

**Prepared Testimony of  
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before the  
Subcommittee on Oversight and Investigations  
Committee on Energy and Commerce  
United States House of Representatives  
  
Hearing on the Federal Green Jobs Agenda  
June 19, 2012**

Mr. Chairman and Members of the Subcommittee:

I am honored by your invitation to appear today to testify on the Federal Green Jobs agenda. I am Senior Vice President of NERA Economic Consulting, and my work for over 40 years has addressed economic issues in energy and environmental policy. I have published many papers in peer-reviewed journals dealing with design and economic impacts of those policies, and I was honored by the Association of Environmental and Resource Economists with their 2004 award for a “publication of enduring quality.” I taught environmental economics at the California Institute of Technology and economic theory at Caltech and Stanford University. My testimony today will address the question of whether it is possible to create new jobs by issuing more regulations, mandating or subsidizing the introduction of uneconomic “green” technologies, and relabeling existing jobs as “green.” My statements in this testimony represent my own opinions and conclusions and do not necessarily represent the views of other consultants at NERA.

**Introduction**

A recent report from the Bureau of Labor Statistics describes employment “in businesses that produce goods and provide services that benefit the environment or conserve natural resources.” It concludes that “GGS jobs accounted for 2.4 percent of total employment in 2010. The private

sector had 2.3 million GGS jobs and the public sector had 860,300.”<sup>1</sup>

Several points are striking. Since this calculation is based on classifying industries as producing “green” goods and services, it includes jobs that exist because of normal market demand for such goods and services as outdoor recreation and organic produce as well as those that are attributable to government “green jobs” programs. Thus the numbers do not tell us anything directly about claims that environmental regulations and energy technology mandates, subsidies and incentives have or will create large numbers of new jobs. Although many public sector jobs were involved in provision of public goods like national parks, almost 300,000 of the state and federal jobs were in the administration and enforcement of environmental regulations. The report itself notes that this was the largest single category.

The report is presented as a simple statement of numbers, but their meaning is subject to a great deal of interpretation. Therefore, I would like to address several potential misinterpretations before they become too firmly entrenched in readers’ minds.

The most misleading interpretation would be to leap from the statement that green jobs represented 2.4% of public and private employment in 2010 to the conclusion that unemployment would have been 2.4 percentage points higher without green jobs. Nothing could be further from the truth.

Like other green jobs studies that claim to estimate jobs created by specific government programs, the report does not address the question of what the individuals counted in the BLS report would have been doing if it were not for government energy and environmental programs and regulations. It is clear that many would have been doing exactly the same thing, because all the BLS study does is relabel existing jobs.

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<sup>1</sup> BLS News Release, Thursday, March 22, 2012 USDL-12-0495

But some of the activities cited in the BLS discussion of its data exist for one or more of these reasons:

- Regulatory programs that mandate installation of pollution control equipment or other investments and operating costs to reduce emissions or energy use
- Mandates, subsidies and other incentives to produce and use energy sources classified as “Green”
- Increased employment in government agencies and contractors to write and administer regulations or provide services classified as “Green”

A number of studies of green jobs released over the past few years would have us believe that these governmental actions and activities do cause net increases in employment and offer that as a rationale or defense of their adoption.

I have discussed examples of green jobs studies in previous testimony,<sup>2</sup> and my conclusion in each case was that the job estimates told only half, or less, of the story. In this testimony I mention some key points from those discussions and cite two additional examples, one taken from testimony in a hearing on Green Jobs held by a Senate subcommittee last year and one from the Regulatory Impact Analysis for the MATS rule just issued by EPA.

What is common to all these claims of job growth due to government regulation and subsidization is that they leave out of their calculations all the jobs lost in the rest of the economy because of regulatory costs and higher energy costs.

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<sup>2</sup> R. Pollin, H. Garret-Peltier, J. Heintz, and H. Scharber, “Green Recovery,” Political Economy Research Center and Center for American Progress, September 2008 and J. Heintz et. al., New Jobs - Cleaner Air: Employment Effects Under Planned Changes to EPA's Air Pollution Rules, Ceres and PERI, February 2011.

## What Is Wrong with Green Job Studies?

The critical error in calculations of green jobs created by regulation, subsidies or mandates is their failure to balance the jobs lost in the rest of the economy against those that may be gained as a result of the specific projects or expenditures in the studies. For example, in testimony last year before Senate Environment and Public Works Committee's Subcommittee on Green Jobs and the New Economy, a representative of the UAW<sup>3</sup> claimed that

“...the regulation of mobile sources has been a “win-win” that results in greater oil independence for our nation; a cleaner, healthier environment for ourselves and our children; and an increased number of jobs in the auto sector. The simple equation for understanding how this job creation occurs is that the new technology required to meet tailpipe emissions standards represents additional content on each vehicle, and bringing that additional content to market requires more engineers, more managers, and more construction and production workers.

What her statement leaves out is the conclusion of every study of these standards, including those done by EPA, that past tailpipe emission standards imposed a net cost (even after their claimed health benefits are taken into account) on the economy.<sup>4</sup>

There is no paradox in the observation that a regulation that increases jobs in one industry can impose net costs on the economy as a whole. They are one and the same thing. More “content” and more labor hours required for each vehicle produced raise the cost of the vehicle. Any jobs created in the auto industry come directly from the pockets of consumers who must pay those higher prices for new vehicles. Moreover, unlike design changes that respond to consumer demand,

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<sup>3</sup> Barbara Somson, Legislative Director, International Union, United Automobile, Aerospace & Agricultural Implement Workers Of America (UAW) on the subject of Clean Air Act And Jobs before the Senate Committee on Environment and Public Works Subcommittee On Clean Air and Nuclear Safety And the Subcommittee on Green Jobs and the New Economy United States Senate March 17, 2011

<sup>4</sup> The Benefits and Costs of the Clean Air Act from 1990 to 2020 - EPA Washington, D.C., March 2011; Prepared Testimony of W. David Montgomery, Ph.D. before the Subcommittee on Clean Air and Nuclear Safety and Subcommittee on Green Jobs and the New Economy Committee on Environment and Public Works United States Senate Hearing on Clean Air Act and Jobs March 17, 2011.

this added cost does not improve the transportation services or amenities provided new cars in any way. (Indeed, many of the cumulative tailpipe emission standards degraded performance and imposed additional costs on consumers over and above the increase in sticker prices). As Ms Somson pointed out, the purpose of the standards was to improve air quality: whether they represented a win-win depended entirely on whether the health benefits of the tailpipe standards outweighed their out of pocket costs to consumers.<sup>5</sup> Setting standards purely for the sake of saving consumers money assumes that regulators have better insight into consumer preferences and superior ability to forecast future oil prices, and thus are entitled to impose their views on entirely private choices of consumers.

Ms Somson also failed to mention the other counterproductive effects of standards applied to new vehicles – by raising prices of new vehicles they reduce sales and delay turnover of the fleet, which has been the most effective mechanism for reducing total fuel consumption and emissions – and by forcing changes in size and design of vehicles that have reduced the value to consumers of the vehicles for which they pay higher prices. Thus it is not even a zero-sum game between consumers and auto workers – the cost imposed on consumers by emission and fuel economy standards for vehicles is larger than the benefit to auto workers. So even as a welfare program for auto workers, these standards are inefficient compared to straight transfers of cash.

There is a paradox in this example. Ms Somson did recognize that “... greater fuel efficiency allows consumers to spend less on fuel, which frees up that money to be spent on other goods and services.” That, of course, is the point that needs to be investigated – where does the money come from? Thus Ms. Somson was right on the general point but has the direction wrong – when

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<sup>5</sup> In my earlier testimony, I discussed how the EPA’s own analysis (Benefits and Costs of the Clean Air Act, 2011, op cit) reveals that the tailpipe emission standards for ozone did not provide benefits greater than their costs.

regulations increase the total cost of buying and using a vehicle, consumers have less money to spend on other things, scarce resources of labor and capital used to produce more costly vehicles are not available to produce other things, and overall the productive potential and real output of the economy are reduced. And since unlike fuel economy standards, tailpipe emission standards provide no compensating savings in auto operating costs whatever, they are also a net cost to the economy.

EPA also has estimated job benefits by using a one-sided calculation of only the jobs required to comply with its regulations. I have taken a description of the EPA analysis from a study done by my colleagues at NERA.<sup>6</sup>

The consequences of the MATS Rule are not just limited to the electric sector. The electric sector has to invest significant capital to comply with the MATS Rule. This capital and other added spending for compliance will induce lower industrial output (because the cost of power, natural gas, and other commodities will increase) and hence drive down income for workers. Although the investments also will create jobs installing the retrofits and building new power plants, the net effect of complying with the MATS Rule will be an increase in the costs of electricity and natural gas, and will produce a drag on the economy as a whole. EPA did not evaluate the MATS Rule using a macroeconomic model so they could not produce a net impact on jobs; instead they cited an estimated 46,000 short-term jobs and 8,000 long-term utility jobs created.<sup>7</sup>

Similar calculations of job benefits of air regulations affecting electric utilities were done by the Political Economy Research Institute.<sup>8</sup> Any study that estimates only the jobs created by a policy is grossly misleading. PERI's study at least tries to work around this truth by mentioning the loss of a small number of jobs associated with operation of retired coal-fired powerplants, but these are the smallest part of the story. Why PERI did not include the decline in coal production and coal mining employment that goes along with replacing coal-fired generation with other energy

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<sup>6</sup> Dr. Anne E. Smith, Dr. Paul Bernstein, Scott Bloomberg, Sebastian Mankowski, and Dr. Sugandha Tuladhar An Economic Impact Analysis of EPA's Mercury and Air Toxics Standards Rule 1 March 2012

<sup>7</sup> Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards, p. 6-1.

<sup>8</sup> PERI 2011, op. cit.

sources is a mystery. But this too is only a small part of the story. The important story is that consumers will have less real income to spend, because of increases in the cost of electricity and of all other goods that are produced by means of electricity. Worker productivity will rise more slowly, as investment is diverted away from productivity-enhancing investments, so that wages that employers can afford to pay will fall relative to what they otherwise would have been.

Energy-intensive U.S. industries will lose market share to overseas industries not subject to these requirements, and will therefore shrink in size. These impacts will lead to job losses in all the rest of the economy, as the effects of more costly energy ripple through the economy.

NERA's analysis of the rule used a comprehensive model that embeds the electric sector in the entire economy that incorporates all these effects, and accounts for the labor and capital resources used to retrofit existing powerplants and build new ones to replace those forced to retire. The effect of requiring these compliance investments, which create no net increase in electricity generation, is to divert capital away from other, productivity-enhancing investments. As a result, labor productivity is reduced and total worker compensation falls. The return to capital investment also falls, since the same total amount of investment is producing fewer marketed goods and services (the same amount of electricity and less of everything else). When these two sources of income fall, and there is no offsetting increase in national income from other sources – such as an increase in the value of exports and a favorable movement in the terms of trade – GDP and total real personal income must also fall.

The green jobs studies only recognize the first category of effects, counting only the number of jobs directly involved in those construction activities and sometimes the “indirect” jobs created in industries supplying components and materials. Any comprehensive analysis must ask the question

of where these resources come from, and when that question is asked the task becomes one of determining whether the activity from which the resources are drawn in producing greater or less value than that to which the resources are assigned.

In order to shed some light on this issue, our practice at NERA is to characterize the net change in wage income throughout the economy in terms of “job equivalents.” That is, we divide the total reduction in wage income nationwide by average compensation per worker to indicate how many workers at the average wage it would take to earn this much income. This calculation is intended only to indicate the magnitude of labor market impacts in terms that are comparable to the job gains or losses in other studies, and it shows in the case of the MATS rule that the likely change in labor compensation is large compared to the job gains estimated by EPA.

### ***Technology mandates and subsidies***

Thus far, I have discussed how claims that regulations create additional jobs in the economy are invalid, principally because they fail to account in any way for the jobs lost elsewhere in the economy. The same is true of studies that allege job benefits from mandates, subsidies and other incentives like loan guarantees to promote specific energy technologies. These studies have exactly the same problem, in that they add up the jobs involved, for example, in producing and installing wind generators and the components and raw materials that go into them (they also tend to make the factual error that the generators, components and raw materials will be produced in the United States, which they generally are not). In the process, they lose sight of the fact that these resources – labor, capital, and materials – are no longer available for producing other goods and services. And when the energy sources supported by mandates and subsidies require more resources to produce the same number of Btus of energy than existing alternatives, the net effect of replacing

less costly energy with more costly is to reduce the resources available for producing other goods and services. The higher cost of favored form of energy may be concealed from consumers by means of subsidies and tax breaks, but the cost simply reappears elsewhere in their budgets – most often in the form of higher taxes now or in the future to pay for the government’s support of uneconomic technologies.

Although there may be the same number of workers employed either way, the net result of diverting resources to produce the same thing in more costly ways is that the economy will be producing less goods and services and real personal income will fall. Thus studies of job creation through programs to create “green industries” and a “new economy” suffer from exactly the same problem of telling only half the story.

There is a way to reach the conclusion that regulations and subsidies can improve the performance of the economy, and that is to assume it. Some studies, though not typically “green jobs” studies that look no further than the “green” activity, do start with the assumption that consumers and businesses are not capable of making decisions that are in their own economic interest – including studies that claim fuel economy standards will make consumers better off by forcing them to purchase higher levels of fuel economy justified by official government forecasts of gasoline prices and new vehicle costs.

The problem with this assumption is that there is no clear evidence that consumers do make erroneous choices, only that simple engineering models of the cost of vehicles do not take into account all the attributes that consumers value. And there is overwhelming evidence that

government forecasters have never gotten future fuel prices right, and fuel economy standards take away from consumers the option of basing purchases on their own diverse opinions.

***Jobs not a good measure of economic benefit***

Any analysis that aspires to be objective must take into account the extent to which “green jobs” are offset by the number of other jobs that the regulations would destroy elsewhere in the economy or from which workers would be diverted into activities supported by technology subsidies and mandates. Calculating these “net” jobs accurately is frustrated by the problem of how "jobs" are counted. There are many different kinds of jobs, with different skills, working conditions, and most importantly pay.

The entire job debate is confused by the lack of a clear definition of a “green job,” and the BLS report furthers that confusion. For example, how would one classify a job supporting coal-fired power with carbon capture, or nuclear generation? The indirect jobs contained in the PERI calculations and in the BLS report include, for example, steel workers producing materials that go into pollution control equipment and turbines. But when a slab comes out of a steel mill, it could equally well be fabricated into a part for a scrubber or a part for a coal-fired boiler. So when investment switches from building new coal- fired powerplants to building scrubbers, some number of steel workers find themselves in "green jobs" even though no one is doing anything different in the mill (and some lose their jobs because of higher energy costs and foreign competition). Regardless of these definitional concerns, however, the fact remains that workers in aggregate will face lowered earnings potential under a policy that pulls investment away from expansion of capacity to produce final goods and services and raises energy costs. The net effect of lower productivity also ultimately translates into overall losses in average

household spending power, and into reductions in GDP relative to what they would be if no such policy were in place.

Talk of "jobs" diverts attention from the important problem of how much workers earn to a largely irrelevant activity of counting heads. The question that we address in NERA's modeling of economic impacts is whether the balance of the many economic effects of EPA regulations is to increase or decrease total labor income in the United States, and the answer is that total labor income will decrease.

### *Net versus direct jobs*

Misleading studies that leave out the opportunity cost of resources devoted to a specific project have been around for a long time. A respected regional economist<sup>9</sup> has pointed out that proper use of such models requires that both the positive and negative impacts of a proposed policy must be addressed. He gives an example of how looking only at positive impacts biases the results to find that any government expenditure will create additional jobs. A study by KPMG found that expanding a Chicago convention center would create a net 6000 new permanent jobs. When an academic economist redid the study using all the same assumptions as KPMG except for taking account of jobs displaced by the expansion and increased local taxes to pay for the project, she found a net loss of 348 jobs. Mills points out that the most common mistake in these job studies is assuming that the project is paid for by money from outside the region where it is built. He comments that "the zero-sum character of outside money multipliers should be taken into account in federal spending programs" because payment for those projects comes from within the U.S. economy. PERI and EPA make the same error by examining only industries that receive the orders for pollution control and new generating equipment and ignoring where the investment

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<sup>9</sup> Edwin Mills, "The Misuse of Regional Economic Models," *Cato Journal*, XII:1, 1993.

comes from and how other industries are affected.

### *The Luddite Fallacy*

There is another basic fallacy in chasing down which industry has the highest number of jobs per dollar of output, as in PERI's claims that energy efficiency has 2.5 times as many jobs per dollar as oil and gas. I call it the Luddite fallacy, remembering the radicals during the early industrial revolution in England who went around smashing machines because of their belief that machines put laborers out of work. What we have learned over the ensuing two centuries is that capital deepening – increasing the amount of capital per worker – is a major driver of economic growth and of increasing productivity, and that having more output per worker is the reason that living standards of workers have risen so dramatically in the past 100 years. Indeed, we measure productivity increase as the rate of increase in output per worker.

Studies like those done by PERI conceal their glorification of low labor productivity by talking about favoring industries that employ more workers per dollar of output. But driving the economy toward industries with more workers per dollar of output is a choice to favor industries with lower labor productivity over industries with greater labor productivity. Reducing average labor productivity translates directly into lower output and slower economic growth, since the basic equation for economic growth is that growth in income is the product of the rate of increase in labor productivity times the rate of growth in the labor force. Moreover, since wages are set by the marginal productivity of labor, shifting to industries with lower labor productivity leads directly to lower wages per worker.

Jobs are simply not a relevant measure of economic benefits. Indeed, the more workers it takes to produce something, the more it will cost and the less of it the nation will be able to afford.

There is an opportunity cost to diverting the labor force to producing pollution control equipment and replacing useful electric powerplants. Labor is a scarce resource and diverting labor to less productive activities harms workers first, by causing wages to fall, and further limits what the economy overall can produce.

### **Conclusion**

In content, the BLS study is a mere curiosity, a feel-good report that some businesses are doing nice things, but it could be misused in misleading ways to support the completely erroneous conclusion that environmental regulations and energy subsidies are a cure for unemployment. My proposed remedy for this, and many other confusions created by the great Green Jobs debate, is that all economists should adopt a self-denying resolution, to refuse ever to produce an estimate of job gains or losses for any change in regulatory or technology policy. The quality of public debate would be immensely improved if we simply dropped this way of measuring effects of specific policies.