expand overall employment.

There will be many factors needed to reverse the financial crisis. One of them is for financial market participants to see fresh new areas for productive investment opportunities. The Green Recovery program that we have outlined relies first on measures to support private investments through tax credits and loan guarantees. These inducements to invest in the green economy will act as a significant counterweight to the severely unsettled investment climate generated by the financial market crisis.

*Questions 2/3:*

*2. How does investment in energy efficiency measures and renewable energy compare with providing direct tax credits to households or other alternative stimulus measures, in terms of domestic job creation, wage levels and related matters?*

*3. As between tax breaks for oil production and tax breaks for energy efficiency measures and renewable energy production, which is a more productive use of federal dollars from the perspective of economic growth and job creation?*

The focus of our study is to estimate the employment effects of a \$100 billion government investment program over two years. Overall, we found that a green investment expansion at this level will generate about 2 million net new jobs. We have developed our estimates based on the 2005 input-output tables compiled by the Bureau of Economic Analysis of the U.S. Department of Commerce.<sup>1</sup>

The program focuses on six key investment strategies—retrofitting buildings, expanding mass transit and freight rail, constructing smart energy grids, and expanding production of wind power, solar power, and next generation biomass fuel. In the table below, we list some representative occupations that will be needed to advance investments in each of these areas.

Together, this \$100 billion green energy stimulus package would result in:

- **Widespread employment gains.** Investments in these areas will produce employment opportunities across a broad range of familiar occupations—roofers, welders, electricians, truck drivers, accountants, and research scientists. It will also strengthen career ladders by providing pathways for workers to move up from lower paying to higher paying green jobs that can be created on a geographically equitable basis throughout all regions of the country.
- **Lower unemployment.** If this green economic recovery program were fully implemented in early 2009 and unemployment still stood at August 2008 levels, it would reduce the number of unemployed people to 7.4 million, down from 9.4 million, with the unemployment rate falling to 4.8 percent from 6.1 percent.
- **Renewed construction and manufacturing work.** Employment in construction fell to less than 7.2 million in August 2008, down from over 7.7 million in September 2006. Over the next two years, a green economic recovery program

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<sup>1</sup> Input-output tables are compiled by the Bureau of Economic Analysis. Every five years the Census Bureau gathers data (in its “Economic Census”) and the BEA uses these data along with information from other Census Bureau programs—including annual surveys that cover selected industries, such as manufacturing and services. The I-O tables also incorporate data collected and tabulated by other Federal agencies—including the U.S. Departments of Agriculture, Education, and Energy—and data from a number of private organizations.

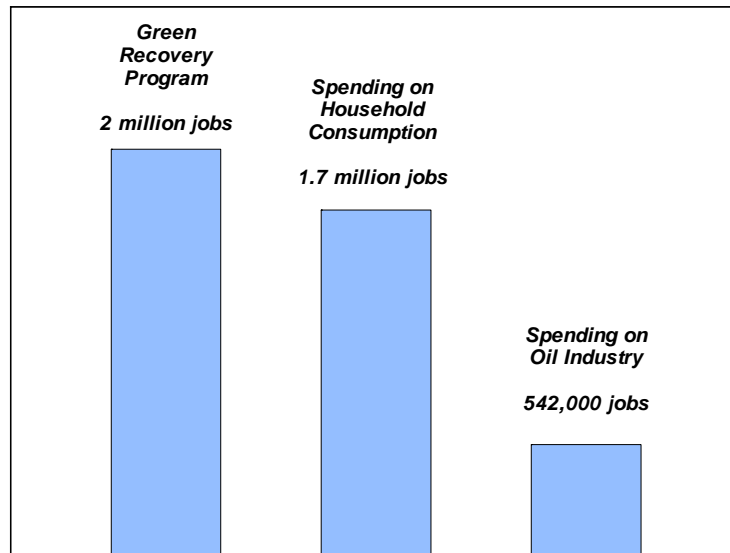
would replace, at least, those nearly 600,000 lost construction jobs and could result in renewed investment in the housing sector that is at the root of the current economic slump. This green recovery provides a needed transfusion of new credit and investment into the construction industry, which could rapidly provide job opportunities that are badly needed. Our program would have similar, if somewhat smaller, effects in supporting U.S. manufacturing.

We can use this same model to generate figures for the total job creation through alternative areas of spending, such as spending the same \$100 billion either within the oil industry or on household consumption. The focus of the April 2008 economic stimulus program, which sent tax rebates back to U.S. taxpayers, averaging around \$600 per household, was to generate more jobs by expanding household consumption.

An equivalent proposal to spend \$100 billion on new investments within the oil industry does not exist; however, current federal subsidies and incentives offered to the oil industry amount to an average of nearly \$9 billion annually (an average of \$6.6 billion in domestic incentives and \$2.2 billion in international subsidies). Additionally, some of the current legislative proposals in the U.S. Congress argue for increased domestic exploration and drilling as a solution to high gas prices.

As the graph on the next page shows, our green recovery program is an effective engine of job creation compared to spending the same amount of money within the oil industry or on household consumption. Increasing spending by \$100 billion on household consumption along the lines of the April 2008 stimulus program would create about 1.7

**Figure 1.  
Total Job Creation through \$100 Billion in Spending**



Source: U.S. Bureau of Economic Analysis (2006) and authors' calculations

million total jobs, or about 16 percent fewer jobs than the green recovery program. In addition to creating more jobs with a green investment program rather than increasing household consumption, targeting an economic stimulus program at increasing green investments also offers longer-term benefits: consumer savings by reducing home energy bills; stabilizing the price of oil, natural gas, and other non-renewable energy sources through reduced demand and increased energy diversity; and, of course, building over time a low-carbon economy.

Spending \$100 billion within the domestic oil industry would create only about 542,000 jobs in the United States. A green infrastructure investment program would create nearly four times more jobs than spending the same amount of money on oil energy resources. And again, spending on oil offers no benefits in transitioning the U.S. economy toward a low-carbon future, while perpetuating the economic and national security vulnerabilities by continuing to rely on oil for the lifeblood of our economy.

***Question 4. What level of benefits are Americans likely to see in terms of energy savings as a result of near-term investments in energy efficiency and renewables?***

This green economic recovery program would pay for itself relatively rapidly at the macroeconomic level through returns on energy efficiency in both the public and private sectors. Better insulated schools could spend more over time on teachers, books and other learning materials. Hospitals in time could spend more on direct patient care. And companies could invest more over the long term in new production and services facilities, raising productivity.

Within a short time period, public building retrofits have the most potential for operating at a large scale within a short time period. According to the most recent Commercial Buildings Energy Consumption Survey, there were about 21 billion square feet of building stock in the United States devoted primarily to education, government offices, and hospitals at the end of 2003. Working from these figures, the U.S. Green Building Council estimates that, on average, these buildings could be effectively retrofitted for a bit less than about \$1.40 per square foot. Retrofitting all of these buildings would therefore cost about \$29 billion.

Moreover, the average payback period for these investments would be about 5 – 6 years. The remaining investments in direct government green infrastructure spending—on mass transit and light rail and smart grid electric transmission systems—would reap similar macroeconomic returns over time as these investments stabilized oil prices through transportation diversification and energy efficiency gains.

Homeowners, too, would benefit over time from investing in green retrofits and other green investments. For the average U.S. homeowner, the Department of Energy has found that a \$2,500 investment in home retrofitting can reduce average annual energy consumption by 30 percent. As of 2006, the average household income was around \$60,000, and the average household spends about five percent of its income on household energy consumption. The five percent of total income going to energy amounts to \$3,000 per year. A saving of 30 percent of that \$3,000 total household energy bill would therefore amount to \$900 per year. We present these basic figures in Table 1 at the top of the next page.

**Table 1**  
**Annual Savings from Investment in Home Retrofit**

*Example is for Average Household, \$2,500 Retrofit*

Annual Household Income	\$60,000
Annual Household Energy Expenditures (5% of total income)	\$3,000
Potential Annual Savings from \$2,500 Retrofit (30% of current expenditure level)	\$900

Sources: U.S. Household Expenditure Survey; U.S. Energy Information Agency.

***Question 5: Can investments in energy efficiency and renewables be done quickly enough to help jumpstart the economy?***

The most obvious option for rapid green investment in communities is a large scale building retrofit program, which would rely entirely on known technologies such as high performance windows, efficient heating, ventilation and air conditioning systems, geothermal heating and cooling systems, efficient lighting and day-lighting, building-integrated photovoltaic-powered energy, and the installation of efficient appliances. Retrofitting can begin almost immediately on buildings of all sizes, in all regions of the country, and can provide short-term returns on the money being invested.

To achieve the most rapid and effective short-term economic recovery program through a program of building retrofits, the U.S. government should require the retrofitting of all public buildings, which could commence as soon as Congress appropriated the funds, and should include measures to ensure state and local government participation as well. Indeed, state and local programs to retrofit public buildings are already operating throughout the country, among them Minnesota's Guaranteed Energy Savings Program, Utah's State Building Energy Efficiency Program, California's Green Building Action Plan for State Facilities, and the Energy Efficiency Partnership of Greater Washington.

Public investment in expanding mass transit systems and freight rail networks in the United States could begin immediately in some areas but would take longer in others. In the mass transit arena, investments that could be pursued in very short order include, but are not limited to:

- Expanded bus and subway services

- Lower public transportation fares
- Expanded federal support for state and municipal transit operation and maintenance budgets to deal with increased ridership
- Increased federal subsidies for employer-based mass transit incentives
- Higher funding for critical mass transit programs currently bottlenecked for lack of federal dollars to encourage new ridership and more transportation choices.

Other areas, such as building light-rail or subway systems, will entail long lead times before a large amount of new hiring and spending occurs, but higher funding for existing mass transit and light rail projects would result in job growth in engineering, electrical work, welding, metal fabrication, engine assembly sectors.

Upgrades to our freight rail through public investment would also yield some immediate job gains in similar professions, creating substantial employment through both construction and operations, alongside a down payment on more job creation over two years through improved maintenance and expansion of services. Existing federal programs through which these investments could be made quickly include expanding federal support and underwriting for freight rail infrastructure and rural economic development programs.

Some smart grid investment projects, which entail combining advances in information technology with innovations in power system management to create a significantly more efficient distribution system for electrical energy, are already in planning stages around the country. Though a green economic recovery program the U.S. government could deploy swift federal government support for these pilot projects.

In our three renewable energy areas—wind, solar, and next-generation biofuels — public- and private- sector investment growth is already picking up pace, with renewable energy technology supporting sustained double-digit rates of growth nationwide. Yet an unstable policy environment and the lack of long-term incentives have hurt the investment climate for these technologies, preventing them from realizing even greater growth. With sufficiently generous and stable federal tax incentives and credit subsidies, significant new private-sector investment would flow naturally and quickly into these three renewable energy arenas.

***Question 6: What funding sources are available in the short- to medium term to fund an economic stimulus package?***

We propose that the green recovery program be initially financed primarily through a \$100 billion fiscal expansion, temporarily increasing the level of federal deficit spending targeted specifically to underwrite a green investment program. We propose that the increase in government spending include three sources of new investment funds:



- **\$50 billion for tax credits.** This would assist private businesses and homeowners to finance both commercial and residential building retrofits.
- **\$46 billion in direct government spending.** This would support public building retrofits, the expansion of mass transit, freight rail and smart electrical grid systems, and new investments in renewable energy
- **\$4 billion for federal loan guarantees.** This would underwrite private credit that is extended to finance building retrofits and investments in renewable energy.

The funds for the green recovery program would come directly from the U.S. Treasury, but a high proportion of the \$100 billion would be channeled down to state and local governments, which administer many of the programs we described earlier in this study, and to the private sector through tax credits and loan guarantees.

To serve effectively as an economic recovery program, government spending and tax incentives to boost green infrastructure investments would have to be financed primarily by increasing the fiscal deficit. An important additional source of funds would come through eliminating the nearly \$9 billion in federal subsidies and incentives now provided annually to the oil industry.

Over time, these expenditures would be covered primarily by the implementation of a carbon cap-and-trade program, which would provide the revenues needed to pay for the U.S. transition to a low-carbon economy. But in the short-term, we have demonstrated that frontloading these green investments makes sound economic and environmental sense.

At the end of fiscal year 2007, on September 30, 2006, the federal government's annual fiscal deficit stood at \$162 billion, but with the economy slowing in 2008 this figure inevitably rose sharply, to \$389 billion in fiscal 2008, according to the Office of Management and Budget's *Mid-Session Review*. The OMB estimated in July 2008 that the 2009 fiscal deficit would rise further, to \$482 billion.

The United States cannot run a reckless fiscal policy no matter how pressing the country's social and environmental needs. But it is important to keep these deficit figures in perspective. The current deficit figure is certainly a matter of concern, but measured as a percentage of GDP the federal deficit today is manageable as part of a responsible long-term plan. And as long as the economy remains in a slump, the primary problem is not the size of the federal deficit but how money is being spent.

Investing funds in a green economic recovery program that is capable in the short run of creating jobs, dampening upward pressure on oil prices, and moving our economy significantly toward a clean-energy economy is a responsible investment of taxpayer money in our present circumstances. Our proposals for financing this short-term green

recovery program through future cap-and-trade revenues are both realistic about current conditions and responsible about facing longer term fiscal challenges.

## **Conclusion**

The full report my colleagues and I have written, *Green Recovery*, outlines a program that could create about two million new jobs within the U.S. economy over two years.

To create two million new jobs within two years, the overall level of fiscal expansion will need to be around \$100 billion, or roughly the same as the portion of the April 2008 stimulus program that was targeted on expanding household consumption. This green economic recovery program can create more jobs and better paying jobs than what we can expect through a household consumption-led stimulus. If fully implemented, the green recovery program would push the unemployment rate down to 4.8 percent from 6.1 percent if August 2008 labor market conditions were to persist.

Of course, labor market conditions will change in the coming months, no doubt in some unexpected ways. Nevertheless, whatever else may change about the U.S. economy over the near term, we can be certain that the green economic recovery program will serve as a strong counterforce against pressures that currently are pushing unemployment up as well as more broadly increasing economic disparities. By supporting a whole new terrain for long-term productive investments within the U.S. economy, this program can also buttress other policy initiatives to stabilize our financial markets. Finally, of course, this green investment proposal also makes significant long-term advances toward creating the green, low-carbon economy that we need.