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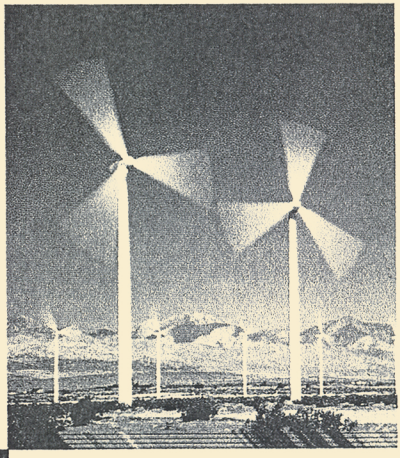
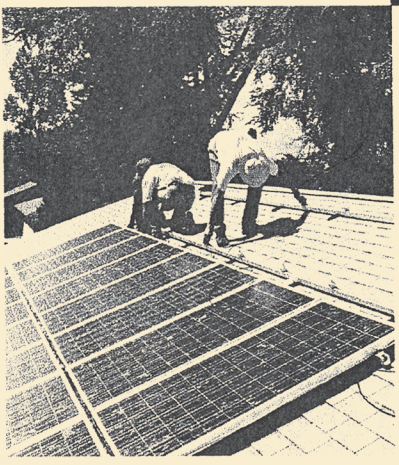
NEW SOLUTIONS

A Journal of Environmental and Occupational Health Policy

Green Jobs, Green Recovery





Special Issue

Selected presentations and related documents from the **2009 Good Jobs, Green Jobs** conference

Coordinated by the Blue Green Alliance, United Steelworkers, and the Sierra Club

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NEW SOLUTIONS AND THE BLUE GREEN ALLIANCE—GOOD JOBS, GREEN JOBS CONFERENCE

New Solutions was established by the late Tony Mazzocchi, renowned leader of the Oil, Chemical, and Atomic Workers Union and a pioneer in the effort to join the labor and environmental movements, and by Charles Levenstein of the University of Massachusetts Lowell, a leading work environment policy researcher. The journal was formed to meet the task of "building bridges between the environmental and labor movements." *New Solutions* has not only identified conflicts between these movements, but has sought to promote a dialogue about the contradictions that shape the context of our efforts to establish ecologically sound, just, and healthy and safe modes of production and consumption. We seek new solutions that are historically and scientifically grounded and can be realistically pursued to establish a sustainable future.

We are delighted to present, in collaboration with the Blue Green Alliance, this special issue of selected speeches and presentations from the second Good Jobs, Green Jobs National Conference held in Washington, D.C., February 4-6, 2009—and from related activities before and after the event. The conference brought together nearly 3,000 labor, environmental, and business advocates to forge an agenda for the new and green economy. Since most of the pieces selected for this issue of *New Solutions* were presented at the conference, they belong to our Movement Solutions, Comment and Controversy, Documents, and Voices sections. For that reason, we have not conducted peer review prior to their publication and instead have relied upon the pre-conference selection and review process. We also have decided to use the author byline to identify author photos at the beginning of a piece. We invite everyone who is reading *New Solutions* for the first time with this issue to become involved in the journal as subscribers, readers, and authors.

The leaders and activists contributing to this issue provide a set of ideas and concepts for a "green recovery," "green new deal," and "green economy"—terms

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chosen to frame a broad program to address the national and international crises resulting from destructive modes of production and consumption and failures to commit to socially just distributions of wealth and resources. We hope that the concepts presented here open a new and dynamic period in the dialogue about environmental and occupational health policy that *New Solutions* has long promoted.

Will green jobs be for some or for all workers? Will it be a national or an international effort? Will we use a "New Green Deal" to fix the global economy's current crisis and can we use this moment to shift our modes of production and consumption to avert the worst consequences of global warming and end human poverty? Green has so many definitions that often it lacks meaning. But one thing is clear: green is not where we are now and making the transition to that green future is going to require deep commitment to justice, speaking truth to power, and collaboration across movements.

We hope that *New Solutions* can continue to be a forum to critically assess our success in defining and making those commitments.

Editors: Craig Slatin, Beth Rosenberg, and Eduardo Siqueira

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The Blue Green Alliance (BGA) is a national partnership of labor unions and environmental organizations dedicated to expanding the number and quality of jobs in the green economy. Launched by the United Steelworkers and the Sierra Club in 2006, BGA has since grown to include the Communications Workers of America, Natural Resources Defense Council, Laborers' International Union of North America and Service Employees International Union—uniting more than six million people in pursuit of good jobs, a clean environment and a green economy. BGA is also a grassroots partner in the Alliance for Climate Protection, founded by Vice President Al Gore.

BGA thanks its six partner organizations for their tireless commitment and its six partner organizations for their efforts to coordinate the Good Jobs, Green Jobs conference. BGA also acknowledges the support and contributions of all of the funders, sponsors, and conveners of the 2009 Good Jobs, Green Jobs event.

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and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada.

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NEW SOLUTIONS, Vol. 19(2) 109-118, 2009

GLOBAL WARMING SOLUTIONS AND THE PATH TO RECOVERY

DAVID FOSTER
Executive Director, Blue Green Alliance

ABSTRACT

We will look back on the last year as a period when extraordinary economic events marked the unraveling of one economic model and placed in front of the global community a set of choices. Either we restructure the architecture of the global economy and replace it with something else, or we face a future of devastating economic consequences. The Blue Green Alliance has become one of America's leading advocates for global warming solutions and we believe that the benefits and economic opportunities will far outweigh the costs. We have popularized the terms "green economy" and "green jobs" and we believe that every job in America should turn into a green job.

Originally, I thought the name Blue Green Alliance was self-explanatory: "blue" for blue-collar workers and "green" for the environment.

But when we launched the project three years ago, we conducted a couple of focus groups to guide us in how to present our organization to the public. We asked a sample of suburban women in Minneapolis to tell us what the name meant to them—without hearing any further description. As a group, they

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Nearly 3,000 activists and leaders participated in the 2004 Good Jobs, Green Jobs Conference.

decided it must be an outdoors group that cared about blue sky and green grass. And when we asked them what they thought about the name of our newsletter at the time, "Green Labor," they wrinkled up their noses and said, "Why would you want to write about "morning sickness?"

Upon hearing that the Blue Green Alliance was a partnership between the United Steelworkers, the country's largest diversified manufacturing union, and the Sierra Club, the nation's oldest and largest environmental organization, they were really surprised. And the two most common words they used to describe us were "unusual" and "hopeful."

Since we launched the Blue Green Alliance, we've expanded to become a partnership of four major unions—now including Service Employees International Union (SEIU), Communications Workers of America (CWA) and the Laborers International Union of North America (LIUNA)—and two national environmental organizations—now including the Natural Resources Defense Council (NRDC). Combined, our partners represent more than six million members and supporters, touching virtually every community in the country.

We have become one of America's leading advocates for global warming solutions and we believe that the benefits and economic opportunities will far outweigh the costs. We've popularized the terms "green economy" and "green jobs" and we believe that it should be our goal to turn every job in America into a green job.

This journal presents selections from the February 2009 *Good Jobs, Green Jobs* conference in Washington DC and from speeches, testimony, and writings at related events. It is intended to document some of the remarks made at the event and some additional materials that flowed out of it. It is not comprehensive—unfortunately, we can only publish so many pages, and some of our speakers spoke extemporaneously, without any written text. We also had to excerpt other presentations. But we hope it captures the excitement of being in the right place at the right time. During the three-day conference, nearly 3,000 labor, environmental, business, and academic leaders and activists strategized about how we might best solve both the economic and climate crises we face and put Americans back to work.

At the same time, across town on The Hill, Congress vigorously debated the President's plan for large-scale public investment in green jobs.

Timing may not be everything, but in early February 2009, it meant a lot for those of us working within the movement for green jobs to be in the nation's capital, at the red hot center of our national debate over the biggest investment ever made in clean energy, green technology, mass transit and our 21st-century infrastructure. So, enough by way of introduction.

I'd like to try to provide some context for the wide-ranging contributions you will read in this journal. I recently heard the following disconnected news snippets at roughly the same time. First, that "capacity utilization" in the steel industry—the percentage of the industry that's actually operating—has now fallen below the lowest level of operations since the depths of the Great Depression. Second, that the city of Pontiac, Michigan, once a marquee auto town, announced it was laying off its entire public school teaching force, including 774 teachers and support staff. There was no money to pay any of them. And third, it was reported that the newly elected leader of the Republican Party, Michael Steele, said this about global warming during a radio interview: "We are cooling. We are not warming. The warming you see out there, the supposed warming—and I am using my finger quotation marks here—is part of the cooling process. Greenland, which is now covered in ice, was once called Greenland for a reason, right?"

These three points illustrate some important truths about the times we live in. First, in the steel industry and in manufacturing in general, we need to recognize the really severe nature of the economic crisis that is enveloping us—perhaps far more serious than the Great Depression. Second, in cities like Pontiac, we are seeing just how rapidly and thoroughly the social compact on which our nation is based can fall apart. And third, with Michael Steele—what can I say? His comments demonstrate how ill-equipped our political institutions are to fashion a consensus when faced with an overarching moral and economic crisis.

We will look back on 2008 as a period when an extraordinary series of economic events marked the unraveling of one economic model and placed in

front of the global community—and that includes each of us—a set of choices. Either we restructure the architecture of the global economy and replace it with something else or we face a future of devastating economic consequences.

2008 was the year that saw oil prices reach $145 per barrel and then drop to $38 per barrel less than six months later. 2008 brought an end to the so-called "green revolution," the agricultural revolution founded on oil-based fertilizers that since the 1980s promised to end world hunger through "modern" methods of farming. It was a year of skyrocketing food shortages in which food prices suddenly tracked the oil prices on which agriculture has become dependent for both fuel and fertilizer. And it was a year in which food riots suddenly swept across parts of Asia and Africa. 2008 was the year in which scientists noted that a majority of the world's fisheries were now in collapse and could no longer provide the primary source of protein to more than one billion inhabitants. And 2008 was the year in which water shortages were suddenly described as endemic and expected to produce 300 hundred million water-stressed people in Africa in the next 10 years and one billion in Asia in the next 30. Desertification is also on the rise with an area the size of Nebraska turning into desert every year while simultaneously we destroy forest 10 times the size of Connecticut.

And to cap off the accomplishments of 2008, we discovered that our entire financial system was gorged with debt, with supposedly blue-chip investment banks leveraged at ratios of 30 to one.

Future generations will look back and ask how we ever thought such a lifestyle and such an economic order was sustainable. Or as Vice President Gore said recently, "We're borrowing billions from China to buy oil from the Middle East to burn in ways that are destroying the planet. Every bit of this has got to change."

But what does it mean "to change every bit of this?" For instance, take our relationship with China. A year ago, the U.S. had a $400-billion trade deficit with China. And as a result China holds more than $1.6 trillion in U.S currency reserves. In other words, lending U.S. consumers billions of dollars so that we can continue to buy hundreds of thousands of flat screen TVs, shopping malls full of discount clothing, and an endless supply of throwaway appliances and gadgets. China today is workshop to the world with more than 40 percent of its economy devoted to manufacturing. In fewer than 10 years, it expanded its steel industry from 100 million tons per year (the size of the U.S. industry) to 400 million tons—nearly half the world capacity. And it managed in that same 10 years to overcome the U.S. as the leading source of greenhouse gas emissions in the world. During that period, while manufacturing soared in China and consumption of Chinese manufactured goods skyrocketed in the U.S., more than three million U.S. manufacturing jobs disappeared, re-emerging all over the world, from Tijuana to Tientsin.

Typical of the millions of manufacturing jobs that left the U.S. to relocate to China were the jobs of the Etch-a-Sketch workers in Bryan, Ohio, who made

that iconic childhood toy. The cost of labor got too high, the parent company said—even though they were only paying $10-12 an hour, but they did provide company-paid health insurance and a pension. But, according to the company, they had to keep the cost of an Etch-a-Sketch to below $10 so they could be competitive at Wal-Mart with other Chinese manufactured toys. So they closed the plant and off they went to Guangzou Province.

The *New York Times* ran a series in 2005 about what happened to Etch-a-Sketch. Here's what they found. By moving to China, the company saved more than 20 percent on production costs. But with lower productivity in China and higher transportation costs, the only way they could realize these savings was by breaking Chinese labor law and by paying less than the Chinese minimum wage. And they refused to pay workers legal overtime for 84-hour weeks. They also refused to pay legally required health insurance or contribute to legally required retirement programs. Only by breaking Chinese labor law—such as it is—could they make this proposition work.

So the current incentives in the global economy reward—even demand—a race to the bottom, destroying modest, but decent jobs in places like Bryan, Ohio, and replacing them with jobs that undercut even the minimum standards set by the Chinese government.

And what has our current model of globalization done to the environment? In a word, the same thing it's done to labor. It's sparked an absolute race to the bottom. And a race of such magnitude that today China is the world's largest polluter of greenhouse gases and is fueling its economic development by building a new coal-fired power plant every week. Today, the current increase in pollution in California is caused not by activities in that state, but from Chinese sources blown across the Pacific.

To "change every bit of this" means that the economic incentives to create and distribute wealth in the world economy have got to be fundamentally altered.

So what are the fundamental incentives that are missing from the global economy? And what are the primary initiatives that we need to take to get us out of it? And, finally, what are the structural reforms that we need to head in a different direction?

Since President Obama came into office, we've made some steps in the right direction. First and foremost, he connected the dots between our environmental, economic, and energy crises. Global warming, economic recession, and energy shortages and price volatility are inextricably linked. We can't solve a single one of these problems by themselves. They will be solved together or not at all.

The recent American Recovery and Reinvestment Act devoted more than $100 billion to "green" initiatives, committing us to tripling our supplies of renewable energy, expanding high-speed rail, building renewable energy equipment, investing in broadband, the Smartgrid for electrical transmission, and a host of other new technologies. All these were very good, but they were only a down payment on the green economy.

And like all down payments, this one will be squandered if we don't move rapidly to pay the next installments.

This means that in 2009 we need to do several specific things. First, we need to pass a federal Renewable Electricity Standard mandating that 25 percent of our electricity is produced from renewable sources by 2025. Second, we need to pass a federal Energy Efficiency Resource Standard, guaranteeing that we make the same energy savings that already exist in most European countries who consume energy at one-half the per capita rate that we do. Third, we need to reauthorize the Transportation Act—it comes up every five years—but this time we need to pass a big, green transportation bill that shifts us toward big investments in mass transit and high-speed rail. And finally, we need to pass federal cap-and-trade climate legislation as part of creating a framework for the new clean-energy economy.

These steps are not just critical for the environment. They are also critical for the economy. Every economic recovery, every upswing in the business cycle of our capitalist economy has had its leading sector. Recoveries are always led or jumpstarted by one or another economic engine. Past examples have included our railroad infrastructure, military spending during World War II, agricultural expansion after the Civil War, the housing sector, the interstate highway system, and so forth. If you look around the global economy today, what are the candidates for leading the economic recovery? The banking industry? I don't think so. The auto industry? Residential housing? Military spending? I think you get my point. What investments, led by the federal government and mobilizing the private sector, can realistically lead us to an economic recovery? One clear candidate, and I would argue, the only sensible candidate, is the clean-energy revolution.

With almost the same the moral clarity that was used to mobilize the nations of the world in the fight against fascism, the fight against global warming can be used to mobilize the global economy against the recession. There is literally no other sector of the economy that can lead on an equivalent level in justifying massive government spending.

It isn't a choice of picking one of many paths to recovery, but of picking the only path to recovery that doesn't simply try to recreate the very complex of problems that came crashing down on us in 2008. Every other aspect of our economy was based on unsustainable levels of debt, unsustainable levels of resource consumption, and unsustainable trade deficits. The only set of investments—and let's be honest—borrowings—that have the ability to retire the unsustainable practices of our recent past is by investing in a sustainable and renewable energy future. These investments will, over time, pay for themselves in efficiency improvements, breaking the cycle of dependency on foreign energy sources, and by putting a price on the cost of carbon. Together, they will put us on the pathway of stopping the ridiculous practice of rewarding work where it's done with the cheapest labor and most expensive environmental impacts, a path that's destructive to the planet—but free to the producer.

Take for example a recent *New York Times* story about how carrots are grown in Britain, then picked and flown to Kenya in the morning where they are washed and packaged in plastic bags and flown back to London supermarket shelves that afternoon—all to take advantage of low-cost labor.

Now will these clean-energy investments come cheap? No, they won't. But look at the scope of what others are proposing to simply recreate the problems of the past. Since the first, meager "stimulus" package was passed in the spring of 2008 at $152 billion, we have subsequently mustered nearly $3.5 trillion to rebalance the economy and primarily the banking system with virtually no effect on job loss at all. By comparison, a massive 10-year effort to overhaul America's energy infrastructure and convert it to 100 percent renewable electricity would cost $1.6 trillion and create millions and millions of jobs. Governors Rendell and Schwarzenegger and Mayor Bloomberg of New York recently offered an infrastructure investment program of about the same magnitude as a program to put America back to work.

Their general infrastructure program does overlap with many of the energy infrastructure elements and demonstrates the importance of truly investing to scale if we are to solve our current economic crisis. But to the extent that we are reinvesting in the infrastructure of the past—widening four-lane freeways to eight, expanding ports to receive more imported fossil fuels, for instance—we are simply making ourselves more certain to fail again and at even greater cost.

So what does the political landscape look like in the next few weeks and months? President Obama has chosen to embed his climate program—a cap-and-trade system—which essentially limits and puts a price on the right to emit carbon into the atmosphere into the federal budget bill. This decision has greatly upped the ante on the necessity to pass climate change legislation in the U.S. in the near term because without the revenues produced by the cap-and-trade system, the Obama budget cannot produce the middle class tax cuts, health care reform, or clean-energy investments necessary to pull the economy out of recession.

In the 1930s we faced a similar choice. Confronted with an economy which had collapsed after producing a decade of unprecedented wealth and inequality, a time of deregulation and free market excess, not unlike our own, America pulled itself together listening to Franklin Roosevelt remind us of the Four Freedoms to which Americans aspired and which connected us so deeply to the rest of the world—the freedom from want, the freedom of speech, the freedom of worship and the freedom from fear. And from the aspirations to those four freedoms, Roosevelt, his administration and the Congress fashioned a New Deal for the American people. It was a deal that didn't solve America's problems overnight, but it gave us the tools that we could work with for the next generation to pass the laws and create the institutions that gave us Social Security, and Medicare and Medicaid, the Fair Labor Standards Act, the civil rights act and

the National Labor Relations Act. It gave us OSHA and MSHA and the Clean Water Act. It didn't legislate fairness, but it gave fairness a fighting chance.

If Roosevelt were alive today, I think he would advocate a simple solution for today's crises. He'd call it a New Deal for the global economy. I'd like to suggest that we also call it a Green Deal for the global economy.

Last month, I was invited to Nairobi, Kenya, to speak to the United Nations Environment Program's biennial ministerial and address the world's environmental ministers on why the Blue Green Alliance was joining with UNEP in advocating a global Green New Deal.

I told them that I thought the New Deal in our country was founded on three basic principles and that a Green New Deal for the global economy should embrace these as well.

First, the New Deal meant an active role by government in correcting and shaping the inherent imperfection of markets. When banks couldn't function, they were regulated. When wages fell or stagnated, a minimum wage law was passed to stabilize workers' buying power.

Second, it meant an active role by government in investing in job creation tied directly to social goals like rural electrification, infrastructure improvement, national parks, and so forth.

And third, it meant the creation of worker protections that gave workers the opportunity to use their collective strength to share fairly in the wealth they helped to create. In the wake of the New Deal, U.S. society enjoyed both its most sustained growth and the broadest expansion of the middle class.

A Green Deal for the global economy must embrace three similar principles. First, it must correct the imperfections in global markets by putting a price on carbon pollution instead of passing it off to the next generation or the poorest among us. It's a deal that rewards work when it's done close to home to avoid the costs of global warming. It's a deal that measures the value of a chemical compound by its lifecycle effects instead of one season's profits.

Second, with contributions commensurate with their capacity to give, all countries must invest, including in the transfer of technology, in massive job creation, based on the clean-energy economy. It is not enough that our investments reduce carbon; they must also create tens of millions of social-purpose jobs. We need jobs harnessing the geothermal energy of the Rift Valley in Kenya, not washing carrots. We need jobs building the solar energy grid in Bangladesh that electrify that country, not jobs that undercut even China's sweatshops.

And third, we need a new trading system that reinforces the pivotal role that strengthening the rights of workers to exercise their collective power plays in creating wealth and equity simultaneously in global society. One of the great wrongs of the current form of globalization is the way in which so-called "free trade" has stymied the growth of the middle class in underdeveloped countries around the world.

Defenders of the status quo have mainly pointed to Chinese development as an example of how free trade can rapidly lift 300 hundred million people out of poverty. But today I think we realize just how illusory that development really was. Financed largely with funny money, unregulated Wall Street banks blew up the value of real estate markets in the U.S. tenfold and then used that artificial wealth to ramp up China's productive capacity. Now, that whole reckless cycle is coming to a screeching halt and has thrown more than 20 million people out of work in China alone in the last year. Unsustainable trade deficits fueled by questionable banking practices need to be replaced with a consumption model of economic development that raises living standards in the developing world by creating capacity and bargaining power among the broad masses of people. We need to use our resources and leverage to build middle classes, not under classes.

Before closing, I want to reflect back for a moment about an American business icon, Henry J. Kaiser, from a different era in our country.

Henry Kaiser's businesses once employed more than 400,000 men and women—working in virtually every occupation from steel mills to aluminum smelters, from shipyards to hospitals. He built the hydro-electric system in the West, including the Hoover and Grand Coulee Dams. His shipyards built a battleship a day during World War II in Oakland, California. Henry Kaiser had a saying, "Problems are just opportunities in work clothes." And he applied that philosophy in building a health care system for his employees—when they needed one—that still bears his name.

He also believed that employees had a right to use their collective voice to represent themselves, so when a majority of his employees signed union cards, he voluntarily recognized the United Steelworkers as their union. He passed the Employee Free Choice Act for his own workers, 60 years before it was introduced in Congress.

He was also proud to be an American, so that when JFK urged American business to help development in Africa, he was among the first to use his talents to build an aluminum industry in Ghana.

Henry Kaiser would see global warming or toxic pollution as an opportunity to be the kind of America we used to be. An opportunity to create millions of new manufacturing jobs while we engineer the solutions to a clean-energy economy. And an opportunity to be a fairer society than we are today because when you're expanding the pie, you always have a chance to **do** more **for** more or as my old friend and U.S. Senator, the late Paul Wellstone used to say, "We all do better when we all do better."

The great lesson of Henry Kaiser's life and fortune were that his accomplishments took place **in concert with** the time of our country's greatest regulation.

So when we hear the tired old rhetoric degrading government oversight and spending, and hawking more tax cuts for business and freer markets, let's remember that markets, like politicians, are imperfect. A little regulation never

hurt a market; like a good shot of grease in a bearing, it just made it work more smoothly.

2009 is going to be a pivotal year in the direction we choose to take as a nation. We're at the start of the worst economic crisis since the Great Depression and we don't know if it will unfold into the worst economic crisis . . . period. We have re-engaged with the other nations of the world and are on a march toward international climate change negotiations in Copenhagen in December of this year. The fate of our planet is at stake. If ever there was a time for all of us to engage, it is now. This is not a time to leave it to President Obama or to blame the results, whatever your views, on him.

When I was in Nairobi last month, we would ride, every day, in a secure bus from the hotel to the UN compound where the ministerial was held. Occasionally we would get a glimpse of Nairobi's vast slums, the largest in Africa, where unemployment isn't a fluctuating statistic; it's the status quo. Global warming is already destroying the livelihood of American steelworkers. Thousands of our members who used to make aluminum in the Pacific Northwest have lost their jobs because 15 years of declining snowfalls in the Cascade Mountains meant less water in reservoirs and higher cost electricity from the mighty dams that Henry Kaiser built 60 years ago. Seven smelters closed, unable to afford the higher cost electricity.

But in Nairobi and much of the rest of the developing world, global warming isn't about lost jobs. It's about starvation and mass migration. What little hope their countries had of climbing the development ladder out of extreme poverty and into the ranks of the so-called "emerging economies" is evaporating as surely as the deserts of Darfur are expanding.

Will we build the clean-energy economy and put America's factory and construction workers back on their jobs? Will we advocate a new development model for the Third World that emphasizes consumption in their economies instead of unsustainable trade deficits in ours? Will we look back a year from now and say that we stood up for our country, our climate, and all humanity when it mattered?

Your choices and mine in the next six months will decide which path we go down as a nation.

I'm an optimist. If steelworkers and the Sierra Club could learn to do the right thing together, then we all can.

NEW SOLUTIONS, Vol. 19(2) 119-124, 2009

CLIMATE POLICY STATEMENT

THE BLUE GREEN ALLIANCE

ABSTRACT

The four labor unions and two environmental organizations that comprise the Blue Green Alliance worked intensively during the fall of 2008 and winter of 2009 to craft a joint statement on comprehensive climate change policy. The United Steelworkers, Sierra Club, Communications Workers of America, Natural Resources Defense Council, Laborers International Union of North America, and Service Employees International Union together released a policy statement on climate change and energy in late March.

The goal of this undertaking is to articulate a framework by which the United States can rapidly put millions of Americans back to work building a clean-energy economy and reducing global warming emissions to avoid the worst effects of climate change.

"We agree that the U.S. must significantly reduce our emissions, something we can accomplish by retaining and creating millions of family-sustaining green jobs in the clean-energy economy," said Leo Gerard, International President of the United Steelworkers.

The Blue Green Alliance supports a reduction of U.S. emissions by at least 80 percent from 1990 levels by 2050, and supports a renewed U.S. effort to forge a global treaty to reduce worldwide emissions by 50 percent by that same date.

To meet these goals, domestic climate change legislation should reduce U.S. emissions significantly below 2005 levels by 2020, with individual partners advocating targets ranging from 14 to 25 percent.

"This agreement is one more sign of the growing consensus around the urgency of action on climate change," said Frances Beinecke, President of the Natural Resources Defense Council. "Environmentalists and labor groups are working together, standing side-by-side, and presenting a path forward for

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strong action on global warming that will repower our economy and protect our planet's future."

The labor-environmental partnership also said climate change legislation must address several critical issues:

- Job loss from international competition can be avoided with allowance allocations to energy-intensive industries and border-adjustment mechanisms;
- Rising energy costs to low- and moderate-income Americans and adversely impacted regions can be offset with rebates or tax credits;
- Complementary regulation, including standards for renewable energy, energy-efficiency resources and fuel and appliance efficiency; and
- Investments in a wide range of technologies—including carbon, capture and sequestration technology—and federal financing for the transition to a clean-energy economy.

"Meeting the challenge to tackle climate change will allow us to build a clean energy economy right here in the United States—making the parts for wind and solar power and fuel-efficient vehicles are just some examples," said Jim Clark, President of IUE-CWA, the Industrial Division of the Communications Workers of America. "The economic and climate crises afford us an opportunity to create good middle-class green jobs."

"We can choose a new direction for our country—making a clean-energy economy the foundation for putting people back to work building America," said Terence M. O'Sullivan, General President of the Laborers' International Union of North America (LIUNA). "We have the workers and the skills, and now we need action to build on the green programs of the American Recovery and Reinvestment Act."

The consensus reached by the Blue Green Alliance partners also said that allowances should be auctioned or used for public purposes and that the legislation should link its solutions to a broad agenda for economic opportunities that engages high-unemployment communities first and funds training and transition needs.

"We have a unique opportunity to be part of the solution and to improve the lives of working people and their families for generations to come," said Gerry Hudson, International Executive Vice President of SEIU. "It is our duty to ensure that legislation develops a cap-and-trade system that connects environmental justice to economic justice in a way that supports communities across America and creates good green jobs."

Finally, BGA partners said that climate change legislation should help to fund a clean energy economic development model for developing and emerging economies and fund adaptation measures that provide solutions to those immediately impacted by global warming both domestically and internationally.

"We share the common goal that climate change legislation is necessary to confront our greatest economic and environmental challenges," said Carl Pope, Executive Director of the Sierra Club. "Standing together to advocate legislation

that aggressively reduces U.S. emissions while creating good jobs is essential to building a broad consensus in this country around a clean-energy economy."

"The significance of this statement cannot be overstated," said David Foster, Executive Director of the Blue Green Alliance. "For the first time, a substantial number of unions representing workers across a broad section of the American economy have endorsed the principle that the way out of our current economic turmoil is through major investments in solving global warming. The labor and environmental movements have truly embraced a common vision for the future." The full text of the statement follows here:

Building Global Warming Solutions That Create Good Green Jobs

Blue Green Alliance Policy Statement on Climate Change Legislation

Adopted by the Blue Green Alliance Board, March 18, 2009

United Steelworkers, Sierra Club, Communications Workers of America, Natural Resources Defense Council, Service Employees International Union

In response to deepening economic and climate crises, the Blue Green Alliance and its labor and environmental partner organizations strongly advocate for domestic energy and climate change legislation that will rapidly put Americans back to work with millions of jobs building the clean energy economy and reducing global warming emissions to a level necessary to avoid the worst effects of climate change. A sound energy and climate change policy can put our country back to work quickly and efficiently and put us on a path for sustained economic growth. No course of action would be more destructive than to continue the energy policies that drove oil prices to $140 a barrel in 2008, contributed to skyrocketing food prices and global food shortages, and resulted in unsustainable trade imbalances.

Global warming and unsustainable energy dependence are the foremost environmental issues of our time; they are also the signature economic issues of our day, providing enormous risks to future GDP growth and unparalleled opportunities to create jobs and launch a different model of economic development.

Within this context, the Blue Green Alliance and its partners urge the passage of comprehensive cap-and-trade climate change legislation in 2009 based on the following principles:

Scientific Targets. The best scientific consensus must be continuously updated and inform our policies on greenhouse gas emission reductions. Our goal must be to reduce U.S. emissions by at least 80 percent from 1990 levels by 2050. We also support a renewed U.S. effort to forge a global treaty to reduce worldwide emissions by 50 percent by that same date. In order to meet these important 2050 goals, climate change legislation should reduce U.S. emissions

significantly below 2005 levels by 2020. Individual BGA partners advocate targets ranging from 14 to 25 percent below 2005 levels by 2020. This would be supplemented with a combination of domestic and international reductions in uncovered sectors (for example, forestry and agricultural protection.)

Economy-Wide Architecture. Although different sectors of the economy face different regional and international challenges, we believe that our economy is best served by an economy-wide cap-and-trade system. This architecture will best drive the innovation and investment necessary to transform our energy production and consumption systems. For an economy-wide system to work, however, both regional disparities and international competitiveness issues must be addressed. Otherwise, regions of our country most heavily dependent on fossil fuels will be unfairly penalized and trade-exposed energy-intensive industries will be driven to less regulated countries.

Job Creation and Retention. The creation and retention of millions of new and existing, family-sustaining green jobs, particularly in manufacturing and construction, must be a direct goal of climate change legislation. The recent American Recovery and Reinvestment Act of 2009 provided a meaningful down payment on investments in the green economy, saving or creating 3.5 million jobs. But this down payment could be wasted if we don't make the next installments in the clean energy economy at the scale necessary to convert our country to renewable energy. The wind turbines, solar technologies, geothermal and biomass projects to power our country's infrastructure, along with the new transmission, energy efficiency initiatives, broadband investments, and mass transportation systems, have the potential to revitalize our existing manufacturing capacity if we safeguard these investments with appropriate procurement policies. The 1.2 million construction workers laid off in the last 18 months will also be called back to work on these projects while, at the same time, we create millions of new job opportunities in retrofitting the nation's building stock.

Regional Disparities, Justice, and Equity. Climate change impacts and higher energy costs that may accompany a policy that puts a price on greenhouse gases will affect different sectors of our population and regions of our country unequally. Climate change legislation must provide a variety of mechanisms that offset rising energy costs to low- and moderate-income Americans and adversely impacted regions of the country. Such mechanisms might include energy efficiency programs, energy rebates and dividends, and tax credits and fiscal incentives for investment in the new energy economy.

International Competitiveness. Global warming is a global problem. U.S. climate change legislation must not cause energy-intensive industries to close their U.S. facilities because of rising energy costs and relocate them to countries that do not take effective action to curb emissions related to products shipped to U.S. markets. Such a result would cost U.S. jobs without curbing global greenhouse gas emissions. Among the mechanisms available to resolve this problem are allowance allocations to energy-intensive industries, border

adjustment mechanisms that level the carbon playing field in energy-intensive industries that produce import-sensitive products, and globally measurable and enforceable, sectoral agreements within the framework of an international treaty.

Green Collar Opportunity. Recent studies by the Center for American Progress and University of Massachusetts have demonstrated that the most commonly needed job skills for global warming solutions are already held by millions of Americans, many of them standing in unemployment lines. Clean energy and global warming solutions will put them back to work. The scope and scale of the work to be done also will provide our country with an historic opportunity to set a new urban and rural social agenda to bring jobs and opportunity to marginalized communities. Climate change legislation should directly link its solutions to a broad agenda for economic opportunity that engages the communities with the high unemployment rates first and funds our training and transition needs at a level commensurate with success.

Allowance Allocation. Allowances should be auctioned or used for public purposes, while avoiding windfall profits. This will maximize the investment of public revenues in public "goods" such as creating jobs, minimizing leakage due to international competition, upgrading technology in vital industries, revitalizing research and development, investing in clean energy, broadband and transportation infrastructure, and supporting equity programs that help transition workers and vulnerable communities.

Complementary Regulation. We strongly support an approach to climate change legislation that includes regulatory measures such as standards for power plant emissions, low carbon fuels, renewable electricity, energy efficiency resources, fuel efficiency, and appliance efficiency. Such approaches have proven to be effective market-building tools that attract investment and create jobs.

Research and Development. Investments in research and development are critical to the efficient transformation of our nation to a clean energy economy. R&D investments should include a wide range of technologies, including carbon, capture and sequestration technology.

International Investment. Any effective domestic climate change legislation must recognize our country's opportunity and responsibility to help fund a clean energy economic development model for developing and emerging economies. We recognize that the old model based on extraordinary U.S. trade deficits and energy dependence on the Middle East was both environmentally and economically unsustainable. The transfer of clean energy and energy efficiency technologies and the preservation of the world's significant rain forest carbon sinks must happen in a way that effectively raises international standards of living, protects the rights of indigenous peoples, provides decent work, and promotes a consumption model of economic development in the developing world. The results of both technology transfer and rain forest preservation must be measurable, reportable, and verifiable.

Adaptation. In both the U.S. and other countries, global warming is already having negative impacts on economies, jobs, communities, natural resources, and natural habitats. We recognize that a significant portion of the revenues raised through cap-and-trade legislation in the U.S. must be used for adaptation measures that provide solutions to those immediately impacted by global warming both domestically and internationally.

Financing the Clean Energy Transition. We believe in the basic responsibility of government to lead in funding the transition to a clean energy economy. Cap-and-trade auction revenues are one source of those funds. However, just as in the current financial crisis, some banks have been considered essential assets, so our atmosphere is "too big to fail." Just as we believe that scientific goals must be continuously reevaluated according to emerging data, so, too, the scope of our investments must be continuously revisited to see if they are adequate to succeed.

Conclusion. We recognize the range of debate within our country today on the targets, timetables, and policy mechanisms to implement comprehensive climate change legislation. We do not claim to have unique solutions, nor to have the only path to successful resolution of the climate crisis. We do, however, share a common conviction that any successful climate change legislation must be guided by two overriding principles—the best scientific advice on the reduction targets and implementation mechanisms that rapidly put Americans back to work, building the solutions to reach those targets.

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A CHANCE TO CREATE JOBS THAT DO GOOD

LISA JACKSON
Administrator, U.S. Environmental Protection Agency

ABSTRACT

America has the potential to create jobs that do much good. Green jobs are no longer a concept, they are a reality and they are vital to economic growth and a driver for economic recovery. Environmental issues will be swept up as we address the economy. The choices will never be between one green or the other. And labor must be a partner in this effort.

Before I move into that which I was asked to speak about, which is green jobs, I want to share with you an announcement. I just left my office where, on January 26, shortly after taking office, President Obama asked the EPA to do something. He requested that we revisit the California car waiver decision that was made in the last administration.

Sounds like most of you know that that issue involves whether or not California can come up with and promulgate standards that many other states have indicated they would like to adopt to reduce greenhouse gas emissions from motor vehicles. Today I signed—and my agency is announcing—that we will be reviewing the decision made by the prior administration, which denied California's waiver request.

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The review is important, and it will be done in conjunction with public comment. We're opening a 60-day public comment period. We will have one public hearing on the matter. And I commit to you today that we will do a fair and impartial review of the matter once the comment period is closed. We will rely on science and the law to guide us. And we will rely on our staff.

I'm also delighted to announce something that no one else knows, so you will hear it first here. Just a few minutes ago, in response to my request, the Acting Solicitor General of the United States, Ed Kneedler, has determined that his office will not seek U.S. Supreme Court review of the *NJ v. EPA* mercury case. It is essentially being done because I've indicated that President Obama's EPA does indeed intend to promulgate mercury regulation under section 112 of the Clean Air Act.

Now, you might ask what that means at a green jobs conference. I am always one to remind us all that the steel-working jobs and the fabrication jobs and the installation jobs associated with putting controls on power plants that protect human health are jobs that are green jobs. They are extraordinarily important and well-paying green jobs. And obviously the work in the auto industry—those are jobs. And as we move forward on any range of issues that confront the EPA, confront our country, confront environmentalists, confront the unions, some of them will be tough. Some will require us to work together—if we don't see the path forward now, we must forge it. We must remember that at the end of the day, it is about the potential to create jobs where we are doing much good, not only for our economy but for our environment, for our children's health, for our health, for the health of America.

So now let's talk about green jobs in that context. Not long ago, people said you could have one green or the other. You could have the cash or you could have green policies, but you could not have both. I salute this conference and all of you for recognizing early and often in the form of the Blue Green Alliance, which is a very tangible demonstration of the fact that you can indeed have both a clean environment, a healthy environment, and jobs, money in your pocket to feed your family.

You're saying here today—and I join you in saying it—that green policies can help create good jobs. Good jobs that are sustainable, and that will help in restoring our economic future and ensuring against a situation such as we face today as a country.

For that reason, creating green jobs is a part of President Obama's economic recovery plan. And while that plan is still the subject of much discussion, it is important to recognize that even in the face of an unprecedented crisis as we are facing, the plan the President embraces includes an opportunity to create or save 3-4 million jobs over the next two years—and that's as a result of independent analysis. And that it includes the concept and the reality that jobs will be created in a range of industries, from clean energy to environmental protection to health care, with more than 90 percent of those jobs in the private sector.

The recovery plan includes plans for unprecedented transparency and accountability.

Funding information—in terms of where it's going—would be made available to the public at a web site, recovery.gov, so that Americans can see how the money would be spent and where that money is going. Under the plan, 95 percent of Americans could get a tax cut and more than $100 billion will be invested in roads and bridges, but also in mass transit and flood control and clean water projects.

And the fund would spend out quickly. As many of you know, the pent-up demand for those kinds of environmental improvement projects is quite large. And all across our country are states, and communities—and rural communities—who need these projects in order to assure themselves those basics like clean water and clean air. Waste water treatment loans, safe drinking water loans, brownfields, diesel reductions, Superfund clean-up, leaking underground storage tanks, and even money for an inspector general at EPA—long-needed and much prized by me—to make sure that the money is spent and moving out and that the rising tide does indeed lift all boats.

In the meantime, EPA will make a priority of its current extraordinary programs for green jobs, such as promoting green building standards and renovations, promoting Energy Star and other programs to reduce energy use, and encouraging smart development through $669 million in brownfields grants which, to date, have attracted more than $121.7 billion in private investment and helped create more than 53,000 jobs.

I say all this to say one simple thing: green jobs are no longer a concept, they are a reality. In some sense, they've always been here. Maybe labeling is important, and certainly for a conference like this, labeling and messaging are extraordinarily important. Green jobs are vital to the growth of our economy and a driving engine for recovery.

To be part of the driver for recovery means that environmental issues will be swept up as we address the issues of our economy. Therefore, making it never a choice between one green or the other.

You're here today and you know—and people everywhere, I believe, know—the power of green growth. And they support the President's intention and his administration in moving forward thoughtfully and deliberately, just like we're doing with the California waiver and the mercury decision today along that path.

Labor will be a partner, and must be a vital partner to us, as we embark on that challenge. I was saying to staff on the way over that I am the daughter of a postal worker, and my mother to this day has some fairly serious health issues that are paid for by the postal workers' insurance that has outlived my father, who passed away quite a long time ago, back in the '70s. So I know true and well that part of what we must do here is make sure that the jobs we create provide people with the right to the same opportunity I had—a postal worker's

daughter who went to some of the most extraordinary schools in the land and has benefited from the opportunities that gave to me, from good health care to good insurance.

So labor must be our partner. I'm thrilled today to see that partnership personified. And if I have been given the honor, as I believe I have, to be some symbol of green for this country, let me assure those of you who are here from the labor side that your partnership with us will ensure that the environment touches all Americans and that we work on a green economy that ensures energy security, that we work on a green economy that rebuilds this country that we love so much, that protects our citizens, and that protects our planet.

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GROWING A STRONG MIDDLE CLASS

MARTIN O'MALLEY
Governor of Maryland

ABSTRACT

An important mission for the country is achieving sustainability while strengthening the middle class. American leadership and innovation can play a critical role in defining the interconnectedness of our economy and environment—and in unlocking, harnessing, and advancing green technologies. The State of Maryland has launched a Green Jobs Initiative focused on attracting green businesses, working with existing businesses to adopt sustainable practices, promoting clean energy research and use, and training the work force for ne, green-collar jobs.

We have a mission statement in our State government and the first line of that mission statement is to strengthen and grow the ranks of an upwardly mobile middle class. The work that this conference is doing, while certainly it is about sustainability and about our responsibility to the future, it's also about strengthening and growing the ranks of America's middle class. Making it grow again, making it upwardly mobile, embracing innovation, embracing the challenges of these times and turning them into opportunities. Isn't it good to have a President who's actually on our side and trying to make this world and our country a better place?

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I want to thank all my friends at the United Steelworkers, including my good friend Jim Strong. This conference is not only important but essential in an era when sustainability may very well prove to be the defining issue of our times. Your leadership, vision, and foresight to see the inherent connection that exists in this issue of sustainability is really, really important work, and understanding the connection between reviving our economy and rebuilding our country's job base and healing our planet at the same time is something for which we as Americans—and really as citizens of an ever more interconnected world—should all be very, very grateful for and mindful of.

As we discuss the very complex and challenging issues stemming from Global Climate Change and other environmental priorities, we're very fortunate to have leadership at the national level who shares our commitment to progress on these important matters, and a President who so very eloquently pledged to "restore science to its rightful place."

We saw this leadership demonstrated just yesterday, when he ordered the Department of Energy to raise efficiency standards for home appliances. And we see this commitment in the President's American Recovery and Reinvestment plan—which will help those of us in the states move forward toward the goals we all share. Right now in the halls of the Senate, as Senator [Barbara] Mikulski told me just a few moments ago, "We're in hand to hand combat for our country's future."

We're capable of doing great things as a people. We have always been capable of doing great things as a people. The American public just needs to be challenged, we need to be given the leadership, and yes, we need to invest dollars today to make a better tomorrow. Let's get that Recovery and Reinvestment Act passed.

We're also blessed to be able to tackle these challenges from the vantage point that we have, in our own perspective as we stand on our own cutting edge of history—a point in human existence when our own creativity and imagination have expanded the outer bounds of human achievement and potential as never before, and by exponents never imagined.

These factors are all the more important because we live in times when our own human frailty and that compounding of the twin human propensities for self-destruction and hyper-consumption of the planet's resources threaten our American and global way of life as never before. We must again become that Revolutionary people that we have always been.

There is as a result, a tremendous need right now for American leadership and innovation in what I like to call the three major issues of our times; you might call the "Three S's of our 21st-Century Challenges"—What are those Three S's? American leadership in security, American leadership in skills, and American leadership in sustainability.

Woven throughout each of those S's is the inherent value and importance of unlocking, harnessing, and advancing green technologies, and the green jobs that

those technologies promise . . . of discovering new renewable forms of energy, bringing them quickly to scale not just for ourselves, but for the entire world, and preparing our American work force for the new realities of a knowledge-based global economy where the countries which lead in these green technologies are going to be the countries that are best positioned to expand opportunity and expand prosperity for their own people.

So the chosen topic of this conference, "Good Jobs, Green Jobs," could not be more important. To this end, I wanted to [share] things we are doing in Maryland to unlock, to harness, and advance the potential of green-collar jobs and sustainable technologies.

MARYLAND GREENER JOBS INITIATIVE

We take great pride in the centrality that the State of Maryland has played since the beginning of the Revolution; that central State, that middle State, that State that leads, especially and most importantly in times of adversity. In Maryland we have set a goal of creating at least 100,000 green jobs by 2015, and we are working across our State government—along with partners in organized labor, and in the private, academic, and non-profit sectors—to implement twenty action items which are designed to create new jobs, advance eco-friendly technologies, and provide more Marylanders with the skills they need to participate and maximize the benefits for their own families of a green economy.

This Greener Jobs Initiative is centered around five core strategies. Number one, guided by our belief that Maryland is uniquely positioned for growth in the sustainability sector, we are aggressively working to attract, expand, and retain green businesses. Our State is blessed to have some of the world's leading institutions of science and discovery—public, private, and federal. The National Institutes of Health, Johns Hopkins, and the list goes on and on. We have an abundance of natural resources. We have one of America's most highly skilled workforces.

As our Administration works to leverage these assets to attract new business opportunities, we've made the sustainability sector one of three priority areas (along with technology and life sciences)—and actually all three tend to blend, don't they? We're moving forward aggressively to design and implement policies that guide State investment towards these areas. Recently, the Milken Institute moved Maryland up from fourth in the nation to second in terms of life science and biotechnology, and increasingly the promise for green technologies, for renewable energies, are things that are stemming [from] research in life science and biotech and will continue to morph as well into agriculture and improving yields.

Number two, we are working with our existing industries to assist them in adopting more sustainable practices—helping them protect their own bottom line, helping our planet, creating jobs for Maryland-based companies that

provide services like installing solar panels and retrofitting buildings to make them energy efficient. As Bill Clinton once said—these are going to be jobs that stay in America: "If you want somebody to install a green roof, they're going to have to go up on your roof."

We are ramping up our efforts to promote our green certification program which not only helps hotels, resorts, and other tourist venues cut down on their energy bills—but it also helps them market themselves and our State to a very savvy tourist population that continues to grow more environmentally conscious.

We're also increasing the web presence and marketing of green practices adopted by Maryland businesses, to incentivize sustainability-initiatives, and to share ideas and information so other companies can follow the lead of their peers.

Number three, we're working on a number of different fronts to promote research, generation, and advancement of alternative energy in Maryland, which is helping to create jobs in the present and very importantly laying the groundwork for future job creation as these technologies progress.

We are the first state in our region, I do believe, to create a Clean Energy Center that is charged with the mission of fostering the creation of new green energy jobs, and transforming our energy economy by promoting innovation, supporting entrepreneurship, and moving forward toward the creation and adoption of more consumer-based products and services that will promote clean and renewable energy in Maryland.

On another front, we are among the first states in the nation to team with county, university, and municipal partners to use our pooled market power to jumpstart large-scale, commercial renewable energy projects. To this end . . . we're offering clean-energy suppliers long-term contracts in exchange for building clean, renewable energy plants.

Several of our Administration's green initiatives have served a dual purpose of promoting sustainability while increasing demand for green-collar jobs.

Through what we call EmPOWER Maryland, we've set some of the most aggressive goals in the nation to reduce energy consumption by 15 percent by 2015. Moreover, we've raised our renewable energy portfolio standard to 20 percent by 2022 and created a "solar carve-out" requirement to require a portion to be secured from solar generation. We've also created incentives for homeowners and businesses to utilize green energy. We've made energy audits available to every Maryland family to help them figure out the steps they can take in their own homes to reduce consumption and save on energy bills in these tough times. And we've set new green building requirements for all of our public buildings and all of our public schools.

Complementing these efforts is an initiative we call Smart, Green and Growing to help awaken a renewed sense that we can choose through our own actions in the here and now to build a more sustainable future that all of us would prefer for our kids and our grandkids.

We are reaching out especially to younger Marylanders, the hope of the future. It has been my experience as the Mayor of the City of Baltimore and now as Governor, if you want to get to the adults, you get to the kids. How many of you were taught your computer skills by your children and grandchildren? We're reaching out to younger Marylanders in the hopes that by fostering a deeper connection with nature, we can inspire more of our young people to seek out green-sector positions when they enter the work force. It might even inspire more and more to sign up for science, technology, engineering and math, where they know they can make a difference. Through Maryland's Partnership for Children in Nature, we are working to promote the well-being of youth by accelerating environmental learning in our schools and expanding opportunities for outdoor experiences for every Maryland child, partnering with National Geographic and Field Scope.

And through our Civic Justice Corps, we're providing at-risk youth with the opportunity to connect with our natural world, developing the skills that will prepare them to contribute to an increasingly green economy, and also instilling in them not only the value of public service, but hopefully restoring their own soul by being out in the beauty that is God's planet.

Number four, we're working to provide our existing work force and future graduates with the requisite skills for green-collar jobs. As I mentioned, we are blessed with one of the most highly skilled workforces in the United States of America. We are making record investments in K-12 education and school construction—even in difficult economic times. We have frozen at a zero percent increase—and hope to do it again for the fourth year in a row—college tuition at University of Maryland schools.

We've also begun assisting several companies with trainings and through our Energy Administration we've trained 110 energy efficiency auditors and full-service contractors to conduct the audits.

In addition, we're partnering with the organized labor community to implement green skills training in apprenticeship programs. Just recently about 18 leaders of our labor organizations came together around the same table in the Governor's mansion and we talked about "How do we make real, this promise of green jobs? What are the steps that we need to take?"

We're working with our Community Colleges. Frederick Community College, for example, will add courses to its Building Trades curricula to provide graduates with solar and geothermal technology skills. Anne Arundel Community College is establishing an Associates Degree program in green technology.

Finally, we are relentlessly measuring performance to share information, to track our progress, and when necessary to adjust tactics and strategies in pursuit of our goals, and to redeploy resources. Later this year, we plan to launch the "Maryland Index of Sustainable Prosperity." Why? Because we believe a core set of principles is essential to the pursuit of progress: setting goals, measuring

performance, adjusting tactics and strategies, doing what Robert Kennedy referred to as that "rational application of human effort to human problems."

CONCLUSION

When I was in high school, I was taught a very important lesson—Arnold Toynbee's theory of the progress of man, which goes like this: "Men and women as a society and as individuals, progress in response to adversity." *That we progress in response to adversity.* "Where the adversity is too great, civilization either dies or moves away. Where it's too little, civilization stagnates, rests back on its laurels, atrophies. Where you have the right combination of adversity and the rational application of human effort, you have progress."

We've got our fair share of adversity right now, but we also have the ability as no other group of people formed into a country have had before of being able to apply human effort, science, technology, the diversity of talented people from all over the globe.

There is a beautiful Native American proverb which states, "How we treat one another is reflected in how we treat the earth." I believe that the corollary to that is that we can usher in a new era in the manner in which we treat one another and also improve the manner in which we treat the earth to create a new tomorrow, to work today for that better tomorrow. It is the greatest privilege we have in the title that all of us proudly hold—American citizens.

(*Excerpt of remarks prepared for delivery at the Good Jobs, Green Jobs conference*.)

NEW SOLUTIONS, Vol. 19(2) 135-137, 2009

A CASE FOR GREEN ENERGY MANUFACTURING

SHERROD BROWN
U.S. Senator from Ohio

ABSTRACT

Investing in green energy research and in policies that tackle climate change and reduce our dependence on dirty foreign oil can lead the U.S. to renewed economic success. This rare opportunity to reinvigorate manufacturing by building demand for products and technologies in a brand new industry is something we haven't had in 40 years. We can literally grow our economy as we protect our environment.

Green energy is an environmental strategy, a national security strategy, an economic strategy. Investing in its development and production is both right and smart. Failing to invest in it is a risk to the future of our nation and our planet.

From research to development to commercialization, green energy must be a domestic priority. And right now—the stakes couldn't be higher.

Unemployment is at its highest in sixteen years; we lost 2.6 million jobs in 2008, and our unemployment is at a staggering 7.6 percent. When you factor unemployed in with our nation's underemployed—that number jumps to nearly **14 percent.**

I think we can all agree that the economic and environmental policies of the last eight years failed—miserably.

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And that's why what you do is so important—why this time in our nation's history is so important—and why we need to get to work right away.

By investing in green energy research and in policies that tackle climate change and reduce our dependence on dirty foreign oil, we can put our nation on the path for renewed economic success.

We have a rare opportunity to reinvigorate manufacturing by building demand for products and technologies in a brand new industry. We haven't had an opportunity like this in 40 years.

We can build a new industry that will help end global warming and rebuild our nation's manufacturing back-bone.

We can build on our auto industry, which in Ohio has been a leading economic engine for all kinds of next-generation manufacturing.

When you look at a General Motors (GM) factory in Parma, outside of Cleveland, or a Chrysler factory in Toledo, you are also seeing the genesis of next-generation manufacturing jobs up and down the Ohio Turnpike—jobs in the aerospace industry or the component parts industry.

Those jobs were created out of American manufacturing's ingenuity and entrepreneurship.

Plain and simple—as we work to build more fuel-efficient autos, we'll expand opportunity for new manufacturing jobs that become part of the green jobs supply chain. We will literally grow our economy as we protect our environment.

If every home was insulated at current energy department-recommended levels—we would need an additional 34 million tons of insulation—and that means jobs—and we would save nearly $13 billion a year in energy costs.

Owens-Corning in Newark, Ohio—the first and largest home insulation plant in the nation—is not the first thing that pops into your mind when you think green jobs. But that's the point. This is an example of the reach and diversity that defines the green energy manufacturing supply chain.

Manufacturing is woven into the fabric of our nation for good reason. We let our country's manufacturing capability erode at our own peril. Manufacturing is the ticket to the middle class. Manufacturing jobs pay better than other jobs; have a stronger multiplier effect—supporting as many as five other jobs; and are critical in helping to support vital public services and schools in communities across the nation. And, only manufacturing can build the new, green energy technologies that can halt climate change, end our dependence on foreign oil, and help keep us globally competitive.

Our nation's system of energy production and delivery is unsustainable. Investment in new green energy technologies and manufacturing is the only path toward economic and environmental sustainability.

America has always been at the forefront of innovation and the world continues to look to America for solutions to the world energy crisis. We are at a

critical juncture in our nation's history—our actions will not only affect our own economy or our own environment. Our actions will be felt across the globe for generations to come.

The vision you offered only a few years ago is now the American vision. We cannot stop there. The real work starts now.

(*Excerpt of remarks prepared for delivery at the Good Jobs, Green Jobs conference*.)

NEW SOLUTIONS, Vol. 19(2) 139-145, 2009

CHANGE IS HAPPENING

AMY KLOBUCHAR
U.S. Senator from Minnesota

ABSTRACT

Americans have a new perception of our problems. They now see the economics of conservation. Elected officials also have seen it and are taking more bipartisan approaches. People "get it" as they see opportunities for change. And, in contrast with the Information Technology revolution, the Energy Technology revolution, providing we do it right, will bring change across the country and across demographic groups. This revolution will be more broad-based. Now, we have a President with a message and a Congress ready to act.

My roots are in the Iron Range of Minnesota. My grandpa was an iron ore miner, never graduated from college, never graduated from high school. He saved money in a coffee can in the basement of their little house so he could send my dad to college. My dad ended up being a newspaper man. And now I'm here today, the granddaughter of an iron ore miner, as a United States Senator.

And the one thing about my grandpa was that he also loved the woods. And he would always go out and get blueberries when the blueberries were out and he loved to hunt. And I always saw that balance. So I grew up with the Blue Green Alliance in my own family. So I'm very excited about the effort you're making, and it is an effort.

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When I think back, on the change on this issue, of the change on the climate change issue and environmental issues, just even over the last two years . . . It used to be just kids with penguin buttons who would come up, my daughter's age, and talk to me about this while I was campaigning, even in 2005, 2004. And it's completely changed. The culmination of this for me was some of the blue-green people who came over, a couple of students who came over to the Hart building, where my office is. And it was on a Monday so there weren't a lot of other Senators there. And so there I was, and it was right when I'd first started out, and they all had these green helmets on. And we're in there and they start and I go, "Hey, guys, let's go down to the atrium!" So we start this chant, I don't even remember what it was. It was like "Green jobs, yea!" And we were all just like this is so fun! And I say to my staff, "How come nobody ever does this? This is so great!" And we're yelling, and all of the sudden like five cops come over and they're like, "Umm, you can't do this in the Hart Atrium." So luckily we didn't get arrested, but it was a reminder to me of the grassroots nature of this movement and the importance of young people in getting this done.

But it isn't just young people, it is hunters in Minnesota who see how global warming is affecting the wetlands. It's fishermen who put their ice houses out later because it takes longer for the lakes to freeze. It's business leaders in Duluth who are seeing the effect when the ice melts too quickly and then the water levels go down and it's harder to get the barges in. And it's city council members in places like Lanesboro, Minnesota, who have decided that they're going to take this into their own hands and change all their light bulbs out. That's what this has been about. It has been a grassroots effort from the beginning.

But the other thing that's changed for average people is they see the economics of conservation. You know, it's no longer just Jimmy Carter sitting in his sweater looking glum saying we have to do something about this. This is something that people see as a way to save money in a very difficult time. Whether it's figuring out how to use cold water in their washing machine or putting a gauge on their thermometers so they can figure out when best to have the heating on or off on the temperature control.

Or it's getting cars and trucks to get better gas mileage. And I was proud to be part of the bipartisan compromise where we made our first step and we finally, finally after years of inaction, increased the gas mileage standards for this country. I stood up there at an event announcing the legislation—I was brand new—and I thought, "Here I am, you know, I'm a brand new senator and I just made this dramatic step in increasing the standards by ten miles per gallon." And I was one of the first to speak and there were ten or twelve senators up there and I said, "You know what, this has been a long time coming, these gas mileage standards haven't gone up since I was in junior high." I was then followed by two senior U.S. Senators who said they had both worked on the initial gas mileage standards. So that was the last time I told that story.

But again, we're seeing this change, and we're also seeing a change in elected officials. Slowly but surely, as Senator Stabenow told you, we're seeing some change and we're seeing some bipartisan work in this area. I know the debate on the Climate Change bill this last summer was disappointing to some people. But I really do consider it, as our great chairman Senator [Barbara] Boxer does, a great stride. We actually got the bill out there, that we got the majority of the Senate supporting it. We didn't get enough to beat the filibuster. But we were able to really get our colleagues to really think about a very complicated issue, and that it was more than just rhetoric. They had to figure out how it would affect their states.

We know we need to make improvements with this bill. We knew from the very beginning. We didn't have a president who was going to sign this. We would have needed 67 votes, right, to override a veto. Everyone knew that. So as a result, a lot of the Senators didn't stretch to where they could support it and put themselves on the line. Why would they? They knew that it was going to be vetoed anyway.

So I think the fact that we were able to do so well, get some bipartisan support, was a tribute to all of those who worked so hard. Truly, it was the first big step we needed to take. Now we need to get it done.

The opportunities here are enormous. And I'll just tell you, I was just on a 22-county tour of Minnesota in December, right when you always want to take one, and I was out pitching for our new President's great economic recovery plan, which has a great focus on energy and infrastructure with more to come, let me tell you, with more to come. And I was out talking to people in the state and I was just really pleasantly surprised at how people get it, at how they see this as a new opportunity.

Whether it is the solar panel factory in Southern Minnesota that I visited, where they had me jump up and down on the solar panels to show that they can withstand hail damage, which, unfortunately, they put up on their website. Or whether it is the Bed and Breakfast that they've opened up in Pipestone, Minnesota, and there's a package deal: If you guys are looking for a romantic weekend, this is it. You come to Pipestone, you look at some wind turbines, you stay overnight at the bed and breakfast, and then you get up in the morning and you look at more wind turbines. That's it! That's the package. But again, you just see the entrepreneurship that's going on across this country.

And one of my favorites that I visited this past December is in Sebeka, Minnesota, and it's a little telephone company. And we were there to hear about some innovative things they were doing with broadband and getting higher speed internet out there. Although what we found out when we got there was that they had also started a side business, and it was because their customers were in such remote areas that they had power outages and it was actually very dangerous. They were out there in farms with no power.

So what they had done was put together a sort of a package with solar panels and wind turbines. Small wind, obviously, for individual homes and farm

houses. And sold it to their customers as a back-up system. And it was actually going tremendously well, and they developed this whole thing on their own. They had like a graveyard of small wind turbines in the back that they felt weren't quite perfect. Until they find the perfect match. And they told us the story of how one man, who was 80 years old, had decided to outfit his entire house in the solar panels with the wind turbine. And they explained to him, "You know sir, we'll do this, but, it is going to take like 10 years to get back all your investment when you're doing this so intensively." And he looked at these guys—remember, this is a little town, little town in northern Minnesota—and he says, 80-year-old guy says, "That's okay, I want to go green."

And so those are the stories that we're hearing all across this state, all across this country.

Now you know we're going to have to do this in a partnership, which is what I love about the Blue Green Alliance. And one of the analogies I've been making lately, you know, we had Tom Friedman come in for a hearing and we were talking about investment in this and venture capitalists there, some of the differences between the IT and the ET revolution. The IT being Information Technology, of course, and ET, you all know, being Energy Technology. And there are a few differences that are very apparent. The first is that IT tended to be, not always but tended to be, in set geographic areas. Like in Silicon Valley, like in California, didn't really help much in Sebeka, Minnesota. And so, I believe, with the ET revolution, you're going to see it spread out more across this country. You're going to see it going from coast to coast and in the smallest towns, as long as we get, as Senator Stabenow pointed out, these policies right.

The other thing about this is, if we do it right, and President Obama clearly understands this, is we're going to see a wider range of jobs across demographic levels. That this is not just going to be about people with graduate and doctorate degrees that are going to be able to make a living off of the ET revolution. It's going to be jobs across the spectrum. Manufacturing jobs—constructing wind farms creates jobs for sheet metal workers, for machinists, and truck drivers. It increases the energy efficiency of buildings through retrofitting that requires roofers, insulators, and electricians.

Now, I was recently on a panel with Van Jones in Chicago during President Obama's campaign. I know most of you are familiar with his work on energy. And it was John Podesta, me, and Van, and so we were all on this panel talking about energy and there are like 2,000 women in the audience. So we finish up, and by that moment the news was already out that Podesta was probably going to head up the transition team. So, we're standing outside there and we're all approached by people.

Okay, I'm approached by a group of people that's mostly moms who want their pictures with me and their daughters. Okay, so we're doing that. I look over, and Podesta's got all these people handing him resumes for jobs, and then I

look over and Van Jones has all these women giving him their number. Now I know he's married, but it literally happened. He had this trail of people after him, so that was it.

In an interview, Van Jones, who's the author of *The Green Collar Economy*, discussed new energy jobs. He said, "When you think about the green economy, don't think about Buck Rogers. Think about Joe Sixpack—putting on a green hardhat and going off to fix America. Think about Rosie the Riveter—manufacturing solar arrays and wind turbines."

This is especially important today as we see an unemployment rate like we've never seen before. Yesterday, the President came and met with a few Senators about this. And he talked about changing unemployment and about the jobs just literally shrinking away from us and how we simply cannot just put our heads in the ground any way. And that, in a major way, his major focus out of this will be this new green economy.

The other thing to remember about this is just the hope; I mean, look back in history. If you look at what happened when John F. Kennedy said he wanted to put a man on the moon. It's used as an analogy a lot in this area. But what I always say to people, not only were we able to do this because we had a charismatic leader who called us to action; yes, we put resources into it but we had this charismatic leadership which caused us to have this doubling, tripling in the number of engineering doctorate degrees in this country.

Think about what came out of that: everything from GPS monitors, one of my favorite things because my husband and I don't have arguments while we drive, to ultrasound technology to digital wristwatches to those little chocolate space sticks that my family would always take on camping trips in the 1970s. Those things came out of this call to action. And I believe that we can do the same thing with this new green economy.

By setting these standards in the law, by Washington finally getting up to the place where we should be, when the state legislators and governors have been acting all over the country. Mayors and the citizenry. Washington for years has been sitting on its hands trying to figure out if there's a problem. Well, that all changed about two years ago and I think that moment of change came in that hearing we had in our Environmental Committee.

That's when Al Gore came to testify and Barbara Boxer had the gavel. Senator Inhofe starts badgering Gore with all these questions that really made no sense, on and on and on, and finally, Boxer grabs that gavel and she says, "You know what Senator Inhofe, you're not the chairman any more; elections have consequences."

So we started the fight, we started the revolution in 2006, and now we've got 2008. Because now we've got a Congress that's ready to act, and we have a President who wants to lead us. And that is the change as we look at Washington.

Now what do we need to do? The first—I think Debbie [Sen. Stabenow of Michigan, another speaker] did a great job and so I'm not going to go back

through some of the things on this economic recovery plan that are so important. I have to go back right after this to fight that fight as we look at people trying to strip things that they think sound good. Strip things about the new green fleet of cars for the federal government, which is a long time in coming. They want to strip things that I really think are an old frame of thinking and I think we need to move forward and do things that matter.

But beyond that, I was very happy to hear the President this week talk to a group of us about the need to get that renewable energy portfolio standard in place. We were so close. Senator Bingaman and I had an amendment that [required] a 25 percent [reduction] by 2025. Minnesota already has that. We have one of the aggressive standards in the country, thanks to many of our leaders who are here today from Minnesota. Even higher for Xcel Energy, which has agreed to a 30 percent standard. So Senator Bingaman and I had an amendment to do that with the last energy bill. We couldn't get it through the filibuster. We even went down to 15 percent, couldn't get through the filibuster, but guess what? There's a new Senate in town, so I am very hopeful that we'll be able to do it.

The other thing that we need to do is to extend these wind turbine tax credits and the other tax credits for solar. You know we did some at the end of last year, but we need to do that more. We're working on that for the stimulus package. We'll be working on it through the year, but it has been like a game of red light/green light for investment in wind and solar and other technologies.

Look at what other countries have done. We develop the technologies here in our country, but we've been leapfrogged by Denmark and Spain and other countries because they have those longstanding policies in place, and it is time for us to do the same.

I always like it when people clap for tax incentives. It's a hard thing to get people going on, but you guys did it.

The next thing, which you know is really the big lollapalooza, the thing we really need to do here. That is, putting in place climate change legislation.

As I said, we started the fight last year and now we need to continue it. Cap and trade. I know people have different views on which way we should go with the carbon tax and other things, but cap and trade is starting to have general agreement across the board. I am very hopeful. Yesterday our Democrats on the Environmental Committee stood with Chairman Boxer and announced our principles to move forward. We are very firm. We are united with the administration. We already had a number of Republicans on the last bill, and I am very hopeful. Our plan is to get the bill out of committee by this year. I would like to even see it get through the floor this year. But one of the things, as someone who plans on being in Copenhagen, we have to have our clear policies outlined so we can start not following the rest of the world, but leading the rest of the world at the next climate change conference.

So those are the things—just small little agenda—for us to get done. And I know Debbie went through the importance of the battery development and all

the things that we need to do to get our auto industry up and running. She knows it better than anyone in the U.S. Senate and that is going be a piece of it as well.

But I can tell you, that there is a new group of people in the Senate who want to move. They see this as a different thing. Just like the Blue Green Alliance. This isn't just burdensome regulation; it is a way to produce jobs in the United States of America.

And, to stand up there like I did at that inauguration and sit up there and look at the sea of faces, two million people, and hear our new President, who was literally holding the hopes of the world in his able hands, and to hear him talk about climate change and global warming and moving forward and putting that in his speech with Al Gore up there with him at that podium, I think he sent a clear message to the United States of America and the rest of the world.

I would end, as Tom Friedman (who, by the way, is a Minnesotan) proposed in his "Green New Deal" when he said that it is "one in which government's role is not funding projects, as in the original New Deal, but seeding basic research and setting standards and incentives that will spawn all kinds of new technologies.'' That's what this is about.

"It's about getting our best brains into innovations that will not only give us the clean-power industrial assets to preserve our American dream but also give us the technologies that billions of others need to realize their own dreams without destroying the planet."

Now if you ever visit our office in Washington, DC, and I welcome you to do so, you'll see a picture hanging up on the wall, and it's a picture of an angel. And she's holding the world in her hands and giving it to someone. And, she says, "He gave the world to hold in our hands, and if we fail this time, it will only be a failure of imagination."

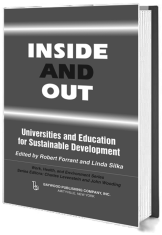
Well, I don't believe we can afford to fail. I believe this imagination is right in this room. We now have it in the White House and it's time to get it done.

Work, Health, and Environment Series
Series Editors: *Charles Levenstein and John Wooding*

INSIDE AND OUT

Universities and Education for Sustainable Development

Editors: Robert Forrant and Linda Silka



Two overarching questions permeate the literature on universities and civic engagement: How does a university restructure its myriad activities, maintain its academic integrity, and have a transformative impact off campus? And, who ought to participate in the conversations that frame and guide both the internal restructuring process and the off-campus interactions? The perspective of this book, based on research and projects in the field, is that long-term, sustainable social and economic development requires strategies geared to the scientific, technical, cultural, and environmental aspects of development. Much of the work in this volume challenges traditional university practices. Universities tend to reproduce a culture that rejects direct interaction across traditional academic department boundaries and beyond the campus. Yet, interdisciplinary work is important because it more aptly mirrors what is taking place in the regional economy as firms collaborate across manufacturing boundaries and community organizations and neighborhood groups work to solve common problems. What is distinctive within the range of scholarship and practice in this volume is the inclination on the part of increasing numbers of professors on more and more campuses to collaborate across disciplinary lines.

Universities must persist in the advancement of cross-community, cross-firm, and cross-institutional learning. The learning dynamics and knowledge diffusion generated by collaborative activities and new approaches to teaching can invigorate all phases of learning at the university. In this way, the university advances its activities beyond an indiscriminate approach to development, maximizes the use of its resources, and performs an integrative and innovative role in the cultivation of equitable and sustainable regions. The chapters in this book illustrate the strikingly different and exciting ways in which universities pursue education for sustainability.

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EMBRACING A CLEAN-ENERGY FUTURE

KATHLEEN SEBELIUS
Secretary, U.S. Department of Health and Human Services

ABSTRACT

The former governor of Kansas describes how her state is greening. The Blue Green Alliance has estimated that in a renewable-energy economy, Kansas stands to gain more than 11,000 jobs and almost $2 billion in new economic investments.

In my home State of Kansas, we have seen the energy future as both an environmental issue and an economic engine for the future.

As America wonders how it can recover from this economic storm, let me tell you about a town that knows how to come back from a storm. After being nearly destroyed by an EF5 tornado in May of 2007, the town of Greensburg, Kansas, pledged to rebuild "green."

They knew it would take a bit longer and cost a little bit more, but they are rebuilding for the future. All 303 street lights in town are now light-emitting diodes. Their art museum is partially powered by wind turbines on the roof and new homes are oriented to take advantage of natural sunshine and wind. Most significantly, Greensburg will be the only town in America where every public building is LEED-certified [Leadership in Energy and Environmental Design—a standard for determining environmentally sustainable building that was developed by the U.S. Green Building Council]! If an entire town can rebuild and recover from a tornado by going green, then there is hope for our nation.

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Of course, the best way to move forward is always through collaboration. So it's good news that two of the largest manufacturing unions and two of the largest environmental organizations have come together to create the national Blue Green Alliance.

What the Alliance has told us is that in a renewable-energy economy, Kansas stands to gain more than 11,000 jobs and almost $2 billion in new economic investments. We have 425 existing Kansas firms [that] could manufacture component parts for renewable energy technologies. For example, we're already building hybrid batteries in Kansas City, why not build electric cars? We're building airplane wings in Wichita, why not turbine blades?

To help take advantage of this incredible, job-creating opportunity, I have formed the GreenWorks Advisory Council chaired by Len Rodman, CEO of Black and Veatch. Black and Veatch is a Kansas company that provides strategic advice throughout the world on green energy initiatives.

This group will work with stakeholders to help Kansas realize the enormous opportunities of a renewable energy economy. If we are to succeed, we need a coalition like this—of unions, policy-makers, and industry stakeholders to move our nation forward.

Like the federal government, we also need a legislative component so that our efforts endure. This legislative session, Kansas is looking at a comprehensive energy policy that includes a mandatory Renewable Portfolio Standard [RPS], which requires electricity providers to obtain a minimum percentage of their power from renewable energy resources by a certain date which varies from state to state], net metering, and energy-efficient building codes for all public buildings. It will send a clear signal to investors and renewable manufacturers that Kansas is embracing a clean energy future.

Kansas is not alone in this effort; 37 states have or are writing a climate change action plan. More than two-thirds of the country has a formal RPS and 44 states have net metering.

There is a major challenge facing America and it provides every state opportunities for a "made-in-America" energy program that is good for our economy, good for our national security, and good for our environment. We are ready to work with all of you to unlock the infinite potential of clean energy. And by 2020 we can look back on this decade as the one that transformed the 21st Century.

(*Excerpt of remarks prepared for delivery at the Good Jobs, Green Jobs conference*.)

NEW SOLUTIONS, Vol. 19(2) 149-156, 2009

REBUILD AMERICA CLEAN AND GREEN

LEO W. GERARD
International President, United Steelworkers

ABSTRACT

The testimony of International President Leo Gerard of the United Steelworkers before a House subcommittee on trade in March addressed how to minimize "carbon leakage" between nations—when emissions reductions in one country lead to increased emissions in another that has strict climate change policies—in a manner that will sustain existing U.S. jobs and keep domestic industry competitive.

Leo Gerard, International President of the United Steelworkers, played a central role in the planning and execution of the second Good Jobs, Green Jobs *conference in early February 2009, which brought nearly 3,000 participants to Washington, DC, to develop strategies for addressing the climate and economic crises now facing the U.S. and the world. Under Gerard's leadership, the USW was one of the first industrial unions to support comprehensive climate change legislation and is a leader within both the domestic and international labor communities on the environment. Gerard serves as a commissioner on the National Commission on Energy Policy and is a founding member of the Blue Green Alliance.*

On March 24, six weeks after the Good Jobs, Green Jobs event, Gerard was back in the nation's capital, appearing before the U.S. House Trade

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Subcommittee to deliver testimony about "the potentially catastrophic issues posed by climate change" and the "challenge of our generation" to mobilize around the issue in a way that will create and sustain millions of American jobs.

The USW president joined a panel of witnesses from environmental and business organizations to focus on what Subcommittee Chair Sander M. Levin (D-MI) said would be a discussion on the trade aspects of climate change legislation. Among the trade issues discussed by Gerard was how to minimize "carbon leakage" between nations—when emissions reductions in one country lead to increased emissions in another that has strict climate change policies—in a manner that will sustain existing U.S. jobs and keep domestic industry competitive.

Gerard's full written testimony follows.

Good afternoon. On behalf of the 850,000 active members of the United Steelworkers (USW), I would like to thank Chairman Levin for holding this hearing on the challenges to the competitiveness of domestic manufacturers and workers posed by the adoption of comprehensive climate change legislation. I am Leo Gerard, the International President of the USW. As you know, the members of the United Steelworkers produce more than just steel. They supply almost every sector of the economy, including the North American auto industry, and produce a wide array of products, including paper, glass, ceramics, cement, chemicals, aluminum, tires, and rubber. Our members produce these energy-intensive products in facilities that are as efficient as any in the world. They are ready to answer the call to produce the next generation of clean energy products and parts and reassert America's leadership on the cutting edge of new technology. But they can only answer that call if their jobs are not unnecessarily squandered to the law of unintended, but not unforeseen, consequences. Amid this economic collapse, this country cannot afford to lose any more jobs.

For decades, the USW has been a leader in the labor movement on the environment. In 1990, we published "Our Children's World" stating our union's environmental policy and the need to address climate change, and in 2006 we reaffirmed our union's commitment to environmental responsibility through the publication of "Securing Our Children's World" [1]. We were one of the first industrial unions to support comprehensive climate change legislation, with our support for the Bingaman-Specter bill. That bill proceeded from recommendations made by the National Commission on Energy Policy, on which I serve as commissioner. USW is also a founding member of the Blue Green Alliance, which brings together unions and environmental groups to plan a new way forward for America through the promotion of policy solutions that spur growth and investment in green technology products produced here in America.

The Steelworkers are as convinced today as we were in 1990 that climate change is the most important environmental issue of our lifetime. It is the challenge of our time to transform the way this nation operates in order to bring

this problem under control before it is too late. Still, in undertaking the enormous and critical task of crafting comprehensive climate change legislation, Congress must ensure that the desired emissions reductions are achieved in a structured, responsible way. The legislation must not only strive to reduce emissions to the level that the best science believes is necessary, but it must do so in a way that minimizes costs to businesses and consumers as much as possible. In doing so, attention must be paid to the need to provide incentives to build the next generation of clean energy products here in America, and the need to ensure that domestic exporters are not unfairly disadvantaged in the global marketplace. It must take into account that, for some products like steel and cement, some emissions are an unavoidable part of the manufacturing process, and that currently neither science nor technology exists to mitigate them. And it must ensure, as much as possible, that the jobs that exist here today in energy-intensive manufacturing are not lost, nor the production of those products offshored unnecessarily by neglecting the very real and potentially disastrous problem of carbon leakage. If leakage is not addressed in the development of a climate change regime, any policy runs a significant risk of not only costing American jobs but actually exacerbating, instead of mitigating, the problem of global warming.

CARBON LEAKAGE

The phenomenon by which emissions reductions in one country lead to increased emissions in another is known as carbon leakage. The reason this happens is that if one country puts a price on carbon emissions, that additional cost provides an incentive to the company to move its production and, therefore, its emissions, to a country where that additional cost does not exist. All policy proposals to address climate change, including cap-and-trade, arise from the idea that if a price is put on carbon, it will provide an incentive to emit less carbon This theory is sound, as long as the cost cannot simply be evaded by companies moving production overseas or by downstream producers and consumers avoiding the cost by purchasing imported materials from nations that do not share the U.S.'s commitment to climate change abatement.

This threat of leakage is particularly acute among manufacturers of energy-intensive primary products like the ones made by members of the Steelworkers. In commodity-based industries like steel, glass, chemicals, rubber, and paper, even small differences in production costs can devastate an industry if they are not managed effectively. Finding a way to mitigate the competitive disadvantage that will be placed on these industries is not only an imperative, if we are to continue the recovery from the current recession, but it is an imperative if we are to actually achieve the goal of stopping climate change.

Greenhouse gas emissions and the resulting climate change are a global problem, and it makes no difference whether the emissions occur here in the U.S.

or abroad. In fact, the shifting of these emissions to countries that do not share our commitment to addressing the problem of climate change is almost certain to make the overall problem worse. The reason for this is quite simple: American industry and American workers are among the best in the world, and they produce energy-intensive goods with some of the lowest emissions in the world. The same cannot be said of many of our competitors. The Alliance for American Manufacturing, a unique labor-management joint venture between the Steelworkers and several of our major employers, released a report yesterday on the pollution levels in the Chinese steel industry, and the findings are quite stark [2]. For example, while the American steel industry has become 25 percent less energy intensive over the past 20 years, the Chinese steel industry now emits as much carbon as the rest of the global steel industry combined. The production of a ton of steel in China generates more than three times the carbon emissions of a ton of steel produced in the United States. This is largely because the domestic industry is increasingly state-of-the-art and efficient, while the Chinese steel industry has a heavier reliance on older, dirtier production methods and uses higher-sulfur coal to power those processes. The Chinese government looks the other way while this goes on, and is lax in enforcing the few environmental laws and regulations it does ostensibly have in place.

Any climate change policy that does not seek to prevent the unnecessary offshoring of production from state-of-the-art American industries to less efficient, more carbon-intensive industries overseas will both cost American jobs and, perversely, will actually make the problem of global climate change worse.

Options for Combating Leakage

The USW is pleased that a growing consensus is forming around the idea that something must be done to address the leakage problem in formulating climate change policy. The question that follows is exactly what that something should be. A variety of solutions have been proposed, many of which fall into the broad categories of allocation schemes and trade mechanisms.

Allocations

Because leakage is caused by the fact that the domestic industry will be bearing increased costs of production due to the requirement to pay an imposed cost of carbon, many proposed solutions center around the concept of mitigating those costs. These ideas are structured as allocations of allowances to industries that are at risk of leakage, which means energy-intensive and trade-exposed industries. The European cap-and-trade program relies exclusively on allocations to combat leakage.

Previous domestic efforts, such as the 2008 Lieberman-Warner bill, have included provisions that reserve a certain percentage of the total universe of

allowances to be distributed to energy-intensive industries free of charge. This structure is less than ideal because the allocation of no-strings allowances provides little incentive to companies to avoid offshoring. The potential for a company to take its free allowances, sell them on the allowance market, and use the windfall profits to build factories in India, Mexico, Brazil, or China is a serious concern. In addition, even those companies that use the allocations as intended still face a long-term leakage threat. Most allocation proposals decrease the percentage of the cap reserved for allocations over time, which would allow foreign competitors to wait out their domestic counterparts until the supply of free allowances runs out. Even those proposals that maintain a consistent percentage of the cap for allocations face the same problem, as the cap will get smaller and smaller, as will the total number of available allowances the consistent percentage represents.

While allocations are critical for the survival of energy-intensive manufacturers, they must be structured to provide an incentive to maintain or increase domestic production, and must eliminate the potential for windfall profits, particularly profits which can be used to facilitate offshoring.

Trade Mechanisms

Where allocation schemes seek to even out the cost differential between domestic and international products by reducing the effective cost to domestic producers, trade mechanisms do the opposite. An effective trade mechanism would eliminate the cost differential by requiring that any import that enters our market face the same cost as domestic counterparts for those emissions not covered by an allocation scheme.

The most prominent of these proposals is the international reserve allowance program in the Lieberman-Warner bill. Between the introduction of the bill and the version improved by Senator Boxer, the international reserve allowance program was refined and improved a great deal, but more work needs to be done before it can fully address leakage concerns. A workable trade mechanism must give consideration to downstream products and exports. It must require that all products consumed in the U.S. demonstrate the same commitment to combating climate change, no matter where they are produced. And it must be put in place as quickly as possible, to limit the amount of time that domestic producers face cost disadvantages because of the requirements of the domestic program. If it is not possible to begin both programs at the same time, then steps must be taken to prevent unnecessary harm to domestic industries until such time as the trade mechanism can be activated.

Access to our consumer market is the most powerful incentive the U.S. has to encourage other nations to commit to reduce climate change. It must be used in a strong and effective manner.

Hybrid Approach

The shortcomings of both the allocation approach and the trade approach are similar. Namely, this is a global economy that faces a global crisis, and there are limits to what any one country, even the United States, can do alone. The U.S. should, therefore, attempt to forge a global solution to the issue of how to deal with energy intensive manufacturers. This should take the form of global sectoral agreements within the larger global climate treaty being negotiated by the U.N. Framework Convention on Climate Change. Only by setting up a system where all products must bear a carbon cost commensurate with its carbon emissions, no matter where they are produced, can the playing field ever be truly leveled and allow us to confront this global problem.

With that as the long-term goal, the short-term goal should be to craft a hybrid approach of allocations and trade measures that increases the potential that such agreements can be reached, while still addressing the leakage and competitiveness questions and ensuring that industry has sufficient incentive and confidence to maintain domestic production here, while continuing to improve its operations, until such agreements can be reached.

In this hybrid approach, allocations could be awarded to energy intensive manufacturers commensurate with their output and their carbon emissions. If allocations diminish over time or are insufficient to eliminate the leakage problem, they can be combined with appropriate border adjustments to equalize costs for domestic and foreign goods consumed in the United States based on their associated emissions. A phased-in, hybrid approach could provide the space for both the negotiation of an international agreement—which should start upon passage of the legislation—and providing sufficient notice to the rest of the world of the eventual imposition of a meaningful trade mechanism, while preventing domestic producers from facing unnecessary competitive pressures during that time. In addition, the hybrid approach can be designed to address the problems of downstream products and exports by ensuring that costs to inputs are minimized, and thus downstream products do not see an additional cost disadvantage. Similarly, if exported goods do not face a disadvantageous cost differential abroad, their competitiveness in global markets should not be harmed.

After the negotiation period is over, a variable border adjustment will be imposed on imports. This adjustment will be imposed on imports that enjoy a cost advantage over domestic products because of lack of action on climate change. It will be based on the carbon intensity of these products and the net cost borne by domestic manufacturers of those same products. It is a simple concept. The right to sell goods to consumers in our market brings with it the responsibility to confront the costs associated with addressing climate change.

If the output-based rebates are working as intended and meeting the competitiveness needs of energy-intensive manufacturers, the border tax adjustment

will lay dormant. Similarly, if sectoral agreements are forged and work as intended, this will be a tax that no one has to pay. That is the goal, and the border tax adjustment is envisioned to be a last resort, put into use only if and when the allocations are insufficient, or the sectoral agreement is not enforced.

AN ALTERNATIVE APPROACH

Hybrid approaches, allocation schemes, and trade mechanisms that could face World Trade Organization (WTO) challenges are all quite complicated ways to address the questions of leakage and competitiveness. The questions themselves largely stem from the fact that the architecture of a cap-and-trade system is focused on the production of goods, but the global economy is focused on the consumption of goods. An alternative approach for energy-intensive manufacturers would be to create a separate emissions regime for these industries in which the inefficient allowance-based system is replaced with a simpler and more effective system in which emissions fees are assessed on all carbon-intensive goods consumed in the U.S. if their associated carbon emissions exceed a determined industry standard.

The potential benefit of such a system would be that the leakage problem would be effectively eliminated, because the focus would be shifted to ensuring that all products consumed in the U.S., regardless of where they are made, demonstrate the U.S.'s commitment to addressing climate change. Domestic manufacturers would face incentives to reduce emissions in order to bring emissions under the standard and avoid the tax. At the same time, they would not face unnecessary competitiveness concerns because equivalent costs can be assessed at the border on imports and rebated on exports, in much the same way as a value-added tax. In addition, the transparency of these fees would help industry attract the necessary capital to make improvements, because future costs could be more easily determined using an established fee rate than in attempting to divine the price of a volatile market in carbon allowances.

CONCLUSION

Addressing the potentially catastrophic issues posed by climate change is the challenge of our generation and meeting that challenge will require the mobilization of everyone in the world behind a common purpose. America can and must lead this effort, not only by taking a bold stand to limit greenhouse gas emissions, but by harnessing this nation's greatest resource, the ingenuity and creativity of the American people. We must make a national commitment to rebuild America clean and green with products built here, to develop new forms of clean, renewable energy and provide incentives to further their deployment. We must bring our power grid and energy infrastructure into the 21st century and train the American work force to use these new technologies. We must create

a revolution in our transportation sector, rebuilding the American auto industry to produce the best and cleanest vehicles in the world, and connect America's cities and neighborhoods with world class transit systems. And, of course, we must limit greenhouse gas emissions consistent with what the best science tells us.

In creating a program to achieve these emissions reductions, we must make the development of manufacturing a centerpiece of that program. The products made by our members and millions of other hard-working Americans are quite literally the building blocks of all these new technologies. If the U.S. is to build windmills, we will need steel and aluminum. If we are to build solar panels, we will need glass. And if we are to build the next generation of industrial scrubbers to filter out these emissions, the ceramics industry cannot be ignored.

When the world transitioned to an industrial economy, America led the way by developing and producing the best products in the world. Now, as the world transitions again to a green economy, the time has come for America to lead again. This change will not come easily, and it is a heavy load to bear. But I am here to tell you today that American workers are ready and willing to help bear that burden and help lead America into a new, green future.

Thank you again, Mr. Chairman, for holding this hearing. The United Steelworkers and I look forward to working with you and the committee to renovate our economy to meet these challenges.

REFERENCES

1. Available on USW's website through the following links; http://legacy.usw.org/uswa/program/content/1592.php and http://legacy.usw.org/usw/program/content/Environment-SOCW.php
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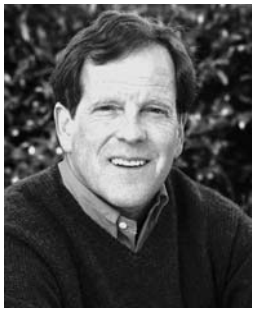
NEW SOLUTIONS, Vol. 19(2) 157-158, 2009

START YOUR ENGINES

CARL POPE
Executive Director, Sierra Club

ABSTRACT

The Sierra Club's Carl Pope reads the signs that say "this is the time" for change.



Six weeks after the 2009 Good Jobs, Green Jobs event, Carl Pope provided an analysis of the growing movement for green jobs and its critical role in leading the country out of recession. This piece was originally posted on Pope's "Taking the Initiative" blog, which can be read at Sierraclub.org.

March 31, 2009

Washington, D.C.—As House Speaker [Nancy] Pelosi said this morning, "This is it, the change begins." House Energy Chairman Henry Waxman and his lead subcommittee chair, Ed Markey, this morning introduced a 600-page comprehensive bill to move America simultaneously toward energy independence and a new, low-carbon energy economy. The bill represents a broad outline—many of the most crucial details will be worked out in legislative negotiations—but it is an incredibly powerful and hopeful sign. It comes only days after Waxman and Markey were joined by their predecessors as committee leaders, Michigan's John Dingell and Virginia's Rick Boucher, in a letter to President Obama, calling for strong legislative action on energy and climate. It's

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quite remarkable to see Dingell and Boucher joining with Waxman and Markey in saying:

Three imperatives—our energy, environment, and economic needs—drive our commitment to action. The energy imperative we face is to diversify the nation's energy supplies and reduce our foreign dependence, especially on oil from the Middle East, which imperils our national security. The environmental imperative is to protect the planet from global warming. As scientists learn about the dangers of "tipping points" in the global ecosystem and their potentially disastrous consequences, the need for decisive efforts grows increasingly urgent.

And the economic imperative is to provide an engine to drive the nation out of the recession. . . .

And only days earlier, the United Steelworkers of America, the Laborers International Union, the Service Employees Union, and the Communication Workers of America joined the Sierra Club and NRDC in a joint labor-environmental statement of principals on energy and climate change legislation under the aegis of the Blue Green Alliance originally organized by the Club and the Steelworkers but now expanding into a broader labor-environmental mobilizing effort.

The Catholic Church has unveiled plans to send every parish materials on climate and poverty this Earth Day. Other denominations, hunting and angling groups, and business organizations are all coming together to insist that it is time to move forward, time to create a new energy economy, time to end our dependence on dirty fossil-fuel technologies.

And support for this effort is coming from all over. The *Salt Lake Tribune,* for example, said, "If the plan were to meet its ambitious goals of U.S. energy independence, the creation of more than 300,000 jobs and substantial reduction in global warming, it would be a bargain. "The dollar amounts are astonishing, but so are the problems that renewable energy could help solve."

Let's be clear: Coal and oil will not go gently into that good night; they are already fighting back viciously, and the ideologues of the reactionary right will join them. But history demands that America act now, and I think America is finally ready to answer that summons.

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RENEW, REFUEL, AND REBUILD

ALLISON CHIN
President, Sierra Club

ABSTRACT

We can renew, refuel, and rebuild America with millions of green jobs, but they must be good jobs. Participants at the conference understand that environmental and economic stability go hand-in-hand, that the challenges of global warming are urgent and that huge opportunities exist for building a clean energy economy.

I want to thank Leo Gerard and David Foster for bringing the conference to pass two years in a row. I am sorry that Carl Pope, Executive Director of the Sierra Club, could not be here. He would be so pleased and proud to see what transpired over the past few days. And, of course, thanks to each of you for it is ultimately your participation that makes this conference successful and translates what we learn into action on the ground.

This is like preaching to the choir, because you "get it!" You understand that environmental and economic stability go hand-in-hand. You understand the challenges of global warming are urgent. You understand there are huge opportunities in building a clean energy economy. And, that we can renew, refuel, and rebuild America with millions of green jobs, but they must be good jobs.

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We all agree that this is the right time and right place. How's it feel to be at the right time and right place?

Well, with the challenges and opportunities before us, there is also tremendous responsibility. I looked in my meeting bag for the road map to a clean energy economy, but it wasn't in there because we need to build this together. This is work for ALL of us, not just some of us. The Blue Green Alliance unites labor and environmental forces, but the green movement needs activists from labor, environment, business, community and justice; all of us, not just some of us. We not only need to fight for fairness and justice, we need to live fairness and justice every single day.

This is going to be hard work, a heavy lift. Who is ready to take on this heavy lift?

Well, when there is hard work to do, there is no other place that I want to be than in a room full of organizers and activists. YOU are the sparks for this movement, ambassadors of and for change.

Be the change that you want to see.

NEW SOLUTIONS, Vol. 19(2) 161-162, 2009

GREEN JOBS TO MEET AMERICA'S BIGGEST CHALLENGES

PETER LEHNER
Executive Director, Natural Resources Defense Council

ABSTRACT

We confront a pivotal moment sparked by a crisis. Such times in the past have sparked important changes. Our economic and ecosystems are linked and both now demand quick attention and action. We need wise decisions that maximize job creation.

I had the pleasure of speaking at the national Good Jobs, Green Jobs conference in Washington, D.C. on February 5. It was a truly remarkable event that brought together thousands of people—from steelworkers to business leaders to students to environmentalists.

The green jobs movement seeks jobs that can both provide a dignified life and a decent wage and protect our health and climate. This effort is the most recent of those inspiring moments when ordinary people, with extraordinary commitments to making the world a better place, succeeded. These movements of ordinary people drove the affirmation and expansion of civil rights; the rights of workers to organize and bargain collectively; and the clean-up of dangerous pollution in our neighborhoods.

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One feature of these pivotal moments is that they brought together many different people who nonetheless share common goals, common challenges, and common opportunities. This moment, as the earlier ones, also is in part sparked by a crisis. Today a new President and a new Congress face an economy in crisis, a planet in peril, and an outdated energy infrastructure that cannot meet the demand for the future.

These challenges also bring us an opportunity. The opportunity is to come together and make a reality of our vision of an economy powered by clean efficient energy, mobilized by clean efficient transportation systems, and employing tens of millions of people with good-paying jobs.

The economic system and the world eco-system are linked. What happens in and to our system deeply affects the other. Both are sending us strong signals that we cannot delay action to save our planet.

While almost everyone agrees that global warming is real and man-made, there are still those who are fighting to stop action on the environment. These are groups who say that climate policy is too costly for business or that the economic downturn means that we cannot take on a climate bill at this time.

But, we say this is our time and we cannot afford to delay.

The last eight years have been about delays and now it is time for action. A comprehensive federal climate policy that is fair, flexible, and far-sighted is essential to meeting these goals.

Dollar for dollar, investing in clean energy creates more jobs than investing in traditional energy like oil and gas. In fact, investing in clean energy would create four times as many jobs as would result from spending the same amount of money within the oil industry.

Investing in public transportation projects and highway repairs will also maximize job creation and avoid wasting taxpayer dollars. For every $1.25 billion invested in public transportation projects, 51,300 people are employed. Investments in public transportation create 19 percent more jobs per dollar than building new roads or bridges. Investments in road and bridge repair create 9 percent more jobs than building new roads or bridges.

There is a lot of work ahead to build the political will needed to generate the momentum for this vision. We believe that by working together—with our partners in government, labor, business, and environmentalists—we can rebuild America and transform our nation with a new clean energy future. Americans have the ingenuity, skills, and determination to make this future a reality—and we can do it together by starting today.

We cannot get to these solutions piecemeal. We need a comprehensive global warming policy. That's why we need to work together to create the political will to move forward on broad climate change legislation this year.

NEW SOLUTIONS, Vol. 19(2) 163-165, 2009

ENSURING THAT GREEN JOBS ARE GOOD JOBS

SHARON BEARD
NIEHS Worker Education and Training Program

ABSTRACT

A priority of the National Institute of Environmental Health Sciences' (NIEHS's) Worker Education and Training Program (WETP) is to make sure that green jobs are good jobs: they must be safe jobs and must include strong safety training programs. The Laborers AGC Education and Training Fund (LAGC) of the Laborers International Union of North America has been a grantee of the WETP for years and has developed hands-on, peer-focused, state-of-the-art health and safety training for laborers in the environmental remediation field. NIEHS has worked with union President Terence O'Sullivan and the LAGC to train workers engaged in freeing our communities from the extensive legacy of industrial pollution.

I was asked to give a brief overview of the National Institute of Environmental Health Sciences (NIEHS) Worker Education and Training Program (WETP) and to introduce Terry O'Sullivan, President of the Laborers International Union of North America (LIUNA). In particular, as the WETP Industrial Hygienist and a Program Administrator, I was asked to describe our involvement with green worker initiatives under our hazardous waste and minority worker training. The NIEHS WETP priority is to make sure that green jobs are good jobs; that they must be safe jobs; and that they include strong safety training programs.

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The Laborers AGC Education and Training Fund (LAGC) of LIUNA has been a grantee of the NIEHS WETP for many years and has led in developing hands-on, peer-focused, state-of-the-art health and safety training for laborers working in the environmental remediation field. Because of this involvement, NIEHS has worked with President O'Sullivan and the LAGC since the beginning of the program to train those workers engaged in freeing our communities from the extensive legacy of industrial pollution—pollution that has contaminated thousands of properties; and that if left alone would continue to adversely affect human health and the environment for years to come.

Since 1987, the NIEHS WETP has provided an effective, accountable structure for training workers who handle hazardous materials, hazardous waste, or respond to emergencies involving these materials. Many of the more than two million workers trained since the program began have been associated with the cleanup of this country's hazardous waste or Superfund sites. Many are also involved in the cleanup of the Department of Energy's (DOE) nuclear weapons sites. In addition, under our Minority Worker Training Program (MWTP), training has been provided to increase the numbers of under-represented minorities in the environmental remediation industry. Such work has long been recognized as protecting the environment and the health of surrounding communities. In today's terminology, these are "green" jobs. Proper training assures that green jobs are safe jobs (NIEHS Green Jobs Concept Paper, 2009).

All workers need tailored, adult-oriented, education and training that addresses their specific needs and background. NIEHS programs have worked diligently to develop and maintain these programs in communities across the U.S. Lately, under our MWTP, we have developed training in the area of green jobs with a strong focus on comprehensive holistic training.

WETP is a relatively unknown program for health and safety training mainly because most individuals do not associate health and safety training with the National Institutes of Health. But it is a national asset—funding an extensive network of programs that offer a gold standard of training. Now in its twenty-first year, NIEHS WETP funds 18 non-profit consortia made up of more than 80 training organizations, including universities, community colleges, and labor-based safety programs. These consortia develop model safety and health training programs for workers engaged in activities related to hazardous waste removal or containment or chemical emergency response. The awards are made to organizations such as LAGC, Service Employees International Union (SEIU), the United Steelworkers Union (USW), the Center for Construction Research and Training, Dillard University, and the University of California at Los Angeles.

Since 1987, these awardees have trained more than two million workers, provided training in every state and territory, and have seen these workers respond each day at their own workplaces and during times of natural and man-made disasters. The network responded during Hurricane Katrina and developed site-specific job training to workers cleaning up along the Gulf Coast. This

national network provides trainers and workers employed at your local hospitals, fire and police departments, environmental clean-up companies, drinking water and waste water treatment plants, DOE nuclear facilities, and solar installation companies, to name just a few.

A hallmark of the NIEHS approach to training has been a core focus on hands-on training. For example, LAGC offers an 80-hour HAZWOPER (hazardous waste operations and emergency response) training that provides an extensive hands-on technical component that includes specific craft and trade emphasis required for workers in this field. In addition, LAGC and other grantees over the years have developed a broad network of quality worker trainers through their individual instructor development training programs. The LAGC also has special training initiatives such as the LAGC Minority Outreach Program that provides comprehensive health, safety, and trade-specific skills to untrained minority workers. With the USW, under another training initiative entitled "Triangle of Prevention," they incorporate lessons learned from near-misses as well as conducting investigations searching for root causes to concentrate on critical areas of concern in industrial workplaces across the U.S. Because of these excellent advances in worker health and safety, it has been a great experience working with LIUNA under the leadership of Terry O'Sullivan.

Since 2000, O'Sullivan, has been the General President of LIUNA. While other unions have seen declines in membership, LIUNA has shown steady and consistent growth with more than 500,000 members, including construction, hazardous waste, remediation, government, Postal Service, health care, maintenance, and food service workers.

Throughout his career, he has been a labor leader dedicated to increasing the power of working people. This can be seen in his leadership and collaborating with a diverse group of organizations including the Apollo Alliance, Change to Win labor union federation, and America's Agenda: Health Care for All. According to many who work with him every day, he is the next generation of labor leaders because he is aggressive as he strives to provide work opportunities to LIUNA members. Because of his background as a laborer in Chicago and Washington, DC, as he worked his way through college, he knows issues first-hand that affect members of his union. He worked at all levels of the international union starting as a training director in West Virginia. He rose through the ranks quickly because of his knowledge, commitment, and work ethic.

O'Sullivan will motivate you to action regarding green jobs and much, much more.

NOTE: *This article may be the work product of an employee or group of employees of the National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health (NIH), however, the statements, opinions or conclusions contained therein do not necessarily represent the statements, opinions or conclusions of NIEHS, NIH, or the United States government.*

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CHANGING COURSE—AND THE WORLD

TERENCE M. O'SULLIVAN
General President, Laborers International Union of North America (LIUNA)

ABSTRACT

For too long some corporations have held a gun to our heads and demanded that we choose jobs or choose the Earth. It's a false choice. We share a dream to build an America in which every worker who builds green can afford a hybrid car and every worker who is struggling to keep their house warm can join the struggle against global warming. The foundation that LIUNA has put in place over the last century can help build the green economy. Most green jobs for the foreseeable future will not be created by businesses alone, but through partnerships between business and government in the form of subsidies, incentives, or outright contracts.

Brothers and sisters of the Steelworkers Union, of the Service Employees International Union, of the Communications Workers of America, of the Sierra Club and the Natural Resources Defense Council, we are proud to join you today as an active, progressive, aggressive, and militant member of the Blue Green Alliance. Because we're new to the Blue Green Alliance, it's only fair that we introduce ourselves so you know what you're getting into and so you know who we are, what we do, what we stand for, and what we fight for.

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We are a half-million men and women who build America. We build highways and transit systems, wind farms and sewer systems, we remove hazardous waste, asbestos, and lead to make buildings safe where our children live and where you work.

And, like you, we are genuinely concerned about our environment and deeply committed to creating good jobs. Our members fight for better pay to support their families . . . they fight for health care . . . our members fight for more jobs so they and millions of workers like them can share the wealth of our nation . . .we fight for retirement security so there is dignity after decades of construction work that wears away at the human body.

We fight for respect and let me tell you one more thing . . . we fought like hell to end eight years of worker repression by electing Barack Obama the 44th President of the United States . . . and there was no bigger party, no bigger celebration on election night than at the Laborers International Union of North America (LIUNA).

Today our country is standing at one of the most significant moments in our history, a time of crisis and opportunity. For environmentalists and for trade unionists, there is hope like never before in our lifetimes.

As we move forward together, our unity will never be shattered as long as we remember two things: One, it does no good to care for the Earth if we don't care for the people on it. And two, if it doesn't put green in working people's pockets it's not a green-collar job . . . if it doesn't enlarge and strengthen the middle class, it's not a green-collar job.

For too long we have allowed some corporations to hold a gun to our heads and demand that we choose jobs or choose the Earth. It's a false choice and today we have the power to push that gun aside—the time of the Blue Green Alliance is now.

We also won't be trapped into other false choices. We don't have to choose between highways or rail because we need both . . . we won't draw false lines between fix it or build it . . . because we have to do both.

Today across America, the backbone of our country is in decay and it is costing us lives, making us less competitive, and destroying our environment. Our wastewater systems contain so many cracks and leaks that billions of gallons of sewage seeps into waterways every year. Our highways are so traffic-clogged that the typical motorist wasted nearly $1,000 last year in gas and emitted millions of pounds of carbon into the atmosphere. Meanwhile, our transit systems are stretched beyond limits, with usage increasing 25 percent since the 1990s while investment falls short by half.

We share a dream to build America so America works through an economy in which every worker who builds green can afford a hybrid car and every worker who is struggling to keep their house warm can join the struggle against global warming.

We are making progress. Members of our union have developed a cooperative and profitable relationship with one of the most successful real estate developers in the northwest, Gerding Edlen Development Company. Gerding Edlen builds green, pays union wages, and makes a profit.

Yesterday you heard about Gamesa Corporation and their positive relationship with the United Steelworkers.

But despite progress, other workers building components for non-union solar and wind power corporations do not earn enough to support their families, even though their employers receive millions of dollars in taxpayer subsidies.

A survey of major wind and solar manufacturing plants contained in a report LIUNA and others commissioned showed that more than a fourth of those employers did not pay enough to support a family of two.

A wind blade manufacturer in Iowa took over a shut down appliance factory where workers had made $19 an hour. They were given $2 million in state taxpayer money, and then paid workers $5 an hour less, moving them from family-supporting pay to just barely making it.

That's not the promise of a green economy that the Obama Administration and all of us envision. Under the President's economic recovery proposal, we are on the verge of dramatically increasing funding for residential weatherization, providing $6.1 billion to weatherize two million homes.

The 78,000 men and women who would do the work must have a living wage, they must have health care benefits, and they must have skills training to create a career path.

The foundation that LIUNA has put in place over the last century can be the foundation that efficiently and effectively helps build the green economy. We have more than 60 training centers, available in every state, providing both basic construction and environmental skills crucial to green construction.

We are working with elected officials and with community groups such as "Green for All" to develop additional environmental course work and to address local hiring needs to make sure new opportunities exist for those who have been shut out in the past.

Our training program is one of the best adult continuing education programs in the world—and it is free to workers. In just the last year, 100,000 LIUNA members received construction and environmental skills training to meet the needs of contractors and open the door to future opportunities for our members.

The partnership in this room will insist on the federal investment that is needed—and we will make sure that taxpayer subsidies help create good jobs, with prevailing wages and living wages that don't drive communities further down.

The fact is the vast majority of green jobs for the foreseeable future will not be created by businesses alone, but rather through partnerships between business and government in the form of subsidies, incentives, or outright contracts.

All of these businesses will owe their success to workers and taxpayers. To safeguard workers and our economy, we must fight for, win, and enforce basic standards. Wherever taxpayer dollars are used, whether as subsidies, incentives, or direct contracts on green construction projects, payment of federal prevailing wages must be required to ensure that transforming our economy to a green economy doesn't drive down local community living standards.

Bad corporate behavior must not be rewarded with taxpayer money.

Contractors who thrive on low-ball bids based on cutting labor costs to the bone should no longer automatically receive work.

Responsible contractor clauses and best-value contracting policies—covering both employers and investors—must be put in place to ensure that contractors who bid for work disclose their safety records, training opportunities, and benefits policy, and whether they respect the freedom of their employees to join a union.

On that note, we are grateful that you have joined us to fight for passage of the Employee Free Choice Act to help workers freely choose to make every job a good union job.

We may have elected Barack Obama president, but our fight isn't over. The last two weeks is proof of that as Republicans try to throw up roadblocks to every effort to get our economy moving again with a recovery bill to create good jobs.

Investing in working people is too much for them. These are the same people who for eight years couldn't find Osama Bin Laden, couldn't find weapons of mass destruction, and now can't find half of the $700 billion they tossed to Wall Street. Brothers and sisters, they will fight us every inch of the way.

As I look out into the faces in this crowd, I see the heart and soul of the union movement and the environmental movement, warriors for change, liberators of working people. We never back up and we never back down—no retreat and no surrender, you are the spark that lights the fire of a worker revolution and an environmental revolution.

The Rev. Joseph Lowry, a great man, a leader and a great American, often asks, "What time it is" . . . it's time to get back to our activist roots, to replace Wall Street with Main Street, to put workers first, to realize, with all due respect, that the most valuable asset in America isn't corporate America, it's working people.

So as we continue our partnership to invest in green jobs and good jobs, let us stand together, let us stay together, let us fight together, and let us win together. Let us change the course, the direction, the destiny of our movement, our environment, our country, and our world.

NEW SOLUTIONS, Vol. 19(2) 171-174, 2009

JOBS AND THE ENVIRONMENT

SERVICE EMPLOYEES INTERNATIONAL UNION (SEIU)

ABSTRACT

Noting that the U.S. is the largest emitter of greenhouse gases, the Service Employees International Union (SEIU) declares that the nation therefore "has a special responsibility to lead the way on emission controls and new investment in green technologies that can be adopted worldwide." The union has pledged to do its part and passed a resolution on the issues, incorporated here, at last year's annual convention.

We need to find opportunities in this economic crisis to help working Americans who are struggling. By investing in a green economy that promotes workers' rights to unite on the job, we can create a new generation of good jobs and address climate change in a way that protects workers and their communities. Two million SEIU members—health care providers, property and public service workers—stand ready to tackle two significant challenges with the Blue Green Alliance: we will fight global warming and revitalize our economy.

Andy Stern, President of SEIU

The SEIU joined the Blue Green Alliance in December 2008. But the union has long been a supporter of environmental issues. Over the last two years alone, SEIU participated in labor delegations to the United Nations Framework Conventions on Climate Change in Poland (December 2008) and Indonesia (December 2007), developed a guide for the union's bargaining teams charged with negotiating "green" contract provisions, and passed a comprehensive resolution on jobs and the environment.

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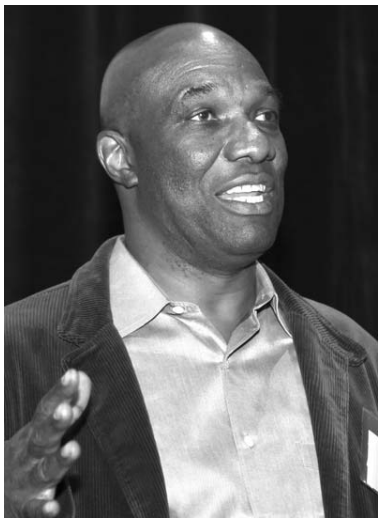

Gerald Hudson, International Executive Vice-President of the SEIU, hosted a reception at the Good Jobs, Green Jobs conference featuring Carol Browner, Assistant to the President on Climate and Energy and House Speaker Nancy Pelosi.

INTERNATIONAL CLIMATE TALKS

According to Marrianne McMullen, SEIU's representative to the U.S. Labor Delegation and a Blue Green Alliance steering committee member, SEIU's participation in the climate talks was spurred by "a growing level of grassroots member engagement on green issues, from members forming environmental labor-management committees in hospitals, to property service workers learning and practicing green building maintenance." She said the union was also motivated by "the recognition that so many of our members in large cities suffer disproportionately from bad environmental conditions, from high asthma rates among our children, to contaminated air, land, and water in our neighborhoods."

NEGOTIATING GREEN

In May 2008, the union published "Negotiating Green: Using SEIU Bargaining Power to Benefit Members, Our Children, and Our Environment," a guide for negotiating committees that provides information about a range of "green" contract provisions that improve the lives of SEIU members through a direct

financial or health benefit while also improving the environment. The guide describes provisions focusing on the following issues:

- Green Cleaning Products
- Healthier Health Care
- Alternative Transportation
- Daytime Cleaning
- Recycling
- Environmental Labor-Management Committees.

JOBS AND THE ENVIRONMENT

One month later, at the union's June 2008 convention, delegates representing two million working people in the United States, Canada, and Puerto Rico voted to pass a comprehensive resolution addressing jobs and the environment. The full resolution follows here:

Resolution #104 Adopted at the 2008 SEIU Convention

Jobs and the Environment

Our planet is at an environmental crossroad. If we take immediate and decisive action, the worst impacts of global climate change can be avoided. If we heed the warnings and advice of a unified scientific community, we can take action that will benefit all generations to come.

Working people already suffer disproportionate effects from bad environmental conditions—from high asthma rates among our children, to contaminated air, land, and water in our neighborhoods, to the increasingly high prices that we pay to heat our homes and fuel our cars. We must reduce the emissions that poison our communities and contribute to climate change. Continued inaction will add to deepening economic crisis and to the degradation of the environment and food supplies, and will intensify conflict for resources around the world.

As by far the largest per capita emitter of greenhouse gases, the United States has a special responsibility to lead the way on emission controls and new investment in green technologies that can be adopted worldwide. With prompt, effective action, we can create hundreds of thousands of quality green jobs, shift reliance to sustainable energy sources, and maintain and improve air and water quality. Public policy must ensure that polluters pay to emit carbon, thereby creating an incentive to pollute less. The money paid for emission permits must create a "climate dividend" that is spent to create quality green jobs, offset energy costs for low-income people, and invest in the development of green technologies.

As health care, public service, and property service workers, SEIU members have an opportunity to make a direct contribution to promoting quality green jobs by working with management to make changes that address climate change and environmental health.

Therefore be it resolved:

SEIU members recognize that we cannot build a more just and humane society without prompt and effective action on the environment. We stand ready to do our part to address the global climate crisis, including supporting emission reduction targets based on sound science.

SEIU and its local unions will involve members in developing and achieving new goals for contract negotiations and union-management partnerships that will improve jobs and address climate change. These goals will require public transportation benefits, adoption of more energy-efficient equipment, reduced use and improved disposal of hazardous substances, schedule changes (such as day cleaning that will reduce energy use), and more.

SEIU will strongly support and press for policies that promote major new investment in quality "green jobs," putting hundreds of thousands to work producing more energy-efficient buildings, appliances, vehicles, and other technology, and making far more use of renewable energy sources such as solar and wind power. These jobs should be quality union jobs that pay enough to support families.

As health care providers, we will advocate for the elimination of toxins in our workplaces and the appropriate disposal of hazardous medical wastes. We will also advocate for cleaner energy production to reduce the incidence of asthma and other health problems in our communities.

As property service workers, we will support increased development of and training for green building maintenance practices. We will also advocate for job development that will ensure that these practices are effective.

As childcare providers and homecare workers whose workplaces are homes, we will redouble our efforts to make our homes more energy efficient. SEIU will pilot programs to reduce the energy bills and the carbon footprint, or amount of greenhouse gases given off, for member homes that are also workplaces.

We will work for training and transition programs and other protections for workers whose jobs are affected or eliminated by efforts to stem climate change.

We will work closely with unions, environmental groups, community organizations, elected officials, and other allies around the world to address this crisis in a way that improves the quality of life for working people and provides protections for workers and their communities.

NEW SOLUTIONS, Vol. 19(2) 175-177, 2009

MASSIVE PUBLIC INVESTMENT NEEDED TO GROW GREEN ECONOMY

COMMUNICATIONS WORKERS OF AMERICA

ABSTRACT

The President of the Communications Workers of America, Larry Cohen, urges large-scale investments in research and technology in response to economic turmoil and climate change. He envisions one million made-in-America hybrid cars running on U.S. roadways by 2015 and use of alternative energy doubling within three years.

Speaking February 4 at the Good Jobs, Green Jobs National Conference, Larry Cohen, President of the Communications Workers of America (CWA), called on Congress to support President Obama's plan to make investments in science, research, and technology to reverse the massive job losses caused by the current economic downturn and tackle the serious threat of irreversible climate change [1].

"We're facing the most serious economic and environmental challenges in a generation," said Cohen. "We need real leadership that answers President Obama's call for investment in needed science, research, and technology so we can grow a cleaner green economy and put millions back to work."

Cohen said CWA supports the Obama administration's economic stimulus plan and the investments in a green economy, including:

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- Doubling the production of alternative energy in the next three years, which will require investments in science, research, and technology to expand and build new energy industries; and
- Putting one million plug-in hybrid cars—which can get up to 150 miles per gallon—on the road by 2015, and ensuring that these cars are built in America.

Green Recovery: A Program to Create Jobs and Start Building a Low-Carbon Economy, a recent report released by the Blue Green Alliance and the *Green Jobs for America* campaign, indicates that a $100-billion green investment nationwide could create two million jobs in just two years [2, 3].

According to the report, America currently has the workers needed to fill these newly created jobs. The typical green job utilizes the very skills scores of middle-class Americans already have—from engineers to carpenters, electricians to steelworkers, and farmers to truck drivers.

CWA's industrial division, IUE-CWA, is already contributing to President Obama's cleaner green economy goals by helping put more hybrid cars on the road. Cobasys, an American manufacturer of hybrid car batteries in Springboro, Ohio, employs nearly 200 IUE-CWA workers to build batteries for America's next generation vehicles.

One IUE-CWA member who works at Cobasys, Shawn Grimes, was on hand at the Good Jobs, Green Jobs conference to share his experiences and encourage other businesses to invest in American workers.

"Many of my co-workers lost their jobs due to plants closing or production being sent overseas. Thankfully, Cobasys decided to invest in U.S. production of hybrid car batteries so we could help build a green economy and get America out of the red," said Grimes.

"I believe that the government's support, both at the national and state level, will better help companies like Cobasys invest in green technology and encourage consumer demand for related products."

According to Cohen, too often the jobs associated with new innovations like the hybrid car battery are shipped overseas. General Electric, which employed IUE-CWA workers, produced filaments for incandescent light bulbs in their Youngstown, Ohio plant. After employees developed a new long-lasting, energy-saving florescent bulb, the compact fluorescent light (CFL), the company chose not to upgrade its U.S. plants to produce the bulbs. Instead, GE decided to lay off employees and shipped the jobs to China [4].

According to Cohen, by transitioning early from regular batteries to hybrid batteries, Cobasys decided to do what GE did not—upgrade its U.S. operations. This positioned Cobasys as a leader in the field and they have been able to expand and employ more skilled American workers while other companies are still closing U.S. plants and shipping jobs overseas. Cobasys' batteries have the potential to make a huge difference in reducing greenhouse gases. Compared to the average vehicle, a hybrid battery increases fuel efficiency by eight to 10

percent. In addition, hybrid cars that use hybrid batteries emit up to 97 percent fewer toxic emissions and half as much greenhouse-causing carbon dioxide as the average car.

"There are thousands of skilled workers who are jobless and can benefit from reinvestment in the production of green technologies right here at home," said Cohen. "That is why CWA is working with local and state governments to promote the growth of green union jobs like those at Cobasys. We want America to continue to be a leader in the development and production of green technologies and call on lawmakers to join us and other fellow Blue Green Alliance members in supporting green investment in America."

REFERENCES

1. CWA represents 700,000 workers in the United States, Canada and Puerto Rico. It's one of America's fastest growing unions. CWA members work in communications, media, airlines, manufacturing, and public service.
2. *Green Recovery: A Program to Create Jobs and Start Building a Low-Carbon Economy,* was written by Robert Pollin, Heidi Garrett-Peltier, James Heintz, and Helen Scharber of the Political Economy Research Institute (PERI), University of Massachusetts-Amherst. The report was commissioned by the Center for American Progress. Project Managers at CAP were Kit Batten, Managing Director for Energy and Environmental Policy, and Bracken Hendricks, Senior Fellow.
3. Green Jobs for America is a national campaign to educate the public about the need for investments in good, green jobs. Partners include the United Steelworkers, Sierra Club, Blue Green Alliance, Natural Resources Defense Council, Working America, Green for All, Center for American Progress, and the New Jersey Work Environment Council.
4. For more about the Cobasys and GE stories, go to www.cwa-union.org/news/green-manufacturing-tales-of-job-growth-and-job-export.html

NEW SOLUTIONS, Vol. 19(2) 179-183, 2009

TOGETHER WE'LL TAKE AMERICA BACK

VAN JONES
President, Green for All

ABSTRACT

In this excerpted speech, Jones asserts that politics was realigned last year, and it was inspiring. It also was the first step in a movement. Now the struggle goes from the ballot box to the work place to devise an economy to help both people and the planet. We must find our way back to the wisdom of our close-to-the-earth ancestors to move forward wisely from this place. And you are Ground Zero.

This is a profound movement. This movement is deeper than a solar panel (as important as a solar panel is). And, for those of us who have been working for a long time, who've been waiting for a long time, for some way for us to come together, and show the world a different America, to show our communities something better, to get past these old divisions, this is a movement we've been waiting for, and wishing for, and wanting for a long time.

There was an expression of it in the electoral arena, where you saw people of all different colors, and classes, and faiths, coming together, and standing together, to try to make a change happen. There's something about the electoral dimension that can show you something when you see so many people coming together to do the same thing on one day, to vote for hope in one day, and to realign politics.

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And that happened last year. But, the people who most broke with the pattern were the people who never voted before, the districts where the turnout went up 100 percent, 200 percent, 300 percent! Okay, they weren't trying to win on one day, they were hoping for a change that would let them win every day.

When you realign politics, that's the first step in a movement. Then you get to reinvent the economy. And, this dynamic inside the green jobs movement is an attempt to let us express every day—not just in the thin political arena, but in the thick guts of the economy—the unity of purpose, of pride, of solidarity, among people of all colors and different classes. This movement is a profound movement, because if it succeeds—when it succeeds—it will let us show the world that November was not a fluke, it wasn't an aberration. It wasn't the end of something, but it was the beginning of something profound in the history of this country. That's what this movement is!

Now we carry the struggle from the ballot box into the workplace. We carry the struggle now from the ballot box into the halls of Congress, to try to change the living daily reality of people, and to have a new economy. This old economy that hurt the people and hurt the planet—we're done with that now. We want a new economy that can help the people and help the planet. And it's important that we recognize that it's even deeper than Barack Obama. It's even deeper than our present moment. Because it's also about Western Civilization. What Winona La Duke [the Executive Director of Honor the Earth] was trying to say in a nice way, is—I told you so.

All of us come from tribal people, all of us in this room, and yet, something happened. Your great great grandmother was right. She was close to the earth. I don't care where you came from. You might have one or two more greats, or a couple fewer greats. Your great great grandmother was right. She was close to the earth. She was close to the land. And somebody, somewhere, got a different idea, a renegade minority in Europe who said, "We got a better idea. We don't see this is a planet, we see it now as a plantation. And we're gonna go around the world and start telling people that they're mistaken. That's not a tree, that's lumber; that's not an animal, that's a pelt."

And your great great grandmother said, "No! No! This is wrong!"

"This is precious, this is sacred. That river is sacred. That tree is sacred. Don't mess this up, don't destroy this." And the colonizers said, "No, no, no, you're uncivilized. You're a savage. If you're in Europe, you're a witch, you're a pagan. If you're any place else, you're uncivilized. We've got to educate you."

"No, you can't put a pricetag on this." That's what you're great grandmother said. And the colonizers said, "No, we can put a pricetag on everything, including you."

That happened. That happened. And now, just a few hundred years later, things are looking kind of bad, things are looking kind of treacherous, weather is getting kind of whacky, water is tasting kind of funny. Scariest channel on TV?

The Weather Channel. You can't even let your children watch the Weather Channel. No, no, watch Freddy Kruger, that's too scary. Something wrong. Something wrong.

Your great grandmama was right. And so now, inside the West, inside America, something is starting to stir, some wisdom is starting to emerge. This country, that has every color and every class, all the peoples of the world that have come around this campfire, and a new conversation is starting, a new conversation is starting about, "Is there some way that we can find our way back home now. Is there some way we can find our way back to grandmama's wisdom?"

Now, *Vanity Fair* calls that, "The Green Economy." (And we'll take that word, that's all right, green is a good color, because it's got all kind of different shades and colors of green that we just saw. We'll take that color). But it's deeper than *Vanity Fair*, it's deeper than a solar panel, this is the human family coming back to itself. That's what's happening in this conference. That's you so happy and excited, that's you singin' songs about installation. Because you can feel something that's beginning to knit itself back together that's been torn apart too long. That's what's happening in this conference. That's what's happening in these organizations. That's what's happening in these movements. The human family gets to make a decision. Am I right? Who are we!? In the final hour, who are we? Are we locusts? Was America a mistake? Was Western Civilization a mistake? Was the human species a mistake? Are we locusts? Are we going to drive mass extinction, until we extinguish ourselves? Are we locusts, or are we honey bees? What kind of species are we? We know we're going to work, we know we're going to be busy, can't sit still no way. But what kind of work, and what kind of relationship will there be between that work and our brother and sister species. So this is a profound movement. And you can walk in the dignity of that. This is a redemptive movement. This is a noble movement. This is a movement that our great great grandmothers are encouraging with whispers in our ear: "Be braver, be braver. Don't get up there and give the same old speech, Van." (They've heard it before, Brother. Too many times). Be braver, be braver.

If we just stop at a clean energy revolution, we won't have done anything. Am I right? Am I right, Brother Steelworker? If we just stop with a clean energy revolution, but we don't deal with how we're dealing with water, and food, and waste, and toxics, and how we treat each other, all we're gonna have is solar power bulldozers, solar power buzz saws, and biofuel bombers, to fight wars for lithium for batteries, rather than oil, and we'll still have a dead planet in a hundred years.

So, this movement is a profound movement, this movement represents the best hopes of a people, a nation, a species to take the best of the West and marry it to the best of the indigenous wisdom, and create a new world. Well, now, if that's our movement, then we get to do something world historic. And we have

to make sure we don't compromise in the short term—for quick expedience, power. Long-term transformation, see, if we decide that that's what we want to do, we need everybody. We want to just pass a bill—we need just a few people, and some lobbyists, you know, and some ads in the *New York Times.* "Add that to my report." "Here you go Mr. Foundation Man, another victory for us." "Make your check payable to . . ."

If that's the kind of movement that it is, we'll have a lot of grants and awards on a dead planet, so—we gotta be bigger than that! Let me say this: let's be braver. Let's build a green growth alliance that includes everybody, so we can turn this thing around. If we do that, we can build a green economy that Dr. King would be proud of. We can say to anybody, "You living in the ghetto? You living in the barrio? You living in the 'hood? Let me talk to you, brother, let me talk to you, sister."

We've got to beat global warming. Seventy percent of global warming problems are the cities. They're leaking energy. Traffic patterns are messed up. How we do food. We can't beat global warming without greening the cities, without greening the ghetto. You are ground zero to our agenda. The only way we can save the polar bears is to save you, sister. The only way we can save the Arctic, is to save the neighborhood. And give you the tool, the training, and the technology to put up solar panels by the millions. And to heal our buildings so they don't leak so much energy.

You are ground zero. If you are a Native American, no more broken treaties. We shoved you into all the hot windy places—and that turns out to be the most valuable place in America—we gonna honor that, and we're going to let you rise, back to your place, to lead us out of this mess. No more broken treaties on our watch!

If you're an immigrant, thank you for coming to help us. We need your help. We need your wisdom. You've got more sense in your country than we do here. Thank you for coming to help us.

If you're a farmer, we want you to grow beautiful crops, without poisons now. Organic, local crops. And wind at the same time.

If you're a coal worker, we're going to stop treating you like you're the enemy. You are a hero, Coal Miner! You're a hero! You've sacrificed your lungs. Sacrificed your lungs, sacrificed the health of your children to power America to this point. And now, some people want to ask you to blow up your grandmother's mountain, to scrape out the coal, destroy your ability to even drink water, without black sludge coming out. And we say to those people who want you to destroy America's beauty, we say to them, that, you are the enemy of Appalachia, not us. We want to see wind turbines on those mountains. We want our coal workers to walk down Times Square as heroes! We want them to have a new future, and we want Appalachia to be protected.

And we're tired of the sacrifice zones in this country. From New Orleans to Appalachia, being used and pimped by people who care nothing about the

people there. This movement cares about you. And the sacrifice zones of the gray economy will be the sacred zones of this green economy that we are building.

So in conclusion, we've got work to do. This is it. They're going to try to make that man in the White House look like a fool, you hear me? Every time he says something about green stuff, here comes Wall Street, here comes Fox, here comes the Heritage Foundation—none of them have had a good idea yet. And here they come attacking this man, who's a leader, who's trying to stand for something. So it's going to be up to us now to go back home. And say, no, we can't have this union hall have only the same four last names in it no more. We've got to take a stand now. We've got to get some of those funny colored folks to come up in here because we're going to have some different shades and hues of blue now, because it's a new century. And the labor movement now is going to be bigger and bolder, and greener, and more diverse, and will become the pillar of this whole democracy movement if we take this conference seriously and go back home with it. The labor movement will power us through!

So be brave. There's only three kinds of green jobs to have now. The green job where you're giving somebody a job, the green job behind the desk in the oval office, and the green job that's a union job. Those are the only three kinds of green jobs that we want.

So we need labor to do that—and we need black folks to act right too. We had a lot of black people up here today. But, black folks, I'm going to tell you right now, you don't want the green movement to be white only, we can't have it be English only either, we need to have some black-brown solidarity on this point. I know I might have offended somebody, but I don't care, I'm going to say it anyway—I don't care if I make you mad. We need to have solidarity across all of these lines. But if we do that, we will have done something extraordinary, we will have matched the magic and the genius of the man in the White House. He's a beautiful brother.

And he's done something extraordinary. Because of him, America is back. For the very first time. America is back. For the very first time. Because of him. That's genius, man. That's bad. We finally got the country they promised us in kindergarten. Liberty and Justice For All is on the horizon now. I'm not lying to my children. You can. Yes you can. Yes we can. If we do our work, right and well—Barack Obama brought America back—if we do our work right, standing right beside him when we can, a few steps ahead of him when we can. If we do our work well, working with him, we can do more to take America back. For the first time, in a long time. We can take America and the world forward.

(*Excerpted remarks from delivery at the Good Jobs, Green Jobs conference.*)

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GLOBAL GREEN NEW DEAL

ACHIM STEINER
Executive Director, United Nations Environment Programme

ABSTRACT

The last year was marked by food, fuel, and financial crises and the latter has translated itself into a global economic crisis. Climate change is accelerating and, unless checked, it promises to be the greatest market failure of all time with serious and significant implications for employment and economic activity. We must produce and consume in far more efficient and less extractive ways; we must re-invest in the productivity of the work force, innovation, and the natural assets that beget prosperity.

The United Nations Environment Programme (UNEP), of which I am the Executive Director, has its global headquarters in Nairobi, Kenya.

I mention it for two reasons. Firstly, because we are one of only two UN agencies headquartered in the developing world. It perhaps gives us a different, if not even a unique, perspective on world affairs. We are confronted daily by the evidence of inextricable links between environmental degradation and poverty, unemployment and other keenly felt economic, social, and ecological factors. Secondly, because President Obama's father was Kenyan and his election has meant so much to the people of East Africa, not least to many of the staff at UNEP.

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MULTIPLE CHALLENGES NOW AND IN THE NEAR FUTURE

The world, including the United States, is going through one of the most challenging moments in its history. But some economies and some world leaders are committed to turn crisis into opportunity and to show leadership during grim economic times.

President Obama has signaled by word and also by recent deeds to want to do just that and in doing so to re-establish U.S. leadership at home and abroad across a suite of compelling, contemporary issues. It could not come a moment too soon.

The year 2008 was marked by the food crisis, the fuel crisis, and the financial crisis which has translated itself into a full-scale global economic crisis.

And there are more to come. President Obama has talked about a "planet in peril."

Climate change is accelerating and, unless checked, promises to be the greatest market failure of all time. It has serious and significant implications for employment and economic activity now and throughout this and the next century.

With serious ramifications too for poverty, health, and the natural or nature-based services that underpin lives and livelihoods in the developed but especially in the developing economies. Sir Nicholas Stern, on behalf of the UK Government, has estimated that global GDP could be cut annually by five percent and perhaps as much as 20 percent unless the world deals with rising greenhouse gas emissions.

Other market failures are emerging. Natural resource scarcity is reaching a tipping point, with limits being met and passed on scores of fronts. In mid-February, the world's environment ministers will meet at UNEP headquarters for the UNEP Governing Council/Global Ministerial Environment Forum.

Here we will present some of the latest findings on the state of the world's ecosystems, such as forests and soils to coral reefs and fisheries, in our UNEP Year Book 2009.

A few facts:

- Entire forest systems have effectively disappeared in at least 25 countries and have declined by 90 percent in another 29 countries.
- Since the onset of industrial fisheries in the 1960s, the total biomass of large, commercially-targeted marine fish species has declined by a "staggering" 90 percent, says the Year Book.
- On current projections, the availability of cropland per person is set to drop to 0.1 hectares requiring a rise in agricultural production "unattainable through conventional means."
- Soil degradation, linked with intensification, has now and already affected all but 16 percent of the world's croplands.

Overall, the 2005 Millennium Ecosystem Assessment concluded that 60 percent of the Earth's ecosystems are damaged or being degraded. The Year Book confirms that many of the trends continue unabated.

In the past, environmental crises were essentially local—pollution of the local lake, fly-tipping in a city park, perhaps the felling of a much-loved forest. Today, as a result of the consumption and production patterns of the industrialized economies and newly emerging ones, the level of degradation is having global consequences.

In years gone by, communities and societies could move on—could avoid calamities by emigrating to find safer, more prosperous places where opportunities were manifold.

That is not possible in a world of six—rising to nine—billion people, where resources are finite. We have to produce and consume in far more efficient and less extractive ways where we re-invest in the productivity of the work force, innovation, and the natural assets that are the foundation of prosperity.

The good news is we still have choices—the point at the fulcrum of today's meeting.

The Intergovernmental Panel on Climate Change (IPCC), established by UNEP and the World Meteorological Organisation, estimates that somewhere around 0.1 percent of GDP spent annually until 2030 can lift the threat of climate change.

A [new] peer-reviewed study by the consultants McKinsey estimates that greenhouse gas emissions could be cut by 40 percent by 2030 over 1990 levels through a suite of readily available technological options.

That represents a 70 percent cut below a "business-as-usual" scenario; it represents, too, a lot of green jobs here and abroad.

GLOBAL GREEN NEW DEAL— GREEN ECONOMY INITIATIVE

One thing that is not in short supply is human ingenuity nationally and internationally.

In October last year, UNEP launched its Global Green New Deal—a response to the immediate crises—and Green Economy initiative, a more medium- to long-term strategy.

Both echo and support the agenda and direction of the new U.S. administration in that they both see the challenges but also opportunities through a national but also global lens.

Part of the UNEP initiative includes work on green jobs, conducted with the International Labour Organisation, trade unions, and employer organizations.

In terms of developed economies, this report drew heavily on the experiences and initiatives of many of you.

Proof, if proof were ever needed, that the United States is and can increasingly be the font of inspirational and transformational policies so urgently needed in the 21st century.

I will not recite back to you the long list of statistics on how many jobs could be generated in the United States from "weatherizing" homes to investing in high-speed rail links, wind and solar power—only perhaps to suggest that the potential for green jobs may be even higher than is commonly supposed.

The United States leads with 3,000 MW of installed geothermal energy followed by the Philippines with close to 2,000 MW and Indonesia with 1,000 MW.

A new assessment coordinated by the Massachusetts Institute of Technology indicates that the United States could provide a significant slice of its base-load electricity from geothermal.

It says that the U.S. has enough geothermal potential to generate 100,000 MW (100 GW) of base-load electricity by 2050 by investing in enhanced geothermal systems.

Current total energy generation in the U.S. is somewhere under 1,000 GW of which between 0.23 percent and 0.4 percent is estimated to be geothermal, according to various sources.

The report says that there is a widely held view that high, exploitable levels of geothermal resources do not exist in the US.

But the report says: "Enhanced Geothermal Systems (EGS) represent a large, indigenous resource that can provide base-load electric power and heat at a level that can have a major impact on the United States while incurring minimal environmental impacts."

Combined public and private investment of $800 million to $1 billion is needed over a 15-year period to get it up and running commercially and to realize 100 GW by 2050. Somewhere over $200 million of this is needed to achieve a break-even point with coal.

This is equal to total Research and Development in the last 30 years globally on EGS and still less than the cost of a single new-generation "clean coal" power plant.

And what about the employment and revenue-raising potential here and abroad if the U.S. exported its cutting-edge geothermal know-how?

Various studies estimate that, for example, geothermal could grow by 900 percent in Papua New Guinea and by 90 percent in Turkey.

In Africa UNEP is working to develop geothermal in the Great Rift Valley from Kenya up to Djibouti; Germany and Iceland are involved, why not the United States?

GREEN ECONOMY IS AN IDEA WHOSE TIME HAS COME

The United States is not alone in glimpsing an economic renaissance through a green lens. There are shining examples of Green Economy solutions—even though perhaps they were not termed that at the time—developed and implemented in Europe, Japan, and elsewhere in the Organization for Economic Co-operation and Development (OECD).

Feed-in tariffs in Germany and Spain have spawned an extraordinary renewable revolution there. The incredible energy efficiency of Japan has been triggered in part by that country's historic lack of natural resources and thus its need to make every drop go further and farther.

Well over 90 percent of Iceland's electricity is either hydro or geothermal—a deliberate policy decision taken after the oil crisis of the late 1970s/early 1980s.

Developing economies are also involved. Costa Rica and Mexico with their long-standing pioneering payments for ecosystem services—essentially paying poor rural people to manage forests and watersheds in the sure and certain knowledge that this is a big bang for your buck.

Grameen Shakti is a company launched by Nobel Peace Prize laureate Professor Muhammad Yunus' Grameen Bank—a pioneering microfinance organization in Bangladesh. It has been leading a quiet renewable revolution in the country selling and financing solar photovoltaic panels and greening the energy supply of over 8,000 homes in Bangladesh every month. Women who buy these panels become village electricity distributors, selling their solar electricity to neighboring homes at no more than the monthly cost of kerosene, their normal fuel. The plan is to convert a million homes from health-damaging kerosene stoves to solar electricity by next year.

Too often we are told certain things are not possible—too often the vested interest or vested ignorance has won out. Brazil was told several decades ago that developing an ethanol economy was economic folly—we know different now. Only recently UNEP was told that getting solar power to rural people in India was impossible as it was unaffordable and too risky for banks. In cooperation with the UN Foundation and two foresighted Indian banks, we brought down the cost of solar loans. The short-term subsidy put solar into 100,000 people's homes almost overnight. The project is now self-financing and hundreds of banks are now involved.

So "Yes You Can, Yes We Can, Yes We All Can!"—if we can share ideas and fast-forward innovative ideas.

Globalization means that the ups—and currently the real downs—of the global economy reach everywhere. But so, too, do ideas and imaginative initiatives.

The challenge today is to embed green economic policy in national economies everywhere—to make the many shining examples already pursued here and there part of the mainstream of economic thinking, part of the "here and now."

I believe the rest of the world can learn from your experience and you from theirs, and that the UN's convening role can be the platform.

UNEP's Global Green New Deal report, bringing some of these global ideas and policy-actionable initiatives and compiled by a team of leading economists, will be published on February 16 at our environment ministers gathering. It will draw on these and countless other examples. It will draw too on President Obama's stimulus package, with its many environmentally focused recovery strategies.

It will draw too on China's over $140-billion stimulus and its pro-employment focused investments in rail rather than road, renewables, and investments in river systems.

Also in the Republic of Korea, jobs are being lost for the first time in more than five years. President Lee Myung-bak of the Republic of Korea has a plan to invest $38 billion employing people to clean up four major rivers and reduce disaster risks by building embankments and water-treatment facilities. Other elements of his "Green New Deal" include construction of eco-friendly transportation networks such as high-speed railways and hundreds of kilometres of bicycle tracks alongside generating energy by capturing methane from refuse tips. With an eye on both the short and the long term, the package will also invest in developing hybrid vehicle technologies for the car industry.

Japan's stimulus package also includes plans to lead a "low-carbon revolution" and generate one to two million jobs through tax breaks in areas such as electric cars, low-energy appliances, and renewables.

In the UK, $100 billion is to be spent on renewable energy in order to generate 15 percent of the country's electricity by 2020 and to create "hundreds of thousands of new 'green-collar' jobs." The UK government also has just announced multi-billion dollar support for the UK car industry with that support linked to developing high technology and green vehicles.

If we are to deal with the immediate crises and the ones just around the corner, then every dollar, Euro, peso, and yuan is going to have to work smarter and harder. These investments are being made now in order to counter the various "crunches" need to set the stage for a resource-efficient, innovation-led, economic renaissance.

One that tackles the fundamentals, rather than papers over the cracks: one that sets the stage for Green Economic growth.

Investments will generate not only employment, but decent jobs for the 1.3 billion people unemployed or under-employed and for the half a billion young people who will join the global work force over the next ten years, not just in the United States and the rest of the industrialized world but in the rapidly developing and "hardly" developing economies of the global South.

MAKING MARKETS WORK—UNLEASHING INVESTMENT

There are still many voices being raised saying we cannot afford it—that it is interfering in the market as if the market was some perfect construct—independent of human affairs; that elected governments have little or no role left; that regulation and standard-setting are outdated, stifling for business, just more "red tape."

We know, very much as a result of the last 12 months, that markets are not divine creations—they are made by men and women and as such they can be redesigned by human beings and governments to achieve multiple aims designed to invest in long-term, sustainable profits, wealth creation and decent kinds of employment—where some balance is re-established between financial, human, and environmental capital. Where refocusing and redirecting markets, not stifling them, can bring some intelligent management of natural and nature-based resources and of energy use—where we draw a line between the extractive and short-term models that have characterized so much of late twentieth-century economic focus and the crucial factor X of sustainability.

DOES THE U.S. NEED THE REST OF THE WORLD—SHOULD IT BACK A GLOBAL GREEN ECONOMY?

There may be those who wonder why it is in the interests of the U.S. to support green growth globally. I believe the lessons of 2008 make the "why" abundantly clear. Globalization has economies interconnected in ways that are perhaps impossible to disentangle—the global village is a reality.

It used to be said that if America catches a cold, we all get one. There are now countless countries, and growing, from where colds can come but also where cures can be found.

The U.S. has been at the forefront of innovative ideas and innovation—today it must also champion the international cause of the green economy and of a transition to a low-carbon society.

To transform the U.S. into a resource-efficient, clean-tech, decent employment-led economy is crucial for its own sake, yes. But the U.S. also has a key leadership role globally and self-interest in working multilaterally.

Put simply, unless there is a global green economy, who will be out there to trade with and to buy—let alone deploy—this new generation of high-tech, highly efficient goods and services produced by the U.S.?

Secondly, and as mentioned before, climate change knows no boundaries and respects no race, creed, ideology, or philosophy.

A strong economy can, for a while perhaps, shore up its infrastructure, coast-lines, agriculture, and water supplies to increasingly extreme weather events. But not forever, and not if greenhouse gases take global temperatures beyond two, three, four degrees Centigrade.

Per capita emissions in the U.S. are currently five times the global average and 200 times that of someone living in one of the poorest parts of the world. Indeed, the UN estimates that the average air conditioning unit in Florida is responsible for more CO2 in a year than a Cambodian is in a lifetime.

It's better—but not so much better—in Europe. An average dishwasher there produces as much CO2 in a year as three people do in Ethiopia. Thus, the historical legacy is the United States', as it is Europe's, Japan's, and the rest of the industrialized world.

However, even under a relatively modest emissions growth scenario, non-OECD countries will account for about 70 percent of the warming problem in 2100, and an even larger part of the growth in emissions in the next 100 years by some estimates.

Over the 21st century, with no internationally agreed constraint, the developing countries will emit four to five times the amount of carbon dioxide emitted by the developed economies over the last century and a half.

Thus the legendary innovation, science, and high-tech know-how of the U.S. should and must be brought to the global stage—it is in the interests of the U.S. and the rest of the world's 190-plus sovereign states to see technology transfer and the adoption of low-carbon products. All countries have a stake, and a role, in the solution.

An engaged U.S., for example, will stimulate low-carbon markets at home and export markets abroad and build international confidence that the world's most powerful economy can also be a low-carbon one. If the U.S. can do it, so can Brazil, China, India, and the other rapidly emerging economies: it is the trigger for global agreement and confidence-building.

A U.S. in the UN carbon markets will also add traction to the global carbon investments under the UN Framework Convention on Climate Change and its Kyoto Protocol from emission trading to the offset instrument—the Clean Development Mechanism.

The move to include tropical forests in these emission-offsetting measures may be the key to conserving these vast, natural utilities that currently moderate much of the climate, water supplies, and nutrients on a global scale—currently they do it for free, soaking up the emissions of the rich countries to the tune of billions of dollars a year.

The litmus test of international commitment, including that of the United States, on climate change comes in just over 300 days from now. Governments must agree to a deep, meaningful, inclusive and transformational new deal at the crucial UN climate meeting in Copenhagen at the end of the year. Achieving it must be one of the central goals for the Green Economy over the coming months—it could perhaps be the biggest and most far-reaching stimulus package of all.

THE ERA OF RESPONSIBILITY— NATIONALLY AND MULTILATERALLY

President Obama has called this the era of responsibility. I share his sentiments.

UNEP's role is to encourage and to establish the norms and standards that assist in promoting responsible economic activity and sustainable trade. It is done in part through convening the best and brightest brains and the world's governments and by underlining the big factors that bind us rather than narrow differences that set us apart often needlessly and at great cost.

Our role is also to bring forward the latest global science on climate change to the state of the world's oceans alongside the policy options that can catalyze fair and equitable change within a family of nations at different stages in their development paths.

The era of responsibility is generational but also inter-generational—in bailing out the banks and rescuing jobs we cannot transfer the costs and the debts to our children—we cannot compromise their right to decent work and livelihoods; to a healthy and functioning planet.

Thus the decisions taken in Washington, D.C., in April at the G20 summit in London, and in Copenhagen and beyond will not only ripple across countries and continents but will reverberate and echo down the generations.

I believe that the UN and its environment program need the U.S. as never before and that in a globalized world the U.S. in turn needs the UN and the multilateral system.

The U.S. is one of our founding fathers and like all families we have had our ups and downs. But let us not forget that the President who signed the UN Charter in San Francisco 64 years ago and who saw the value in multilateralism as a force for good in the world was none other than Franklin D. Roosevelt—the architect of the New Deal that powered America out of recession and inspired the Green New Deal being taken forward in the White House and elsewhere today.

The UN and the U.S. share a common history—today we celebrate a common vision on green jobs in a green economy. Perhaps I can leave you with the words of Issac Wright Jr., an ex-convict and participant of Growing Home Inc., which offers "social business enterprise" job training for low-income people here in the U.S. It is perhaps a very personal view of the "era of responsibility" but one that I think sums up the direction that so many people from Calcutta to Cairo and Canberra to Chicago want from their leaders—a New Deal that is Green and one that has global dimensions.

Asked about a green job, he told the *Chicago Tribune*: "I can't see past today. But if I'm allowed to wake up tomorrow, I'm going to do everything I can to help out. If it means saving the Earth, why not? Because you only get one Earth, right? Like you only get one mama."

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A STRATEGIC APPROACH TO A GREEN ECONOMY

RICHARD L. TRUMKA
Secretary-Treasurer, AFL-CIO

ABSTRACT

The crash has happened and we face dual market failures: climate change and the greatest economic crisis of our lifetimes. American labor believes that we must have a strategic approach to greening the economy centered on domestic investment in new technologies, the creation of good jobs, and leading a shared international response to both these issues. The nay-sayers are the same financial and industrial interests that advised the world economy into chaos. Their advice to us is more of the same: no rules, no regulations, free markets, and free trade. But now is the time for real change.

What a year it has been!

Who would have dreamed a year ago we would be here today with a new government and our first African American President, Barack Obama. This was an election that changed history. It forced us to face up to and struggle with issues of race and class. It helped our nation turn a corner and there is no going back. Being here today is all about moving ahead. I want to thank the Blue Green Alliance and all the trade union, environmental, business, and community partners responsible for this event.

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This is a very good week to be in Washington, D.C. to talk about good jobs and green jobs. It comes at a time when good ideas and loud voices are desperately needed. And, yesterday Congress saw a multicultural, multiracial, labor and environmental army that was a voice for workers, a voice for good jobs, and a voice for a cleaner planet.

For some, I'm sure, it was disconcerting to see the Sierra Club with their Pro-Worker, Pro-Union, Pro-Employee Free Choice posters. Others were shocked to see union members and environmentalists walking the halls of Congress together. To both I say . . . get over it.

It's no secret that there are still some issues we differ on but we also recognize that we are bound together by a greater ideal. As I have heard my union brother and friend, Leo Gerard, say so many times: "We reject the notion that we have to choose between good jobs and a clean environment. It's not one or the other. It's both or neither."

Your presence on the Hill spoke to that ideal. It was such a contrast to all the suits wandering the marble halls from the National Association of Manufacturers (NAM). It was their big lobbying day too. Did they come to lobby for green jobs or a cleaner planet . . . NO! They came to say "no" to the Employee Free Choice Act, no to regulation, no to a new trade policy . . . and were silent on Buy America. After losing 500,000 jobs last year and 4.2 million since 2000 and the closure of 40,000 manufacturing facilities, you'd think NAM would change its tune. They should be here, working with us, to drive a good-jobs, green-jobs policy for America. Their absence is a metaphor for the challenge before us.

The AFL-CIO recognized this in our 2008 Greening the Economy statement that ended with the words: "The nation stands at the crossroads of opportunity for domestic investments in innovation, new technology and energy efficiency that will save jobs, create new jobs and new industries and revitalize American manufacturing. There is no guarantee that these will be good jobs or that the investments will be made here unless we fight to make it so."

We wrote that we knew our nation had to take bold steps to meet the 21st-century challenges related to climate change and that the world is looking to this nation for leadership. We knew we faced a climate change crisis that the United Kingdom's Stern Commission said "represented the greatest and widest-ranging market failure ever seen."

We also knew that our nation was on the verge of an economic meltdown with inequality soaring, tens of millions without health care, secure retirement becoming a luxury of the rich, and where good middle class jobs, investment and innovation have been our leading exports. Now the crash has happened and we face dual market failures: climate change and the greatest economic crisis of our lifetimes. The American labor movement believes that we must have a strategic approach to greening the economy centered on domestic investment in new technologies, the creation of good jobs, and leading a shared international response to both these issues.

There are a lot of voices who'll scream that, given the scale of the economic crisis, America can't afford to deal with climate change or to Buy America or to renew the fundamental compact between the federal government and the American worker. That compact is based on the simple understanding that government has a responsibility to act as a countervailing power on behalf of workers and their families; and the belief that shared prosperity is fundamental to a democratic society.

The nay-sayers are the same financial and industrial interests that advised the entire world economy into chaos. And their advice to us is more of the same: no rules, no regulations, free markets, and free trade. Enough! It is time for real change. What Barack Obama and the new Congress are faced with goes beyond making a few fixes at the margins. It gets to the heart of the issue people like Dave Foster, Bob Baugh from our Industrial Union Council, and international union delegates raised at the climate talks in Poznan.

They demanded that the governments acknowledge the economic situation and use it as an opportunity to drive a new environmental and economic development agenda. It is the same message the AFL-CIO has delivered to President Obama and to Congress. You can look across the next 20 years and see the waves of investments and technology we need. In the next decade there is enormous potential for good jobs. Modernizing and extending the electrical grid will enable the aggressive build out of renewable energy sources. Coupled with a smart distribution system, we could increase energy efficiency by an estimated 20 percent and diversify our generating base. Retrofitting public and private buildings and homes will create jobs, cut demand and save consumers money.

The expansion and increased usage of mass transit and passenger rail offers similar opportunities. Biofuel initiatives, the 2008 CAFÉ standards, and state renewable portfolio standards are already driving investments and creating jobs. These steps can take us a long way in reducing our emissions. At the same time, we must invest in reengineered technologies for the post-2020 era. The AFL-CIO recognizes that coal and nuclear powered plants are the primary sources of base load power and provide major employment opportunities. They must meet federal financial, regulatory, and environmental standards.

But, time is of the essence if we are to answer some critical questions about advanced coal technology. The United States, other nations, and industry need to quit talking about Carbon Capture and Storage/Integrated Gasification Combined Cycle technology and build full-scale models now. Each possible clean energy technology has its advocates and its detractors. But the urgency of the crisis requires that every solution that genuinely holds out the hope of reducing carbon emissions must be explored.

The economic recovery package makes those types of investments. We know that means we will build the wind turbines, install the insulation, solar panels and energy efficient windows here. But, will we make them here? It is absurd that this should even be a question. But, you can see the "Buy American" fight

we have had to engage in. No wonder other countries see this and laugh at us. That is why this is the moment for real leadership from all our institutions. In every area, the need is for scale, speed, and commitment.

The AFL-CIO is gearing up for the challenge. The Building and Construction Trades Department is working with affiliates and their training systems to identify best practice community-labor-business-government partnerships to enable them to respond at scale across the country. The Federation is expanding its training and research capacities through the creation of a Center for Green Jobs. It is headed by Jeff Rickert, whom many of you know from his years with the Apollo Alliance. We are also working with environmental, industry, and other partners on a series of studies on the impacts, opportunities, investment, and training needs under a carbon emission regime.

Our government must also lead. Greening the economy means that green jobs must be viewed broadly and be inclusive so that working families see themselves and their work as part of the solution. Every job that contributes to a low-carbon future is a green job. Congress and the Administration must be unambiguous in establishing an environmental economic development policy that seeks to increase the per capita income and protects the interests of working families. Workers exercising their free choice to form unions and respect for legal standards protecting workers' wages and benefits are fundamental to this goal.

Congress and the Administration must ensure that public resources are fully invested in the U.S economy. Be strategic—expand and enforce Buy American laws and use our financial leverage to get better technologies from overseas made here. Congress and the Administration can make green jobs good jobs by ensuring that they pay family-supporting wages and benefits, offer a real career path, reduce waste, and benefit the environment. Job and contractor standards are a prerequisite to good jobs.

Finally, the Green Jobs Act and its labor-management partnerships will assure good training for good jobs. Together with community and government partners, we need to train workers in the poorest and most marginalized parts of our country to take part in the great task ahead. We are a big society and a big economy. Investing in economic security for working people—helping families make it into the middle class and stay there—that's never been an obstacle to economic recovery; it's a precondition for it. I know President Obama believes that. He is unequivocal that a new energy policy and jobs go together. He is also clear on the role of unions in creating good jobs.

When we met, he said: "I do not view the labor movement as part of the problem, to me it's part of the solution. We need to level the playing field for workers and the unions that represent their interests, because we know that you cannot have a strong middle class without a strong labor movement. We know that strong, vibrant, growing unions can exist side by side with strong, vibrant and growing businesses.

"This isn't an either/or proposition between the interests of workers and the interests of shareholders. That's the old argument. The new argument is that the American economy is not and has never been a zero-sum game."

We share the President's 21st -century viewpoint. We know that energy and environment is not a zero sum game. And, we know we can be competitive and lean, mean and green and create a situation where workers are thriving in this country.

Working together, brothers and sisters, we will create a new economy and a cleaner planet.

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BLUE AND GREEN WORKING TOGETHER

JAMES P. HOFFA
General President, International Brotherhood of Teamsters

ABSTRACT

There's tremendous excitement across the land about good jobs and a clean environment. We teamsters have found that working together makes things happen. We have found a partnership with the Sierra Club and Public Citizen. We no longer support drilling in the Arctic National Wildlife Refuge. We'll pass the Employee Free Choice Act, too. Working together as partners, labor and environmentalists, and under this President, we can accomplish great things for working people and for the environment.

It's a great honor and a pleasure to be here at the Blue Green Alliance and to talk about issues that are near and dear to all of our hearts: the environment, good jobs, and how we rebuild America.

What an exciting time. How many people saw or watched the inauguration? I mean was that it or was that ever, you know? It's a rebirth of America and it's a rebirth of what we believe in: good jobs and a clean environment.

We really have a tremendous start, a tremendous excitement is everywhere throughout America and especially here in Washington because, after eight years of George Bush, we need a new start, I'll tell you that.

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It's been rough, but I've got news about that: he's back in Texas where he belongs. I hope he doesn't come back.

You know, we're talking about how we got together. And you know the Teamsters and the environmental movement weren't always together. I mean there was this thing back in the '80s and '90s where people didn't think that blue-collar jobs and the environment worked together. And it took time for us to work together to find ourselves.

Issues and events came about that I think brought us together. And it's a very great pleasure for me to talk to you about the Battle of Seattle and I wish Leo Gerard was here, my dear friend, because Leo and I were side by side getting tear-gassed and pushed around by the cops. But we were the ones, along with all the environmental movement, who took to the streets that day, and we were the ones who basically attracted the national interest in how we could stop the World Trade Organization (WTO).

And everybody thinks you can't stop the WTO, this cabal of world capitalists, who move people around, workers and basically resources all over the world, for a race to the bottom. And we got together and said, "Not here. Not in Seattle." And with the environmental movement we got together and we tore that town up and we stopped the WTO in its tracks and we've got to do it again until we get it right. We've got to do it again.

And I was there with Sherrod Brown. Sherrod was just talking with me. And a great man called Paul Wellstone. Many of you know Paul Wellstone and what a loss he was because Paul Wellstone spoke out with us and walked the streets with us and was another great fighter for America.

There are so many things we can do. But talk about that day and I have a picture in my office of a woman who had dressed up as a turtle—and I always say that Teamsters and Turtles came together that day. It was fun, you know, because that was the beginning of our dialogue with the environmental movement, about talking about instead of working against each other or thinking that we were in different worlds; we all share the same planet, share the same environment. And we have to find a way to work together and that's what we did that day and we started on a road that I think continues today.

And for the Teamsters, another issue is Mexican trucks. You know Mexican trucks under NAFTA are supposed to come across the border but, because of a lot of hard fighting and because of our alliance with the Sierra Club and Public Citizen, we've been able to keep that border closed.

These trucks come across, they pollute our environment, they are unsafe on our highways and we are going to keep that border closed until they fix those environmental trucks and make them right so they don't pollute the environment.

We can do that.

And the Port Campaign is another issue that we've worked on very hard. Because the Port Campaign in Los Angeles is something that is so important.

The Port Campaign is, if you know, the Port of Los Angeles. Two-thirds of all imports that come into this country come through that tremendous Port. And what we found there—old dilapidated trucks by exploited drivers, many of them immigrants, driving and polluting the environment, not because of them, but because of the way it was set up.

And there was a tremendous cloud over the city: high rates of cancer and high rates of emphysema and other problems. And we got together with the environmental community and said, "How do we address this? How do we find some way to help the workers—help them have a way to join a union and at the same time come up with a way to clean up the environment?"

And together, working with the Sierra Club, working with Los Angeles Alliance for a New Economy, we were able to basically change the law. And today the law is, people are going to clean up the environment and they are going to be able to join a union. That's a success and that's a partnership of the environmental movement and the labor movement and that's what we have to build on.

And you know, all these things are coming together now. We have another issue we are working on: Employee Free Choice. And you know that is the biggest issue that we have—that's what it is all about. Employee Free Choice, giving workers the chance to join a union. And some people say, if you can join the Republican party by just writing your name down, why can't you join a union when 51 percent get together, why shouldn't they be able to join a union? That's what we want and that's what we're going to get. We're going to pass that law!

And we can do it. We can do it together.

But working on Employee Free Choice is not just labor, because the environmental community has joined us, and all the aspects of the environmental community are helping us get this done.

So you know it's not us alone, it's about all of us working together, forming coalitions and working to talk to people in government about what's right about changing this country and making it so our children can enjoy it.

All of these things affect what we do. And my constant dialogue with the environmental community and the Sierra Club has changed our views. And something I know everyone in this room is going to be very happy about and know about an announcement we made last fall that we were involved in drilling in the Arctic National Wildlife Refuge. Well guess what? We decided it's a mistake. You can't drill your way out of this. We no longer support drilling in ANWR. That's it. How about that!

You know what it's about? It's about finding out who your friends are. And when we needed help, who was standing with us, when you look around, and you see a guy from Public Citizen over here, and a guy from the Sierra Club, you know, maybe we've got something in common, and maybe we should be talking together.

And that's what this has done, and that's why I'm so proud of the progress we've made, about where we're going today.

I have to tell you this story. I was at the White House last Friday and we were signing a bill to create the Office of the Middle Class, a great initiative by our new President Barack Obama and Vice President Joe Biden. And it was such a pleasure to be there because many of the labor leaders had been banned from the White House for the last eight years by George Bush, so the first thing that the Vice-President says when we all get together was, "Welcome back to the White House." And you know that it was much appreciated, much appreciated because it was nice to be back.

And the President took us into the Blue Room, which was a private room. He says, "All the labor leaders come over here." And he walked in and he talked to the labor leaders and he said to everyone of them, "I want to thank you for what you did in the campaign. I owe a lot to you." And that meant a lot to everybody there! You know what? We're going to have a great President. Barack Obama is the real deal and I am very excited about him.

He is the gig, he is our guy! You know, Barack Obama talks about creating five million new jobs. I hope he does, and we're going to do everything we can to make sure we can do it. And he talks about the environment and how we can do this, about how we're going to harness the power of the wind with wind turbines; how we're going to get the power of the sun with solar panels; how we're going to get the heat generation and get new things that generate heat; how we're going to go and get the power of water and get the water generators.

Well, that's a great idea, but if we're going to create five million new jobs, let's make sure that they're made in America, by Americans, and they are made Union. Let's do it right and let's make sure we really rebuild America.

We can do that.

All these things come together. We have so much to do and I have never seen so much promise. On the day of the inauguration, I get up at seven o'clock in the morning and I walk out of my apartment and I never saw so many people walking with expectation on their faces—thousands of people walking to the Mall at seven o'clock in the morning and it continued all day. And people had a look in their eyes about hope, about the future of this country. And that is really what we're looking at.

We have such an opportunity here to remake America, to start this progressive movement again. And I am proud to say that organized labor and the 1.4 million people of the Teamsters union, we're with you all the way. And as Barack Obama said, "Yes We Can!" Let's get it done!

NEW SOLUTIONS, Vol. 19(2) 205-209, 2009

GREEN JOBS AND A STRONG MIDDLE CLASS

JOHN D. PODESTA
President and Chief Executive Officer,
Center for American Progress

ABSTRACT

Green jobs are critical to building a strong middle class, and millions of green jobs can be created through energy efficiency. The models already exist for this work, but we need sustained investment to bring them to scale.

Thank you, Mr. Vice President and members of the task force, for inviting me to speak about rebuilding America's economy and strengthening the middle class on the foundation of low-carbon energy. I am John Podesta, President and CEO of the Center for American Progress Action Fund.

I will address three points in my remarks today.

First, I want to talk about green jobs broadly and why they are important to a strong middle class.

Second, I will discuss the particular opportunity presented by energy efficiency.

And third, I will speak about how we can get started today on a national project to support green jobs at scale, drawing on what's already working around the country.

In closing, I will offer several suggestions to take this work forward in the larger economic recovery.

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GREEN JOBS

Our energy and climate challenges offer an opportunity to invest in new infrastructure, new buildings, new business models, and new skills for American workers. I call this the "energy opportunity."

Just as the information technology and telecommunications revolutions of the 1980s and 1990s drove a generation of new investment, the transformation of energy infrastructure on the platforms of efficiency and reduced carbon emissions represent great potential drivers of American innovation, economic growth, and job creation in coming decades.

The United States must lead this revolution. In the new energy economy, highly efficient vehicles will dominate the roadways, service stations will pump low-carbon fuels, incandescent light bulbs will be replaced by compact fluorescents, and buildings will use daylight, solar heating and cooling, and efficient appliances.

In this economy, utility companies will profit when customers save energy; a quarter of electricity will come from renewable sources on a "smart grid;" coal-fired power plants will be built to capture carbon dioxide emissions; and businesses of all kinds will factor the cost of carbon into their bottom line and aggressively pursue low-energy options.

There is much to be done. And a dialog on green jobs can help us understand the work of building this new economy.

A CAP study entitled "Green Recovery" found that investing in energy efficiency and renewable energy creates more jobs than traditional stimulus, and more jobs than traditional fossil fuels. Green investments are more labor-intensive and more local, redirecting money from imported fuel, pollution, and wasted energy to skilled labor, modern infrastructure, and high-tech manufacturing. We send hundreds of billions of dollars overseas each year for imported oil, and green jobs can cut our trade deficit as well. These are familiar jobs in construction, manufacturing, and services spread broadly across the economy.

As you look to strengthen and expand the middle class, remember that green jobs are not inevitably good jobs with decent wages and benefits. Federal investment alone is not enough. A new CAP Action Fund report, Making Contracting Work for the United States, cautions that too many companies that receive federal contracts treat workers poorly and fail to pay adequate wages or benefits. Federal prevailing wage standards are often below the poverty line and more than four million federally contracted workers are low-wage earners with no benefits.

To make sure that green jobs are good jobs, we need transparency, oversight, enforcement of the law, and job quality standards. The middle class is not an accident. It is the direct result of rules that protect workers, strengthen communities, and invest in skills and training. Green jobs fit squarely within this strategy for accountable economic development.

ENERGY EFFICIENCY

Building this new economy will create a range of green jobs: constructing transit, rewiring the grid, growing energy crops, restoring urban habitat, engineering energy systems, and rolling steel for windmill towers. But I want to focus on the specific opportunity of energy efficiency.

Buildings create more greenhouse gas emissions than cars or industry, and most energy is used in homes. New building codes help, but we need a strategy to retrofit the buildings that are already standing to cut energy use and emissions.

Efficiency is often called the "first fuel." The cheapest and cleanest energy is the energy you never have to use. [A] chart shows the relative cost of different forms of energy, and how they change over time with a rising price for carbon. When we finally take action to cap emissions, energy efficiency will make it cheaper, and the benefit will only grow.

Energy efficiency is a good investment with tight credit markets. [A] graph shows the relative risk and return of investments. Treasury bills are low risk and low return. Small company stocks are high risk and return. Energy efficiency offers high returns at very low risk.

Global warming is the biggest market failure in history. The McKinsey Cost Curve arrays the costs of different ways to cut carbon. Below the line are "negative-cost abatement strategies." In the business world, we call this "profit." Today the housing market gives the wrong incentives, and we routinely pass up these profitable efficiency gains.

Energy costs impact household budgets. More than half of working families' paychecks just go to housing, transportation, and energy. Families spend more on energy than they do on health care. With millions of people on the edge of losing their homes, cutting energy costs can help the middle class.

WHAT CAN WE DO TODAY

This brings us to what we can do today. It will take a national commitment to bring energy efficiency to scale—block by block, neighborhood by neighborhood, city by city. And it will take access to capital, new training for workers, and new incentives for homeowners. This is a bold project.

The American Recovery and Reinvestment Act makes a big down payment, with $71 billion for clean-energy programs—more than three times current spending. This $71 billion includes $4.5 billion for smart grid, $5 billion for weatherization, $3.2 billion for energy conservation block grants, $3.1 billion for state energy offices, and $1 billion more for training through the Green Jobs Act, Youth Build, the WIA adult worker program, and elsewhere.

Public investment can prime the pump, but it is not enough. We need to transform the market. Weatherization programs now retrofit about 150,000

homes each year. President Obama has called for one million homes—a daunting challenge to scale this much this fast. But with 138 million homes in the country, even at this faster rate, it would take more than 100 years to retrofit America. Our boldest goals may not be bold enough to meet the challenge.

To scale fast we need to transform the entire market. There are good examples in cities and states that showcase pieces of what it will take. They include:

- The Cambridge Energy Alliance, which offers customers immediate retrofits with 30 percent energy savings and no up-front payments.
- Babylon, NY, uses a revolving loan fund to finance retrofits repaid with energy savings that the city collects on monthly bills.
- In Delaware, a "Sustainable Energy Utility" can meet energy needs, not by building new power plants but by weatherizing homes or creating a market not only for retrofits, but for the verifiable energy savings they produce.
- And in Los Angeles, the city is retrofitting public buildings to drive worker training and connect people to new green jobs.

A seamless, large-scale national program could follow the lead of these local efforts, including:

- Policies that drive clean energy demand.
- Dedicated financing resources.
- No out-of pocket payments.
- Repayment through energy cost savings.
- Accountability for energy savings.
- Intermediaries to bundle contracts, jobs, and workforce training.

RECOMMENDATIONS

Mr. Vice President and members of this Task Force, I want to commend you for your foresight in addressing green jobs. This event will build public awareness. But moving forward, I believe we can do more.

The American Recovery and Reinvestment Act provides essential resources that if coordinated could lay groundwork for a coherent national program for jobs in energy retrofits. Such a program must generate new markets, support businesses, and train workers.

The CAP Action Fund would like you to consider encouraging states to use a portion of efficiency funds in the recovery package to establish state revolving loan funds for energy retrofits. This would drive new investment and create a sustained mechanism to finance real projects.

I also urge you to coordinate green job training with other energy spending—including $500 million for the Green Jobs Act. Other funds for green job training are found throughout the package for both work force investment and national service.

Further, because many of these ideas have been successfully tested in communities, I ask you to consider convening a group of leading cities and states in a formal partnership, and offering technical support on a cross-cutting interagency basis. This network would develop guidance on effective strategies for transforming labor, energy, real estate, and financial markets to create green jobs.

I encourage you to establish an interagency working group of senior staff to identify and track funding streams that contribute to a green recovery through work force investment, building retrofits, and development of strong manufacturing supply chains, including the Department of Energy, the Department of Housing and Urban Development, the Department of Labor, Commerce, Interior, Agriculture, Treasury, the General Services Administration—and others—while creating accountability for results.

Finally, to ensure that these efforts shape the economic recovery, this coordination, convening, and planning could be undertaken within three months.

Today's hearing is a very important start, but it is only a start. The nation is at a critical turning point. The decisions you make in coming months will have long lasting effects on the shape of our recovery, and the future of our country. These are a few immediate actions that you can take to support real change.

Together, we can rebuild America for clean energy and create millions of new green jobs.

NEW SOLUTIONS, Vol. 19(2) 211-214, 2009

WE WANT A MADE-IN-THE-U.S.A. ECONOMY

PHIL ANGELIDES
Chair of the Apollo Alliance

ABSTRACT

We're going to have to organize relentlessly day and night if we really want that clean-energy, good-jobs, made-in-the-USA economy. That means pushing for sweeping investments in energy efficiency, public transportation, renewable energy. It means retooling America's manufacturing base. It means new investments in research and development. It means training and educating our workers and our young people. It means pushing for climate-change legislation this year that will cap and reduce emissions. We can do it.

It's great to be with you this morning. It is wonderful to be with leaders from across this country who are at the forefront of creating a clean-energy economy for America's future. It's great to be back in Washington. Two weeks after that wonderful inauguration, and two weeks after the start of a new era of hope in this country. And, while it is freezing outside, we are warmed by the possibility of what we can achieve in this country in the months and years ahead.

I want to give a special "thank you" to Carl Pope and Leo Gerard for the mission they've undertaken, and for showing everyone that saving our planet and building an economy of equality of opportunity is not a labor agenda, it's not an environmental agenda, it is an American agenda.

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It's an extraordinary moment. A time of crisis. A time of struggle. A time of endless possibility for what we can do because we have a chance to remake our nation, to return it to our values, to create, once again, a model of prosperity, responsibility and, most importantly, a broadly shared opportunity. The notion that has bound together our social fabric that has been torn asunder for the last few decades.

I come to you today as chair of the Apollo Alliance. And for those of you who don't know what Apollo is, we are a coalition of Americans from different walks of life. We are labor leaders, we are environmental leaders, we are business leaders, we are leaders of social justice organizations. We come from very different places, but we are united behind one idea: That if we have the will and the political ability, if we mobilize day and night, if we think big and if we put big agendas on the table, we can create a clean-energy, good-jobs, made-in-America economy that will power our prosperity through the 21st century.

We take our name from the first Apollo mission of this country when John Kennedy stood before America in May of 1961 and pledged to put a man on the moon by the end of that decade. We accomplished that mission. And in the course of doing that, we lifted the nation's spirits. But we did more: We mobilized innovators, scientists, engineers, hundreds of thousands of workers across this country. We created great wealth and scientific achievement that has benefited everyone for decades since.

And as we gather today, we face enormous converging challenges. We are perniciously dependent on foreign oil, putting our economy, our environment, our national security at risk. We're sending $400 billion and $700 billion overseas each year to regimes deeply hostile to our values. We're sinking our nation's treasure both in dollars and in men and women lost, protecting our oil-supply lines. It's got to stop.

We face the real and present danger of global warming. We've seen our communities battered by more and more powerful storms. We've seen our fellow men and women across this globe ravaged by drought. It's got to stop.

We now see the collapse of an economy of ever increasing inequality, an economy built on financial manipulation and greed. Two million Americans out of work, families—the working families who are the backbone of this society—struggling to pay their bills, to feed their families, to keep a roof over their heads. It's got to stop.

But amidst all the turmoil, we're here today because we have belief and we have hope and we have a dream that we can create a more sustainable, egalitarian economy and we can preserve our planet.

And with the election of President Obama and bigger, more progressive majorities in Congress, we know that our dream is within reach.

Let's be clear: November of last year was a chance to make our dream come true, a chance to restore America's middle class, a chance to confront global

warming, a chance to empower all of those who have been left out and locked out and left behind.

To succeed, we're going to need to do two things: We're going to need to put a big agenda on the table. We shouldn't shrink, we shouldn't calibrate. We need to do what's right for this country: To deploy the enormous wealth of this wealthiest society in human history to create a new, clean-energy economy.

And secondly, we're going to have to organize relentlessly day and night in our communities, in our states, in the halls of government here in Washington, D.C., if we really want that clean-energy, good-jobs, made-in-the-USA economy. And what that means is pushing for sweeping investments in energy efficiency, public transportation, renewable energy. It means retooling America's manufacturing base. It means new investments in research and development. It means training and educating our workers and our young people to be the best in the world, so we can be the global leader, not the laggard in the green economy. It means pushing for climate-change legislation this year that will cap and reduce emissions so we can go to Copenhagen in December as the world's leader.

It means working, not assuming it will happen on the natural, to ensure that the clean-energy revolution benefits everyone, not just the very few, not just the fortunate. And that means having the guts and the will to fight for measures like the Employee Free Choice Act, so American workers can organize and fight for good wages.

Most importantly, it means we have to practice the art of politics each and every hour we're awake. The fundamental notion that one person has beliefs, and they believe them deeply enough to mobilize ten people, who mobilize 100 people, 1,000 people, 10,000 people, 100,000 people, until we create an army of millions.

At the Apollo Alliance, since we were formed in 2003—long before this issue was now cresting in terms of possibility—we've been working day and night to advance the ideas needed to create this new clean-energy economy, and to build a broad coalition that will be required to succeed.

In the run-up to the election, we unveiled the New Apollo Program, a ten-year, $500-billion sweeping investment program to move America to the new clean-energy economy.

When Barack Obama won the election, we put forward the American Economic Recovery Act, to make sure that we could make the investments in clean energy in this stimulus bill that would be the start, the down payment—not the finish, not the complete purchase—on our dream.

And we want you to join our effort to pass these sweeping measures. We want you to go to our website, apolloalliance.org, and join the army that we are creating.

We know that the task ahead will be hard. But we're hopeful because we see what's happening all over this country, and we see what's happened even after eight years of George Bush and Dick Cheney in the White House. This movement could not be suppressed. All over this country, we see clean-energy jobs being created. Clean energy is the fastest growing sector in our

economy—500,000 new jobs, 30 percent annual growth rate over the last three years. We see communities driving forward on renewable energy and energy efficiency. We see innovators and entrepreneurs taking the risk to invent the next new thing that will power our future. We're hopeful because we know our cause is right. But it will not happen on its own.

When Franklin Roosevelt took office in the depths of the Depression in 1932, he knew the task was hard, he knew what he wanted to do, and he turned to his advisors and he said, "I know what I must do. Now, make me go do it." And it falls to us to make sure that the new administration and the Congress think big and move quickly.

I'm hopeful, most of all, because I know, like you, what this country has done before. These are tough times, but let's put it in perspective.

Think for a moment about the Civil War. Six hundred thousand Americans dying on the battle fields and of disease. A nation literally shattered. It's at that moment that Abraham Lincoln and the nation pushed through and chartered the transcontinental railroad to cement a national economy. They passed the Land Grant Act to create 200 colleges that trained the workforce of the 20th century. They passed the Homestead Act that, for the first time in American history, made American working families owners in our society.

Think for the moment about the Depression and the 1930s. The very notion of democracy at risk as fascism courses across the world. As Franklin Roosevelt himself said, one-third of our nation ill-housed, ill-clothed, and ill-fed. But that's the moment when the nation mobilizes its political will and its capital to create a New Deal.

And if anyone tells you that we can't retool Detroit, if anyone tells you we can't be powered by the wind and the sun, let me remind everyone that when America entered World War II, we had a horse-drawn artillery. Three years and eight months later, we stood astride the world as the most powerful economy and democracy in the world's history.

We can do this.

Let me close with this thought. I want to quote what John Kennedy said when he announced our decision to go to the moon in the first Apollo mission in 1961. He said, "We choose to go to the moon in this decade and to do the other things not because they are easy but because they are hard. We choose to go to the moon because that goal will serve to organize and measure the best of our energies and our skills."

Now, John Kennedy did more than make a speech. He committed three and a half billion dollars a year, which would be $70 billion a year in today's economy, to the space mission. We succeeded.

Surely, we can do the same today by greater measure to save our planet and to remake the American economy.

I know we can do this. We're Americans. Let's mobilize. Let's organize. Let's win this fight.

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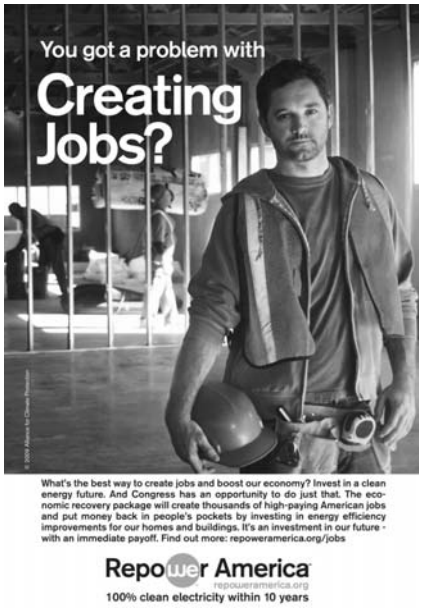
REPOWERING AMERICA

ALLIANCE FOR CLIMATE PROTECTION

ABSTRACT

Repower America is an ambitious clean energy plan to "repower" the United States with 100 percent clean electricity within 10 years.



First described in a July 2008 speech by Nobel laureate and former Vice President Al Gore, Repower America focuses on the development of new industries with high-paying jobs. A project of Gore's Alliance for Climate Protection, Repower America would lower energy costs by substituting clean domestic sources of energy and transitioning away from dirty sources, including foreign oil.

At the 2009 Good Jobs, Green Jobs conference, Cathy Zoi, former Executive Director of the Alliance for Climate Protection and—at time of printing—President Obama's nominee for Department of Energy Assistant Secretary for Energy Efficiency and Renewable Energy, made a presentation about the nationwide Repower America advertising campaign focusing on job creation. She shared images and video from the campaign, including the print ad reproduced on this page.

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The goal of the campaign is to raise public awareness about the possibility of making buildings and homes more efficient, ramping up renewable energy generation, constructing a unified national smart grid, and shifting to clean and affordable plug-in cars. We can address our country's economic and national security challenges—all while making huge strides to solve the climate crisis.

The Blue Green Alliance is a grassroots partner of the Alliance for Climate Protection's We Campaign. As part of that partnership, BGA is conducting a member-to-member labor education campaign about global warming aimed at activating union members behind climate change solutions that promote economic prosperity.

NEW SOLUTIONS, Vol. 19(2) 217-220, 2009

WIND ENERGY CAN POWER A STRONG RECOVERY

DENISE BODE
American Wind Energy Association

ABSTRACT

The U.S. wind industry is a dynamic one that pumps billions of dollars into our economy each year. Wind has gone mainstream and today is the most affordable near-term carbon-free energy source. The U.S. industry experienced a nearly 70 percent increase in total jobs last year—well-paying, family-supporting jobs. But new wind farms now find it hard to secure financing. Thus, the economic stimulus package moving through Congress is critical.

It's good to be here representing the American Wind Energy Association's (AWEA) more than 1,900 member companies—many of whom are manufacturers. We're now the fastest growing energy industry in the U.S. and a mainstream energy source.

Let me give you a few details about the wind energy industry in this country. It's a great story. In 1998, AWEA had about 200 members. By the end of this year, we may have 2000. Wind used to be a boutique power source concentrated in California. Now, the U.S. wind industry is a diverse, dynamic industry pumping billions of dollars into our national economy each year.

Wind has gone mainstream and is now the most affordable near-term carbon-free energy source in our nation today. As President Obama has said, "Renewable energy is not some pie-in-the-sky, far-off future. It is now."

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He is correct. Wind power is affordable, abundant, and available today to lead our nation to economic recovery, energy security, and environmental stability. Our new energy future is here today, generating investment in our domestic economy, and adding jobs in cities and towns all across the country.

Last week, AWEA released final, year-end numbers for 2008, which were absolutely huge.

Last year, our nation added more than 8,300 megawatts of new wind energy capacity, investing $17 billion into our domestic economy. About 85,000 U.S. workers are now employed by the wind industry, in construction and manufacturing as well as in wind farm operations jobs. This confirms that wind is an economic and job creation dynamo, ready to deliver on the President's call to double renewable energy production in three years.

Wind capacity in this country has grown by an average annual rate of 32% for the last four years in a row and the U.S. is now the global leader in wind energy capacity and in wind power production—beating Germany on both counts for the first time in history!

The 25,000 megawatts of wind energy capacity operating in the U.S. today can generate enough electricity to power seven million American homes.

The industry sees wind power growing to 300,000 megawatts, which would be 20 percent of U.S. electricity, by 2030. In May of last year, the U.S. Department of Energy released a technical report concluding that it is feasible to achieve at least 20 percent wind power by 2030—with no technological breakthroughs. With last year's installations under our belt, we are building momentum toward this goal. Just one more piece of evidence that President Obama's vision of doubling the use of renewables in this country by 2012 is a reasonable, achievable goal.

Now let's talk about jobs, which I think is one of the most exciting aspects of our industry's growth, and the most important for our economy right now.

About 85,000 people are employed in the wind industry today. More than 35,000 of those workers were hired last year, even as our overall economy was faltering. Wind workers hold jobs in areas as varied as turbine component manufacturing, construction and installation of wind turbines, wind turbine operations and maintenance, and more.

During 2007 and 2008, wind turbine and turbine component manufacturers announced, added, or expanded 70 new facilities. More than 55 of those plants were added or announced during 2008, adding 13,000 direct wind energy manufacturing jobs at a time when other manufacturing industries were shuttering plants and cutting jobs.

That's right—the wind industry has been creating jobs even faster than we've been expanding our generating capacity—we saw a nearly 70 percent increase in total wind energy jobs in the U.S. last year. This is great news for American workers because these are well-paying, family-supporting jobs.

As further evidence of this trend, AWEA's recent workshop (held in Cleveland in December) attracted more than 850 attendees. They were manufacturers who are interested in expanding into the wind market. Steel companies and forgeries, fastener manufacturers—like Cardinal Fastener, where President Obama stopped on his way to the inauguration a few weeks ago—fiberglass manufacturers, gearbox makers, crane companies, large load transportation specialists and construction companies were among the attendees.

President Obama has spoken of moving America toward a new energy future by enabling continued investment in clean energy and revitalizing our economy in the process by creating new, green-collar jobs. As you can see, the U.S. wind energy industry is already doing its part to help revitalize the American economy. And we are ready to do even more. But the economy is hurting us, too, and the timing couldn't be worse.

Due to the current economic downturn, financing for new wind projects has slowed to a trickle and as a result, new wind construction is virtually non-existent at the moment. We are projecting that in 2009, the wind industry will add less than 5,000 MW of new capacity. About 4,500 MW is currently under construction.

The lack of new projects in the financing pipeline has, in turn, slowed orders for new components, and several of AWEA's member companies have already announced furloughs at their U.S. plants. The harsh reality is that a large number of the wind industry's green jobs are threatened in 2009 if the dismal financing outlook for new projects is not quickly addressed.

Last year, projects were coming on so fast that the industry's biggest concern was a manufacturing backlog. That's been replaced by a backlog in capital and financing. It is very difficult for new wind farms to secure financing in the current economic climate. That's why the economic stimulus package moving through Congress is so critical for the wind industry.

We are counting on Congress to act now to restore the wind industry's ability to create jobs. First, we are asking for urgently needed adjustments to the federal production tax credit so that it will enable investments in a down economy. The House has already done this in its version of the bill—by extending the PTC for three years, allowing the credit to be monetized through a temporary grant program administered by the Department of Energy, and including other provisions that will keep the projects coming, even through the economic downturn. We are urging the Senate to do the same. The Senate bill has excellent provisions, but missing is the key operative provision from a stimulus point of view—providing wind developers with the temporary option of applying for a cash grant instead of tax credits. This provision would put cash directly to work building wind farms and reviving the demand for wind turbines, in turn preserving the job creation momentum that has built up over the last year. We appreciate your help in this effort to protect existing green jobs and create new ones as we work together to build a new energy economy that can power our nation forward.

The hope is that provisions such as those included in the House stimulus bill will quickly become law and provide the capital needed to continue to build projects. Wind projects can be built quickly, so these provisions are—in fact—"shovel-ready" and able to put Americans back to work immediately. Action from Congress on this will have immediate and visible effects.

Fortunately—and due in large part to the strong growth of the last three years—the wind industry is in an excellent strategic position. AWEA's members are ready to do their part for the economic recovery. With the right policies in place, we're ready to lead the nation's economic recovery, and continue moving toward the Department of Energy's 20-percent-wind-by-2030 goal, which would bring wind development to 46 states. By 2030, with 300,000 megawatts of wind capacity operating in the U.S., the wind industry would support 500,000 jobs.

But while 20 percent wind power is absolutely feasible, it is unlikely to become a reality without improved federal policy support. With the 20 percent growth path in mind, AWEA has worked with its members to create a federal policy agenda—available at NewWindAgenda.org.

The wind industry's top policy priorities are to:

- Immediately repair and extend the current federal production incentive for wind power as part of the economic stimulus bill currently making its way through Congress,
- Establish a national renewable electricity standard that has near-term goals for increased renewable energy production,
- Create policies that bring about the construction of high-voltage, interstate transmission highways to carry power from windy, rural areas to the cities that need it, and
- Adopt climate change policy that values wind power's ability to reduce our nation's carbon emissions right now.

We are looking forward to working with our allies, the Obama Administration, and Congress to put in place long-term, supportive renewable energy policies to make the new clean energy economy a reality.

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UNLIKELY (BUT PERFECT) PARTNERS IN THE FIGHT FOR THE GREEN ENERGY AND FAIR TRADE ECONOMY

FRED REDMOND
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ABSTRACT

A priority for the United Steelworkers the last several years has been its work with the Sierra Club as part of the Blue Green Alliance. By working with our unconventional allies, we impacted the most important general election in any of our lifetimes. Now, smart investments in renewable energy and fuel-efficient cars are cornerstones of the Obama administration's economic recovery plan. The other priority issue when we began the Blue Green Alliance was fair trade. It still is a priority.

A majority of our United Steelworker (USW) members work for large multinational corporations who compete globally, with little regard or loyalty to their countries of origin. For more than three decades, the USW has recognized the special obligation it has to speak out, not only in North America, but across the planet, on the fundamental issues of wealth, poverty, and the creation of sustainable economies.

Although it might sound strange to some that for several years, one of our union's top priorities has been its work with the Sierra Club in the Blue Green

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Alliance. After all, the prevailing attitude for most of the last century has been that job creation and environmental interests are at odds—in other words, that our country must choose between good, family-supporting manufacturing jobs and a healthful, safe environment.

Today, in the midst of the worst economic crisis since the Great Depression and while global climate change threatens to radically and irreversibly alter life on our planet, we can say with certainty that the choice is a false one—that we cannot have good jobs without a clean environment and vice-versa.

The USW and the Sierra Club formally announced our Blue Green Alliance in the spring of 2006 and have been promoting the national discussion of the benefits of a clean-energy economy with our combined memberships and the general public ever since.

As the Alliance has expanded to include other groups and unions, we have seen the publication of several reports detailing how millions of good, family-supporting, green jobs can be created by increasing investment in sustainable wind, solar, and biofuel energy production.

By working with our unconventional allies to raise awareness about the potential to rebuild our manufacturing base and our economy as a whole through investments in renewable, sustainable energy, we impacted the most important general election in any of our lifetimes.

Now, smart investments in renewable energy and fuel-efficient cars are among the cornerstones of the Obama administration's economic recovery plan. We are here, together, this week to spread the word.

The other issue that the USW and Sierra Club identified when we began working together in this formal Blue Green Alliance is fair trade. Over the last 15 years, our country has lost millions of quality manufacturing jobs while the previous administrations have made it easier and cheaper for corporations to move jobs to countries where workers' rights and environmental regulations are largely non-existent.

From many years of experience negotiating on behalf of our members, I can tell you that the companies that would exploit workers in third-world countries are the same ones that would take advantage of lax or non-existent environmental regulations.

We are absolutely committed to work with our allies in the expanding Blue Green Alliance to lead our country away from the disastrous, unfettered "free" trade ideology that pervaded throughout the Bush administration toward fair trade in the global economy of the future.

The current world-wide "race to the bottom" is clearly not sustainable. It is absolutely necessary for our groups to work together in order to change the way international commerce and trade work and make sure that workers and the environment are protected in whatever trade agreements we negotiate.

Finally, as many of you know, making our workplaces safer and making sure our members come home at the end of the workday in the same condition as

they were when they left has been a fundamental goal of our union since its birth in 1942.

As the years have passed, we have proudly reduced and eliminated many of the occupational hazards that took the lives of our fathers and grandfathers, but many new dangers to workers' health and safety have taken their place, including the various toxic chemicals used in many of our manufacturing processes.

Some of these poisons are equally threatening to workers and the environment in the communities where we live and work. It is with great pride and optimism that I look forward to working with the Sierra Club and other environmental groups to protect our members as well as the water, air, and land in the cities and towns where they live.

While the USW's history of working with environmental groups and other non-traditional allies of labor extends much farther than the last few years, I hope to have highlighted some of the areas where we can make a difference by working together today.

It is a great honor to be a member of this panel. Looking back over what we have accomplished over just the last couple years since the formal creation of the Blue Green Alliance, it gives me much hope that we will build the green energy, fair trade economy of the future—together.

NEW SOLUTIONS, Vol. 19(2) 225-228, 2009

GOOD JOBS, GREEN JOBS, EH? A CANADIAN PERSPECTIVE

ANDY KING
United Steelworkers, Canada

ABSTRACT

A group of Canadians pondered the dramatic change in momentum in the United States and began to think more concretely about strategies to bring unions and environmentalists together around a common green economic agenda. The campaign against toxic chemicals has proven to be a natural meeting place for labor and environmental activists. We share a common history and concern about the lack of effective regulation. The more challenging areas are about transition, the need for good jobs, and a viable economic strategy.

Amidst the celebration and triumphs of the Washington conference, a small group of Canadians pondered the dramatic change in momentum in the United States and began to think much more concretely about their strategies to bring unions and environmentalists together around a common green economic agenda.

For the last decade and more, Canadians have been somewhat smug and self congratulatory when it came to the environment. While our colleagues south of the border struggled with the attacks from the second Bush administration and somewhat lackadaisical progress under Clinton, we thought we had the tiger by the tail. Under the federal leadership of the Liberal party, Canada ratified the

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Kyoto protocol in 2004 with the support of the environmental and labor movement as well as a majority of Canadians. Subsequently we had not one but two different plans by which greenhouse gases would be reduced by a budget surplus and many thought we could make our targets without upsetting the oil industry or anyone else.

All this came crashing down around us in 2006 when the Conservative party won a minority victory which they have held onto ever since and made reneging on the Kyoto commitment a central plank in their agenda. The Conservatives managed to poison the well of popular support for the environment. Now after a recent disastrous electoral campaign, in which the environment policy of the Liberal party was widely seen as a reason for their defeat, the Canadian government's commitment is primarily to protect the tar sands. [The sands, which contain tar, are being processed to extract oil for refining as fuel and other petro-products.]

Neither the Canadian labor movement nor the environmental movement has been short on strategies to address climate change. Beginning in the early 1990s, the Canadian Labour Congress produced a series of papers on pollution prevention, just transition, and green job creation. Similarly, the environmental movement has produced a large number of papers putting forward policy instruments for achieving climate change goals.

Despite these efforts, the gulf between economics, politics, and the environment in Canada has never been wider.

In a manner somewhat reminiscent of what happened in the United States, the attention is now turning to the municipalities and provinces, especially in the three keystone provinces of British Columbia, Ontario, and Quebec. There is growing discussion of formal labor/environmental alliances.

Canadian Steelworkers were part of the union's Task Force review, "Securing Our Children's World," that launched the Blue Green Alliance in the United States. As such we had up-close exposure to what was happening and to the making of a strategic alliance to change politics around both labor and environmental issues in the U.S. The strong leadership commitment from our President, Leo Gerard, who had played a key role in Canada in the establishment of occupational health and safety and workplace restructuring, provided the Canadian leadership with the guidance they needed to initiate a process to build a "Made-in-Canada" equivalent, Blue Green Canada.

In May 2007 at the union's National Health, Safety, and Environment Conference in Toronto, Gerard, along with National Director Ken Neumann and the three Canadian District Directors, signed a strategic alliance agreement with Environmental Defence [which is not connected to the Environmental Defense Fund in the U.S.], a well known and established Canadian environmental organization with a strong track record on many environmental issues, especially toxic chemicals. Their "Toxic Nation" campaign, which involved testing numerous Canadians for toxic chemicals in their blood,

profoundly influenced public policy on toxic chemicals and led to a comprehensive review of toxics nationally that is ongoing.

The agreement creates a strategic alliance to enable the two organizations to work together as advocates for working people and for the environment in key areas of global trade, the use of toxic substances in commercial activity, the creation of "green manufacturing" jobs, and the development and implementation of strategies to address climate change and protect sustainable resources.

We are working on our first big success in Canada. Already we have found a ready ear from provincial and municipal politicians who are seeing the opportunities which a green recovery may bring, especially in these difficult economic times. The question of local procurement or "buy locally," which dominated the hallways and newspapers while we were in Washington because of the "Buy America" provisions of the U.S. stimulus bill, is a major issue, especially in Ontario and Quebec where tens of thousands of manufacturing jobs have been lost.

The campaign against toxic chemicals has proven to be a natural meeting place for labor and environmental activists. We share a common history and concern about the lack of effective regulation. The more challenging areas are about transition, the need for good jobs, and a viable economic strategy. We have found common ground around the need for an effective toxics use reduction strategy to support eliminating toxic chemicals. We are working together on the economic strategy to make this happen.

The keystone is energy. On the one hand, we have the federal and Alberta governments that are committed to the tar sands. On the other hand, we have an environmental movement committed to energy efficiency and renewables. Canadian Steelworkers want to add an additional question: how do we create sustainable good jobs in manufacturing? Both efficiency and renewable energy can offer an answer to this if we can answer the question of local procurement. This is the challenge of our Blue Green Canada.

We have committed ourselves to the Ontario Green Energy Act, a provincial government proposal that creates both the mandate and the market for renewables and efficiency. Hardly perfect, it represents a major step in the right direction. The draft language calls for "domestic content." Our job is to make that concrete.

This seems a long road from the traditional labor and environmental roles. Yes and no. The power is clearly in the hands of those in government and those who run the corporations. Labor and environmental organizations must hold them accountable. On the other hand, it is not good enough for either of us to sit back and demand that someone else fix the problem.

It is also clear that the outcomes in our country will be heavily influenced by what happens south of the border. The visit of President Barack Obama to Canada and his willingness to put environment and energy on the table may well turn out to be a turning point for us in Canada. We know that our

government, beholden as it is to oil interests, wants an exception for the tar sands in any continental carbon cap that is developed. Steelworkers know that if that happens, it could well be a death knell to Canadian manufacturing and further extend the gap between rich and poor that has been expanding in our country.

Like everyone else who attended the Washington conference, Canadians are a bit more confident about what we need to do and that it is possible to make a difference. We have learned that building strong labor and environmental alliances around economic issues, good jobs, environmental concerns, and addressing poverty is the key. Now if we can just learn to sing.

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A GREEN JOBS PRIMER

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ABSTRACT

The authors ask and answer four basic questions about green jobs and their effect on the economy: what are they, will they pay well, do they come at the cost of losses elsewhere in the economy, and do they result from luck in choosing technological "winners."

Our country faces two immense, interrelated challenges: Charting a course to economic recovery and tackling the threat of global warming. Both are moral imperatives that require immediate action in order to fulfill our future obligations to our children. Meeting these challenges head on now and into the future is straightforward—begin a robust and aggressive transition toward a clean energy economy. This transition will leverage new investment streams to build low-carbon infrastructure, catalyze private-sector innovation, and lay the foundation for sustainable, long-term economic growth. Building the clean-energy economy will also create millions of new green jobs, offering hope to many Americans who are out of work or facing possible layoffs. With major energy and climate policy decisions on the horizon, and the excitement over green jobs growing, we offer answers below to four common questions.

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1. WHAT IS A GREEN JOB?

The short answer: Green jobs enhance environmental quality, build a vibrant clean-energy economy, and help to expand the American middle class.

The long answer: Green jobs are today's jobs but repurposed and expanded to build a sustainable low-carbon economy. Most green jobs will be in occupations that people already work in today. Constructing wind farms creates jobs for sheet metal workers and industrial truck drivers. Energy-efficiency retrofits for buildings employ roofers and insulators. And expanding mass transit systems employs electricians and dispatchers. Green jobs are not an entirely new job sector. Akin to more familiar blue-collar jobs, this new class of employment refers to certain types of productive activities rather than a specific job classification.

What's more, green jobs are inherently local and difficult to outsource. Green jobs involve transforming today's homes, offices, and factories and investing in new, low-carbon infrastructure. This work is impossible to push offshore because it must be preformed on site. Making buildings more energy efficient, constructing mass transit lines, installing solar panels and wind turbines, expanding public green space, and growing and refining advanced biofuels all must take place right here in America.

2. ARE GREEN JOBS ONLY LOW-PAYING JOBS?

The short answer: No. Green jobs encompass a wide breadth of skill sets and pay scales. The bulk is good-paying, middle-skill jobs accessible to all Americans.

The long answer: Our research demonstrates that green jobs are broadly distributed across the entire spectrum of the economy. In a side-by-side comparison of job creation from green investments versus investments in the oil industry, we demonstrated that nearly four times more jobs are created overall at every step in the pay scale and across every skill level. Green jobs represent a wide range of points of entry into meaningful, long-term employment, and can provide ladders into the middle class for lower-skilled workers if career advancement and work force training opportunities are integrated into our larger economic development strategies.

In fact, green jobs are blue collar and white collar alike. Green jobs are not only production-line construction and manufacturing jobs. Green businesses will need secretaries, managers, and accountants, too. High-technology endeavors will offer new opportunities in green design, engineering, and finance. Such a diverse spectrum of job creation is precisely what we need in an economy suffering from its worst downturn since the Great Depression.

3. DO GAINS IN GREEN JOBS CAUSE LOSSES IN OTHER SECTORS OF THE ECONOMY?

The short answer: No. A clean-energy economy will result in net job creation because green investments are domestic, have a large multiplier effect, and create work that is skill and labor intensive.

The long answer: Investments in renewable energy and energy efficiency can create twice as many jobs per unit of energy and per dollar than traditional fossil-fuel investments by redirecting money previously spent on wasted energy, pollution, and imported fuel toward advanced manufacturing, modern infrastructure, and skilled labor. In the beginning stages, green jobs will simply result in the creation of new jobs that did not exist before, putting people to work without displacing existing sectors. In the medium term, some particularly polluting sectors of the economy experience employment downturns, which is why we must devise smart policies to transition affected workers.

But one day all good jobs will be green jobs as we build an economy where productivity and competitiveness are contingent on increased environmental stewardship and efficient use of all resources, including energy. Moreover, initial public investments in green infrastructure will "crowd-in" private capital. This follows a time-tested script that helped build the railroads, the national highway system, and enabled the development of the Internet revolution. In each case, strategic public investment enabled market transformation and the growth of new industries and vast new opportunities for economic growth and wealth generation.

4. ARE GREEN JOBS THE RESULT OF PICKING TECHNOLOGICAL "WINNERS?"

The short answer: No. A clean-energy economy will reward efficiency, low-carbon energy, and environmental stewardship. Any and all technologies can compete and contribute in this transformed market.

The long answer: Building a clean-energy economy means fixing broken markets where the costs of pollution are passed onto future generations. Setting strong market signals with smart policies through a combination of investment and regulation will allow the market to decide the most appropriate technologies without distorting real consumer choices.

These policies will also spur a huge wave of innovation as the private sector steps up to meet the challenges of solving global warming and reducing our dependence on polluting fossil fuels. That's the ultimate promise of new green jobs in a clean-energy economy.

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CHALLENGES TO GLOBAL GREEN JOB GROWTH

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ABSTRACT

The authors recognize that green is a relative term and that what's green today may be decidedly not green tomorrow. They developed the idea of "shades of green" to try to capture the differences between jobs and looked at where the green jobs currently are. They found that green jobs in renewables are likely to grow, but in other sectors green jobs face enormous challenges. Among them are investment, technology, agriculture, labor market, and urbanization hurdles.

The "green job" has become emblematic of a new economic future for the United States that is both equitable and sustainable. But there is also a *global* need for green jobs if the planet is to chart a course toward a genuinely sustainable and low-carbon world.

Green jobs are already global. Released in September 2008, a report authored by ourselves for the United Nations Environment Program (UNEP), the International Labor Organization (ILO), and the International Trade Union Confederation (ITUC) is the first comprehensive study on the impact of an emerging global "green economy" on the world of work. Entitled *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World* [1], it documents how changing patterns of employment and investment due to climate change are

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already generating new jobs in many sectors and economies in the developed world, and could create millions more in the years to come.

For us, a job could be classified as green if it helps to preserve and restore ecosystems and biodiversity; reduces energy, materials, and water consumption through high-efficiency strategies; de-carbonizes the economy, enhances recycling and reuse of materials or generally minimizes (or altogether avoids) generation of waste and pollution. However, we recognized that green is a very relative term—moreover, what's green today may be decidedly not green tomorrow. We developed the idea of "shades of green" to try to capture the difference between a job involving, say, installing solar panels (dark green) to someone hired in recycling electronic goods in the developing world (green, but a much lighter shade, given the quality of the work involved).

WHERE ARE THE GREEN JOBS TODAY?

Renewable energy is the sector that's most associated with green jobs. In this sector, we estimate current employment at about 2.3 million worldwide. Given incomplete data, this is in all likelihood a conservative figure. The wind power industry employs some 300,000 people, the solar PV sector an estimated 170,000, and the solar thermal industry more than 600,000, many of the latter in China. Greening energy also makes a lot of other jobs green, so it's crucially important to a green jobs and sustainable future.

However, about half of all present renewables jobs are found in the biofuels industry. But today there are rising doubts about the environmental benefits of at least some types of biofuels.

There is some green job growth in the building sector as a result of residences being retrofitted. Germany is a leader in this regard. In urban public transportation, some 1.3 million people work in public transit in the European Union and the United States alone. These jobs are green in the sense that they are far more energy efficient than private vehicles, although the prospects for growth in this sector are unclear. In automobiles, relatively green auto manufacturing jobs may number about a quarter million out of roughly eight million jobs worldwide, not counting indirect jobs. The bulk of them are in Europe and Japan. Regarding industry, steel production, based on recycled scrap, requires 40-75 percent less energy than primary production and can therefore be seen as a proxy for greener production. Worldwide, 42 percent of output was based on scrap in 2006. Possibly more than 200,000 jobs are involved in secondary steel production worldwide. For aluminum, about one-quarter of global production is scrap-based and therefore relatively green. This amounts to 6,000 employees in secondary production, and Japan has about 12,000. Europe has an estimated 10,000 direct and indirect jobs in aluminum recycling. China's numbers are unknown, but must be far larger.

Recycling is a growth area for green jobs. The number of recycling and remanufacturing jobs in the United States alone is at 1.1 million. In China, an estimated 10 million people are employed in all forms of recycling; 700,000 alone in electronics recycling. Communal recycling and composting efforts in all likelihood add many additional jobs. In agriculture, there has been a significant growth of organic farming and urban agriculture. The job numbers are not clear, but as many as 800 million people feed themselves and their families by growing food in urban areas. Organic farming is generally more labor intensive, so there are job benefits to be found there.

In forestry, reforestation, and afforestation are generating some employment, although the numbers are as yet unclear.

Clearly, though, this is a tip-of-the-iceberg situation. Green jobs in renewables are likely to grow, but in other sectors green jobs face a number of enormous challenges.

THE INVESTMENT CHALLENGE

First is the investment challenge. There are two problems here, the level of investment is not high enough and 80 percent of the investment is confined to the rich countries. The *Stern Review* [2] says that effective action on the scale required to tackle climate change depends on new technology being deployed in power generation, transportation, and energy use. However, according to the International Energy Agency's World Energy Outlook (WEO) 2008, about U.S. $550 billion needs to be invested in renewable energy and energy efficiency alone each year between now and 2030 if we are to limit concentrations to 450 ppm CO2e, while New Energy Finance's Global Futures analysis points to an average annual investment of U.S. $515 billion over an extended period. But by late 2008, the volume of clean energy investment had dropped by more than half from its peak at the end of 2007 to approximately $100 billion.

Meanwhile, huge sums continue to be directed toward further fossil fuel extraction and toward conventional utility projects. Tar sands extraction in Alberta is already an ecological disaster. Led by Royal Dutch Shell, $24 billion was invested between 1996 and 2002, and a further $100 billion will be invested between now and 2015. BP recently announced $2 billion more [3]. In power generation, more than 80 percent of all new investment is in fossil fuels.

THE TECHNOLOGY CHALLENGE

The second challenge is the slow pace of technology development and transfer. The Kyoto protocol insists that technology should be developed in the richer countries and then transferred to the poorer regions, allowing them to leapfrog into the clean and green era without having to find their way through

the smog. This has not occurred. If the rich countries are not developing the technology in the first place, then they are not really in a position to transfer it elsewhere. As the UNDP notes, "At this rate the key technologies will arrive on the battlefield far too late to help the world avoid dangerous climate change" [4].

The expedited development and diffusion of green technologies is critical to a global green jobs future. But what's good for the environment may not always intersect with what's good for companies from a commercial standpoint or countries from the standpoint of economic competitiveness. The competitive calculus of private companies may be at odds with the need to share cutting-edge green technologies as rapidly as possible. In the case of China, for instance, wind power companies have been eager to invest there, but have not deployed the latest designs—for fear that domestic companies will copy them. Another obstacle to firms making large investments in technology innovation is that energy companies cannot easily capture all of the future returns on these investments. Engineering patents are harder to define than, say, pharmaceutical patents, and can be more easily circumvented. R&D-related skills and knowledge "spills over" to benefit other companies, discouraging investment.

THE FOOD AND AGRICULTURE CHALLENGE

The third challenge is posed by the growth of industrial agriculture. In 2006, 36.1 percent of the earth's population, or about 1.3 billion people, made their living from growing food and raising livestock. The employment trend in food and agriculture is actually moving away from green jobs, but emissions from farming are on the rise and constitute roughly 15 percent of the global total. Generally speaking, it is the "greener" farmers that do not use GHG-generating chemical and energy intensive methods that are being driven off the land. Their environmental footprint is low, but of course so is their quality of life. At the base of the supply chain, low-input and relatively sustainable forms of smallholder agriculture are being squeezed on all sides, a process that is accelerating urbanization, informality, and thus social and environmental stress all across the developing world in particular. The crisis facing smallholders is also fueling further deforestation, as "under-incomed" farmers and also landless people convert forest land for basic income and subsistence needs. There is a direct link between poverty and deforestation with the poorest countries having the highest deforestation rates both in terms of the total amount of forest lost and as a percentage of the country's forest cover. The challenge here is to preserve these green jobs by supporting farmers, encouraging high-yield small farming systems that use sustainable methods.

THE LABOR MARKET CHALLENGE

The state of the global labor market is not conducive to green jobs growth. Green employment has gained an important foothold in the developed world, but with the major exception of China and Brazil, it is still quite exceptional in most developing countries. Yet these are the countries that account for some 80 percent of the world's work force. Green jobs are expanding, but so is the global labor market. Together the unemployed and underemployed (working hard without earning sufficient incomes) amount to one in three of the world's workers. Unemployment has hit young people (aged 15 to 24) the hardest, with 86.3 million young people, representing 44 percent of the world's total, unemployed in 2006 [5].

The rising level of informality in the global economy constitutes a major challenge to green job growth. Moreover, the chronic and worsening levels of inequality both within and between countries are a major impediment. The effort to advance decent work and pro-poor sustainable development is critical to building green jobs across the developing world in particular.

THE URBANIZATION CHALLENGE

If most or all new buildings were constructed according to higher efficiency standards, it would revolutionize the construction industry. And many additional green jobs could be created through extensive weatherization and retrofitting of existing buildings.

However, this is not happening on the scale it needs to happen. Today one billion people live in slum conditions, according to UN Habitat. In a major study, the agency reported, "the total number of slum-dwellers in the world increased by about 36 percent during the 1990s and in the next 30 years, the global number of slum-dwellers will increase to about two billion if no concerted action to address the challenge of slums is taken" [6]. Close to 12 million people in Mumbai live in slum conditions, and by 2015 Delhi will have 10 million of its own. China's slum population is exploding, as is the case with sub-Saharan Africa. If present trends continue, by 2020 half of the urban population of the world will be slum dwellers. Cities like Kinshasa, Dhaka, and Lagos are today 40 times larger than they were in 1950. Burgeoning new megacities of eight million or more residents and the hypercities of 20 million-plus residents are only part of the story however. Perhaps more significant has been the even faster growth of large towns or second-tier cities which have proliferated in scores of countries. In China the truly mind-boggling pace of urbanization has created 166 more or less new million-plus cities since 1978 [7]. The lack of urban planning, public transportation systems, adequate sewage systems and waste disposal, and control over traffic congestion, are all features of the slum

reality—features that, if tackled with determination over one or two decades, could generate much needed 'green' employment.

CONCLUSION

These and other challenges can be overcome, but not without bold policy interventions. Green jobs and climate protection are public goods that cannot rely on private markets to create them in the quantities needed or in the available time frame. An international consensus is growing around the need for a global "Green New Deal" to address the present economic, environmental, and social crises.

Given the events of the last year, a global "Green New Deal" will require heavy regulation and public control of the financial system, as well as major reform of the International Monetary Fund, World Bank, and World Trade Organization. But expectations differ with regard to the goals of the Green New Deal. For many policy-makers, it's simply a matter of restoring GDP growth. For trade unions and their social allies, a global Green New Deal will involve addressing major structural imbalances within and between countries—leading to a clear shift toward equitable, people-centered development and environmental sustainability [8]. Building economic life around these goals is the key to the global growth of green jobs—but it may also be the key to the future of human society as a whole.

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GREEN CHEMISTRY AND WORKERS*

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SHARON BEARD

ABSTRACT

What follows is a summary of remarks presented by panelists participating in a workshop entitled, "What Green Chemistry Means to Workers." The session examined the connection between green jobs—including those connected to the emerging field of green chemistry—and occupational, public, and environmental health. It was coordinated by Paul Renner, associate director of the Labor Institute, in collaboration with the Tony Mazzocchi Center for Safety, Health and Environmental Education, a project of the United Steelworkers and The Labor Institute. It was moderated by Joseph "Chip" Hughes, Director, Worker Education and Training Program, National Institute of Environmental Health Sciences. Panelists included Julie Zimmerman, PhD, Assistant Professor of Environmental Engineering, Forestry and Environmental Studies, Yale School of Engineering and Applied Science and Assistant Director for Research, Green Chemistry and Green Engineering Center, Yale University; David LeGrande, Occupational Safety and Health Director, Communications Workers of America; Mike Wilson, PhD, MPH, Environmental Health Scientist, Program in Green Chemistry and Chemicals Policy, Center for Occupational and Environmental Health, Berkeley School of Public Health, University of California; and Sharon D. Beard, Industrial Hygienist, NIEHS Worker Education and Training Program.

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Chip Hughes

Our green jobs community needs to better understand the science and implications of global climate change and prepare for both the dire emergencies and the opportunities for potential innovation which likely will result. Alternative energy sources, such as biofuels and hydrogen, will likely provide new opportunities for preparing an emerging work force in focused occupational and environmental safety and health training. New chemicals, materials, and nanotechnologies will present opportunities for training the work forces involved in production, and in the industrial application of secondary products and ultimately in handling waste disposal by-products.

Changes are occurring in the assessment and remediation phases of Superfund work and numerous facets of environmental clean-up processes. New clean-ups are approached with a focus on green assessment, green remediation, and green construction. The Worker Education and Training Program (WETP) is currently assessing the need for safety and health training in these burgeoning areas and building advanced curricula and a training delivery cadre.

We will meet the emerging threats to worker safety and health posed by issues, such as the changing climate, alternative energy sources, clean-up of deadly legacy wastes, and rapidly penetrating new materials and technologies into the emerging green workplace. Green chemistry represents an emerging innovative approach which can reduce both worker and environmental health risks.

While harvesting green research insights in the laboratory, multi-disciplinary teams can apply them to clean technology innovations for both the workplace and the environment. Exploring these issues and building a dialogue is the purpose of our workshop today.

We must build strong linkages between scientists involved in the development of green products and processes, workers and communities involved in emerging green industries and the multiple stakeholders and policy-makers who must create a fair, just, and health-protective framework to regulate the emergence of a green economic infrastructure.

WHAT GREEN CHEMISTRY MEANS TO WORKERS

David LeGrande

Green Chemistry is a fundamentally different approach to manufacturing and using chemicals and chemical products that seeks to design out human and environmental hazards through the replacement of hazardous chemicals, processes, and products. This approach differs markedly with current chemical

production and management practices that focus upon reducing not preventing chemical toxicity.

Several academics, practitioners, and workers have provided us with specific reasons why we are in the present situation and what we need to consider in advancing and implementing green chemistry. For example, Michael Wilson has pointed out the overarching problems with the regulatory and legal requirements of federal and state laws. These problems are characterized as the "data gap," "safety gap," and "technology gap."

Together, these three policy gaps have resulted in a flawed market for chemicals and products in which:

- The health effects of most chemicals are poorly understood;
- Hazardous chemicals and products remain cost-competitive;
- The costs associated with human and environmental health effects are borne by the public;
- There is minimal public/private investment in green chemistry research and development;
- Government regulation does not provide the necessary protections to workers, consumers, and the community; and
- There is inadequate attention placed upon green chemistry in academic institutions.

Clearly, workers and their unions should advocate for and support the development and implementation of green chemistry as part of an organized effort to overcome these deficiencies. Such actions would include:

- Activities associated with the development and growth of green chemistry focused upon closing the aforementioned policy gaps with the intention of developing and maintaining sustainable technologies and environments as well as related reductions in the cost of energy;
- Development and implementation of green chemistry as it produces green, sustainable union jobs;
- Provision by employers of more safe and healthful workplaces as well as related reductions in air, water, and soil contamination;
- Provision of and accessibility to employer-provided toxicity data regarding chemicals and products manufactured and used within their communities and broader geographic areas—for workers, consumers, and community members;
- Initiatives focused on the comparative identification and reduction of occupational and environmental illness and disease among workers, consumers, and community members associated with exposure to hazardous chemicals and products and their replacement with green chemistry chemicals and products; and

- Measures to have manufacturers and downstream employers/users held fully responsible for the human and environmental health problems associated with the life-cycle of chemicals and products.

When addressing "What Green Chemistry Means to Workers," we should consider the concerns of workers as one component of much larger, macro-societal issues. In moving forward, we should envision and remember the positive economic, political, and social impacts the increased development and implementation of green chemistry will have upon all of society—not only in the U.S., but throughout all industrial and developing nations.

APPLYING THE PRINCIPLES OF GREEN CHEMISTRY AND GREEN ENGINEERING

Julie Zimmerman

By applying the principles of green chemistry and green engineering and by considering the fundamental concepts of sustainability, designers can contribute to addressing the challenges traditionally associated with economic growth and development. This new awareness provides the potential to design a better tomorrow—one where our products, processes, and systems are more sustainable, including being inherently benign to human health (including occupational health and the environment), minimize material and energy use, and consider the entire lifecycle.

As these next-generation technologies are considered, designed, and pursued, a broadened definition of performance will be necessary to support these efforts. For products and processes to perform successfully, the definition must evolve from function, cost, quality, and safety to include energy and materials consumption, ecosystem function at the source and sink, life-cycle impacts, and human-health outcomes as well as quality of life.

At the design stage, engineers have the ability to select and evaluate the properties of the final outcome. This can include material, chemical, and energy inputs, effectiveness and efficiency, aesthetics and form, and intended specifications such as quality, safety, and performance.

The design stage also represents the time for innovation, brainstorming, and creativity offering an occasion to integrate sustainability goals into the specifications of the product, process, or system. Sustainability should not be viewed as a design constraint. It should be utilized as an opportunity to leapfrog existing ideas or designs and drive innovative solutions that consider systematic benefits and impacts over the lifetime of the design.

To begin to design for sustainability in this systematic way, there are several key concepts that are critical: Inherency; life cycle; systems; resiliency; and integration.

Inherency

As is shown in the risk equation below, risk is a function of hazard and exposure: Risk = *f* (hazard, exposure).

In green chemistry and green engineering, risk is minimized by reducing or eliminating the hazard. As the intrinsic hazard is decreased, there is less reliance on exposure controls and therefore less likelihood for failure. The ultimate goal would be completely benign materials or chemicals such that there is no need to control exposure. That is, the chemicals and materials would not cause harm if they are released to the environment or humans are exposed to them. The advances being made in moving toward inherently benign chemicals through green chemistry are significant and dramatic.

It is also critical to note that other characteristics of a product, process or system (besides toxicity) can be designed to be inherent. A design can be inherently more reliable, more durable, more resilient, and more efficient. The intention is to design the desired properties intrinsically rather than controlling or maintaining them through external circumstances.

Life Cycle

Life-cycle considerations take into account the environmental performance of a product, process, or system through all phases, from acquisition of raw materials to refining those materials to manufacturing to use to end-of-life management. There is a need to consider the entire life cycle because different environmental impacts can occur during different stages. For example, some materials may have an adverse environmental consequence when extracted or processed, but may be relatively benign in use and easy to recycle. Aluminum is such a material. On one hand, smelting of aluminum ore is very energy-intensive (one reason aluminum is a favored recycled metal). However, an automobile will create the bulk of its environmental impact during the use life stage, primarily because of combustion of fossil fuels but also because of runoff from roads and the use of many fluids during operation.

Systems

"Systems thinking" considers component parts of a system as having added characteristics or features when functioning within a system rather than when isolated alone. This suggests that systems should be viewed in a holistic manner. Systems as a whole can be better understood when the linkages and interactions between components are considered in addition to the individual components.

The nature of systems thinking makes it extremely effective on the most difficult types of problems to solve. For example, sustainability challenges are quite complex, depend on interactions and interdependence, and are currently managed or mitigated through disparate mechanisms.

Resiliency

Resilience is the capacity of a system to survive, adapt, and grow in the face of unforeseen changes, even catastrophic incidents [1]. Resilience is a common feature of complex systems, such as companies, cities, or ecosystems. These systems perpetually evolve through cycles of growth, accumulation, crisis, and renewal, and often self-organize into unexpected new configurations.

By the laws of thermodynamics, closed systems will gradually decay from order into chaos, tending toward maximum entropy. However, living systems are open in the sense that they continually draw upon external sources of energy and maintain a stable state of low entropy [2]. This enables resilient systems to withstand large perturbations without failure or collapse. That is, these systems are sustainable in terms of long-term survival and can adapt and evolve to a new equilibrium state. Given the uncertainty and vulnerability around sustainability challenges such as climate change, water scarcity, and energy demands, it is likely sustainable designs will need to incorporate resiliency as a fundamental concept.

Integration

Any design is implemented within a context of material and energy flows, some of which may exist beyond the facility but still within the local or regional community. By utilizing readily available material and energy and integrating them into the process or system, a designer can increase overall system efficiency, reduce costs by using waste as a feedstock rather than virgin material, and reduce impacts of human health and the environment. Does this type of waste-feedstock sharing arrangement have environmental benefits? What about economic benefits? The answer is yes to both questions.

The Industrial Ecology Model

There is, perhaps, no better current example of a large-scale cross-process design for integration of material and energy flows than the eco-industrial park located in Kalundborg, Denmark [3]. This arrangement represents the manifestation of industrial ecology whereby entire industries and commercial applications are interconnected such that local materials that are the waste of one process become a value-added feedstock for a nearby process. In this case, what would normally be considered an environmental emission and liability—sulfur dioxide—is now a value-added feedstock for manufacture of gypsum (calcium sulfate) wallboard. The same is true for fly ash generated by the power station that is sold to a cement manufacturer. Similarly, sludge produced from pharmaceutical manufacturing processes, normally a disposal cost and environmental burden, is now sold to a fertilizer company as value-added feedstock. The same is true with energy flows that are shared beneficially

between various industrial and residential sectors of the community. Of course, this type of arrangement also has job security benefits because these businesses are now inextricably linked to their neighbors and their local community.

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THE ROLE OF CHEMICALS POLICY AND GREEN CHEMISTRY IN THE CLEAN-ENERGY ECONOMY

Michael P. Wilson

The rapid development of clean-energy technologies—of the green economy in general—is critical to responding to two of the greatest challenges of the 21st century: environmental damage and economic inequality. These technologies, however, are not by definition safer or cleaner for ecosystems, communities, or workers.

As the U.S. prepares to spur a new era of economic growth in clean-energy technologies and energy efficiency, it has an opportunity to generate important co-benefits by simultaneously reshaping outmoded policies governing industrial chemicals. Doing so will:

- Reduce worker, community, and ecosystem harms caused by chemical exposures and pollution;
- Build a sustainable footing for the clean-energy sector; and
- Open new opportunities for investment and employment in the design and use of safer alternatives, based on the principles of green chemistry.

Chemical Production

Over the course of about 50 years, synthetic chemicals have come to constitute the material base of society [1]. In 2005, U.S. chemical manufacturers reported producing or importing about 74 billion pounds per day of chemicals used in products and industrial processes, 90 percent of which were produced using oil [2]. If converted to gallons of water, this mass of material would fill a line of tanker trucks about 10,000 miles long, each carrying 8,000 gallons. At some point in its lifecycle, all of this material enters finite ecosystems, and much of it comes in contact with people through the use of products, in the workplace, and in air, food, water, soil, and waste streams.

The great majority of the tens of thousands of chemicals in commerce, however, have never been sufficiently evaluated for their effects on humans or ecosystems [3]. This is a legacy of weaknesses in the U.S. *Toxic Substances Control Act* of 1976 (TSCA), which has produced a chemical data gap, safety gap, and technology gap in the U.S., with their attendant health and environmental consequences [4].

Globally, chemical production is projected to continue growing about three percent per year, with a doubling rate of 24 years, rapidly outpacing the rate of global population growth [5-7]. This growth will distribute globally both the benefits and the health and environmental effects of industrial chemicals.

Problems with Existing Chemicals and Materials

In 2002, the U.S. Centers for Disease Control and Prevention (CDC) looked for—and found—148 synthetic chemicals and pollutants in the blood and urine of a representative sample of the U.S. civilian population [8]. There is evidence that many of these substances pass through the placenta, entering (and, in some cases, accumulating) in the fetus, suggesting they could pose significant risks to human development [9].

Occupational Disease

Workers are at particular risk from chemical exposures because, depending on their occupation, they are more highly exposed to hazardous substances compared to the general public [10]. Estimates for the state of California suggest that in 2004, workplace chemical exposures resulted in about 200,000 cases of cancer, chronic obstructive pulmonary disease (COPD), asthma, pneumoconioses, chronic renal failure, and Parkinson's disease.

Hazardous Waste

The management and clean-up of hazardous waste is another externalized cost attributable to existing chemical technologies. Each year, the U.S. spends more than $1 billion managing Superfund sites; future costs are estimated at $250 billion [11,12]. On the current trajectory, the EPA anticipates the need for 217,000 new hazardous waste sites over the next 25 years [11].

Electronic Waste

At home and abroad, the proliferation of obsolete, broken, stored, or discarded electronic devices (known as electronic waste or e-waste) poses a mounting, long-term threat to public and environmental health. More than 10 billion pounds of electronic products were discarded in U.S. landfills in 2000 [13]. Electronic waste contains many known toxic substances, including arsenic,

nickel, cadmium, lead, mercury, phthalates, volatile organic compounds, and brominated flame retardants [14].

Gaps in U.S. Chemicals Policy

Many of the health and environmental problems attributable to the production and use of industrial chemicals stem from the U.S. chemical data gap, safety gap, and technology gap that have grown out of weaknesses in the *Toxic Substances Control Act* of 1976 [14].

Data Gap

EPA is virtually unable to assess the potential hazards of nearly all chemicals in commerce. More than 99% of the highest production-volume substances used today are among the 62,000 chemicals that TSCA "grandfathered" into use in 1976 without further evaluation [15-17]. Meanwhile, there are no minimum toxicological data required for introducing new chemicals [18].

Safety Gap

TSCA sets a high evidentiary bar before EPA can take action to control hazards, but data gaps and the complexities of characterizing exposure make obtaining this evidence—and building such a case—all but impossible. As a result, EPA has been able to formally regulate just five existing chemicals or chemical classes since 1976 [16].

Technology Gap

As a result of the data and safety gaps, TSCA has failed to motivate broad industry investment in cleaner chemical technologies, known collectively as green chemistry [19]. National research and education agendas have neither prioritized the science of green chemistry nor prepared the next generation of scientists to lead the chemical enterprise toward sustainability.

As a result of the three gaps, the U.S. chemicals market has undervalued the safety of chemicals relative to their function, price, and performance, with the result that hazardous chemicals have remained competitive and in widespread use [4].

Hazardous Materials in the Solar Technology Sector

To create a future characterized by improving social, environmental, and economic conditions, industrial activity will need to solve, not exacerbate, the mounting health and environmental problems facing the planet today. The growth of the multibillion dollar "clean and green" technology sector is a hopeful sign

that industrial activity can indeed follow this trajectory, creating both green solutions and new opportunities for employment, including for those most in need of pathways out of poverty. In California, for example, investments in clean energy technologies that were anticipated to seed between 52,000 and 114,000 new jobs statewide by 2010 had created about 105,000 jobs in fifteen different classifications by 2007 [20, 21].

The photovoltaic (PV) industry is at the leading edge of the clean-energy sector. Yet it relies on an array of hazardous substances, and its products could contribute to the wave of electronic waste flowing into Asia and Africa. This opens the possibility that this important industry could face the same problems with occupational exposures and environmental pollution that have accompanied the growth of other industry sectors. To date, the health and environmental impacts of the PV industry have not been adequately characterized, but they are potentially large.

Fortunately, we are not destined to repeat previous mistakes. We have an opportunity to craft policies that will move the industry to 1. reduce and eventually eliminate the use of toxic materials; 2. assure proper testing of emerging materials; 3. expand responsibility for the lifecycle of PV products; 4. design products for easier recycling; 5. protect worker health and safety and provide a living wage throughout the global PV industry; and 6. protect community and environmental health and safety throughout the global PV industry [22].

Grappling with these six measures will require that the PV industry conduct an assessment of the lifecycle of materials and products it uses. This assessment should include occupational exposures, environmental pollution, and the generation of hazardous waste that occur both domestically and overseas. This is an essential step in prioritizing and mitigating health and environmental problems in the industry.

In taking this step, however, the PV industry will face the same chemical data gaps, safety gaps, and technology gaps that face other downstream users of chemicals and materials in the U.S. Like these businesses, the PV industry will soon find itself facing:

- the lack of standardized, robust information on chemical hazards in their supply chains (the data gap);
- the fact that hazardous chemicals are readily available on the market and often relatively inexpensive (the safety gap); and
- a lack of safer alternatives to hazardous chemicals (the technology gap).

A comprehensive chemicals policy that closes the three gaps will therefore play a key role in building the foundation for a sustainable U.S. PV industry.

To "reduce and . . . eliminate the use of toxic materials . . . ," for example, new policies will be needed that require chemical producers to disclose information to downstream users—including the PV industry—on the hazardous properties of chemicals, thereby closing the data gap. Policies to phase-out the use of the

most hazardous chemicals on the market (closing the safety gap) will spur investment in safer alternatives (closing the technology gap).

These measures will require new public policies, including chemicals policies, that include market incentives, direct regulation, and support for research and training. Changes resulting from these policies will help place the PV industry on a sustainable trajectory.

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EXPANDING GREEN JOBS AND SUSTAINABILITY INITIATIVES WITHIN NIEHS' WORKER EDUCATION AND TRAINING PROGRAM

Sharon D. Beard

The National Institute of Environmental Health Sciences (NIEHS) is the federal government's premier environmental health biomedical research institute. The institute also has an education and prevention program, where the Worker Education and Training Program (WETP) has been vigorously developing safety and health training to protect workers.

Since 1987, the federal WETP has provided an effective, accountable structure for training workers who handle hazardous materials, hazardous waste,

or respond to emergencies involving these materials. Many of the more than two million workers trained since the program began have been associated with the clean-up of this country's hazardous waste or Superfund sites. Many are also involved in the clean-up of the Department of Energy's nuclear weapons sites. Such work has long been recognized as protecting the environment and the health of surrounding communities. In today's terminology, these are "green" jobs. Proper training assures that green jobs are safe jobs.

The training program administered and funded by WETP consists of a national network of non-profit educational organizations with proven access to training audiences. Organized into 19 consortia that include universities, community colleges, and the training arms of national labor unions, these organizations provide safety and health and skill-based training in every state, Puerto Rico, and the Pacific territories. The organizations are held accountable, through published criteria and required evaluations, for providing the best possible training, utilizing skilled professional and peer trainers, up-to-date curricula, and high-quality training centers and equipment. (NIEHS Green Jobs Concept Paper, 2009)

The WETP sponsored a national conference entitled Implications for Safety and Health Training in a Green Economy, held on October 16-17, 2008, focused on examining the current state of health and safety issues around the green economy, including green jobs and industries, green remediation, and green chemistry. As a result of this conference, WETP made several key findings that will be used to push our priority of making green jobs safe jobs. Key findings include:

- Effective implementation of green job training is a public health imperative. Reducing greenhouse gasses and carbon emissions by creating greener processes, technologies, and jobs will greatly assist in improving public and worker health.
- Green chemistry and effective worker health and safety are highly correlated because both seek to reduce or eliminate the use and generation of hazardous substances and their effects on human health and the environment. Workers must understand green chemistry and organizations must work to infuse the principles of green chemistry into their training programs.
- Research on green remediation and construction must be conducted to address the impacts of green work on worker safety and health; and partnerships to ensure safety must remain the top priority, along with remedy protectiveness with companies considering all environmental effects during each phase of any clean-up.

As our country invests more in green jobs programs, the WETP program should play an ongoing role. The program has the mechanisms in place for quickly getting funding and other resources to its awardees and into the field. It also has a process in place for the evaluation of its efforts including the effectiveness

of its training. In addition, it has the partnerships with federal, state, and local agencies, as well as contractor and labor organizations, to make such a program responsive and successful in meeting national priorities.

The WETP programs are documented models of effective training interventions that can be expanded or duplicated according to the needs of our country, its employers, and the work force. For example, the United Steel Workers are conducting workshops and developing training modules based on their work with green chemistry researchers. And the United Auto Workers are conducting workshops aimed at greening their communities.

Another example of the integrating of green initiatives within the WETP is the expansion of the Minority Worker Training Program (MWTP). The MWTP is a carefully designed intervention aimed at increasing the number of underrepresented minorities in the construction and environmental remediation industries. It provides pre-employment literacy and life-skills training, construction skills training, and environmental worker training. This program has achieved great success in moving young workers into long-term employment including, most recently, in the area of energy retrofitting and solar panel installation. Since 1995, these programs have trained more than 7,400 students and employed approximately 68 percent of those students in jobs directly related to their training with career opportunities continued through local apprenticeship and community college programs. To effectively address local health and safety issues and the development of appropriate green-collar job programs, NIEHS awardees worked to establish partnerships in many communities. We hope to use the NIEHS model of training and expand opportunities in green jobs.

An example of this effort is JobTrain, a member of the Center for Construction Research and Training (CPWR Consortium). JobTrain operates an MWTP initiative called Project Build in East Palo Alto, CA. After a year of extensive research and development, JobTrain, launched a new initiative to expand training and employment opportunities for MWTP trainees in the green jobs market by piloting a solar panel "photovoltaic" training project in 2008. This project required significant partnership-building with local and national companies, local governmental agencies, and other community-based organizations. The workshop covered the educational requirements of the new program, what employers were looking for in potential employees, and what training facilities would be needed. Students who completed this course received certification in the installation of solar panels. The pilot program was so successful that the program became incorporated into JobTrain's menu of courses offered to community residents. The program also included a number of internships with a local solar company, Akeena Solar, which provided additional hands-on experience.

As the WETP continues to seek ways of incorporating the green paradigm into its programs and operations, protecting workers engaged in greening our economy remains a priority. We want to share our models and our materials

with the greater worker safety community. Thus, any hazardous materials training tools and resources to protect workers developed under our programs are available to the public and other hazmat training organizations via our website. These documents, contact information on current NIEHS awardees and program staff, as well as hazardous materials curricula can be found at www.niehs.nih.gov/careers/hazmat and on the web site of the National Clearinghouse for Worker Safety and Health Training at http://tools.niehs.nih.gov/wetp/index.cfm

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GREEN SCHOOLS: STRENGTHENING OUR ECONOMY BY INVESTING IN OUR CHILDREN

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ABSTRACT

An architect looks at the history of school design and construction in the United States, which by 2008 had approximately 97,000 public schools holding 54.3 million students and five million teachers. About 73 percent of the schools were built prior to 1969. A study has shown that Green Schools can produce a 30-50 percent reduction in energy use, 35 percent reduction in carbon dioxide, a 40 percent reduction in water use, and cut 70 percent in solid waste. Further, student absenteeism and teacher turnover were reduced and productivity increased three percent. If all American schools were Green, the country would save nearly $1 trillion in the next 10 years.

What follows is a summary of remarks presented by an architect who was a participating panelist in a workshop entitled "Green Schools: Strengthening our Economy by Investing in Our Children." The session provided an overview of federal government plans for modernization of schools, and more specifically green school modernization. It also presented examples of innovative strategies for delivering the benefits of green schools to communities.

In 1954 *Encyclopedia Britannica* provided more than 14 pages of information on School Architecture. They traced the history of the American school from its roots as "The Little Red School House" to large land-consuming school facilities in our urban and suburban communities. *Encyclopedia Britannica* reported that, "originally school buildings consisted of a single room or hall

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housing children of varying ages in a residential district"—the "little red school house" held dear in the memory of the people of the U.S. As neighborhoods grew and more pupils had to be housed than would be handled by one teacher, larger square or rectangular buildings were erected, with two to four rooms off a central hallway, sometimes two or three stories high, which held four to 12 classrooms or more." *Britannica* went on to report in 1954, "the marked changes in architecture and education that occurred at the end of World War II challenged architects and educators to seek new solutions and new forms of expression for functional needs of school buildings."

Often times, these new forms of expression resulted in cheaper school buildings. Materials used were inexpensive with short life spans. Overall building size grew because it was perceived to be a more efficient way to house and teach students. School campuses became ever larger because it was felt they were cheaper to operate and more energy efficient. As safety became a concern, windows were replaced or minimized.

As cities grew and resources became more limited, the inherent shortcomings of post-World War II school building designs became evident. Newer school buildings were expensive to operate. The lack of durability caused them to age quickly and fall into physical decline. In some cases, they became unhealthy. At the same time, older school buildings often constructed of more durable long-lasting materials and located predominantly in our urban centers were neglected. Increasingly, they fell into disrepair and contributed to educational decline. Neighborhoods surrounding them were marginalized, students and families were left unsupported as cities struggled to compete with richer suburban communities. Concurrently the system of education in the U.S. began a period of transformation as teachers and administrators worked to create an educational system for 21st-Century Learners.

In 1860 there were 300 public high schools in the U.S. By 1900, that number had grown to 6,000. By 2008, there were approximately 97,000 public schools holding 54.3 million students and five million teachers. Most of these schools are more than 40 years old. In fact, 73 percent of schools in the U.S. were built prior to 1969. Overall, the American Society of Civil Engineers ranks our nation's school facilities a "D."

Every year, we spend $8 billion to heat and light our schools. It is estimated that these schools require between $350B-$400B in deferred maintenance improvements while annually we only spend $33 billion to build new schools or remodel our existing facilities. Equally important, we are learning that our school facilities are unsafe, unhealthy, and impede teaching and learning rather than support it.

Out of necessity comes invention. As the U.S. looks to build a more sustainable and "Green" nation, architects, engineers, teachers, and school boards are looking to remodel or build a more sustainable school house. The Green School is emerging as a viable option to the lessons learned from the last 100 years of school design and construction.

Green schools focus on energy efficiency, environmental responsibility, fiscally responsible allocation of resources, creation of educationally supportive learning places, and community renewal. They are not limited to new school design and construction but also consider the possibility for renovating and restoring our old or more stable school buildings. To that end, communities are now beginning to design green schools to restore their urban fabrics. An example, like the John A. Johnson School in St. Paul, Minnesota, shows that reusing and transforming existing buildings can create important centers of community and expanded programs for learning. Or new buildings like Rosa Parks School in Portland, Oregon can transform the entire neighborhood while providing 21st-Century Places for students to learn.

Equally important is the environmental data emerging related to Green Schools. The U.S. Green Build Council (USGBC) reports that buildings in the U.S. account for 12 percent of water use, 39 percent of carbon dioxide emissions, 65 percent of waste output, and 71 percent of electricity consumption. Schools are the second largest building type in the U.S. after housing. In a study of 30 Green Schools, USGBC has identified that they account for a 30-50 percent reduction in energy use, 35 percent reduction in carbon dioxide, 40 percent reduction in water use, and 70 percent reduction in solid waste. Further, USGBC noted that student absenteeism and teacher turnover were reduced and there was a three percent increase in productivity. In real dollar terms, on average, that amounts to more than $95,000 per school in direct and indirect cost savings per year. If all American schools were Green, it would result in close to $1 trillion in savings in the next 10 years [1].

Encyclopedia Britannica in 1954 stated that as good as our schools are, they still need improvement. In these times of diminishing resources, increased focus on academic achievement, and the desire to rejuvenate our neighborhoods and communities, Green Schools provide a real opportunity.

ACKNOWLEDGMENT

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RECYCLING: NOT JUST A FEEL-GOOD ACT BUT A GREEN JOBS ENGINE

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ABSTRACT

The U.S. needs to recycle its outdated recycling industry. It can bring good well-paying jobs, reduce harmful gas emissions, and energize markets and local economies. The U.S. recycles only a third of its wastes; even so, with 1.1 million employees, it grosses $236 billion a year. But now it must transform the operation into a resource recovery infrastructure.

These remarks were presented at a workshop entitled "Recycling: An Immediate Opportunity to Lower Greenhouse Gas Emissions, and Create Sustainable Union Jobs." The session provided an overview of recycling trends in the U.S., examined E-waste recycling, assessed organics recycling, and discussed what jobs are being created in this sector and how to make them good union jobs.

America's waste removal infrastructure is outdated. It provides incentives for throwing away valuable resources that can be recycled, re-manufactured, and reused. But recycling is not just a feel-good activity, it can be an engine for creating good, sustainable, green jobs.

In addition to job creation, recycling drastically reduces landfill emissions of methane—a harmful greenhouse gas. It also efficiently and effectively

*The Teamsters union represents more than 1.4 million workers in North America. Teamsters work from ports to airlines, from road to rail, from food processing to waste and recycling. The union fights to improve the lives of workers, their families, and the environment across the global supply chain.

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conserves energy and has the potential to stimulate local economies and U.S.-based markets for recycled goods.

Increasing the national recycling rate is a direct and economical way to create quality green jobs, especially for disadvantaged communities. Recycling industries include activities such as curbside collection of materials, deconstruction of buildings and products, processing recycled materials, composting, repair and reuse businesses, and manufacturing of new products using recycled content. These industries already provide more than 1.1 million jobs in the U.S., and gross more than $236 billion in annual revenue. Currently, the U.S. recycles less than one-third of its waste. Increasing our domestic waste recycling rate to 75 percent will have a significant and positive economic and environmental impact. Recycling industries provide far more jobs than waste incinerators and landfills, and the job skills range from entry level to high-skilled labor, which can provide pathways to prosperity through community economic development.

The way to transform the U.S. waste industry infrastructure into a *resource recovery infrastructure* is to level the playing field for emerging programs. The way we can do that is by ending subsidies, tax credits, and other federal support for landfills and incinerators. These supports serve the companies that profit from landfilling and incinerating, but create a false market price that favors wasting and takes needed resources from developing re-use markets.

Removing organic waste from landfills is a critical part of building a resource recovery infrastructure. Burying organic waste in landfills creates methane, and landfills are the largest man-made source of methane, a greenhouse gas 23 times more potent than carbon dioxide and, in the short term, even more damaging. Over a 20-year period—the time scientists are most concerned about—methane's ability to trap heat in the atmosphere is 72 times greater than CO2.

Despite the vast potential of a national resource recovery infrastructure, misguided climate and "renewable" energy policies have provided far greater investment for trashing valuable resources in incinerators and landfills than for strengthening recycling. The technology exists to begin the transition to a resource recovery infrastructure with enormous potential for continued innovation.

All too often, recycling jobs are dangerous, dirty, and poorly paid. The surest way to produce green, sustainable jobs is to build in mechanisms for workers to freely choose union representation. We have an excellent example of a partnership between the City of San Francisco, Teamsters Local 350, and Norcal Industries. This model proves that recycling jobs can be good, well-paid jobs with good benefits. Norcal has a state-of-the art recycling facility with land provided by the city. The Teamsters negotiated excellent wages and benefits and the union contract provides opportunities for workers to advance.

Once established, recycling and composting programs not only pay for themselves, but with a high-road approach, they can bring additional resources, industries and long-term, sustainable green jobs to communities.

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HIGH-SPEED RAIL—COMING TO AMERICA?

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ABSTRACT

The United States lags many parts of the world when it comes to high-speed rail. But investing in high-speed rail could help us through current problems. Funds—$8 billion—in the economic stimulus package passed by Congress are designated for high-speed rail. Other funds in the pipeline total approximately $15.5 billion. High-speed rail can relieve congestion, free up national airspace, provide reliable transportation and positive economic development, create jobs, and is more energy efficient than other modes of travel.

These remarks were presented at the conference workshop entitled "Building Quality Employment Opportunities in a Greening Supply Chain." The session asked presenters to address the following question: How can we ensure that new green transportation and manufacturing jobs will be good jobs? The focus of the workshop was on efforts that link workers' rights with the public good.

The United States leads the world in so many arenas but one in which it does not lead the world is the arena of high-speed rail. Indeed, our country is woefully behind the rest of the industrialized world in the development and implementation

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of high-speed rail. How far behind? If this were a marathon—we haven't even gotten our running shoes on yet.

The rail industry, the science, and the technology are available. Maglev trains can whisk passengers along at 350 miles per hour (mph). The Japanese bullet train moves passengers along at 180 mph. France, at 200 mph, holds the world's highest average speed for a regular passenger service.

So where is the United States when the rest of "old Europe" and Asia are so far ahead? Right now, nowhere! Currently our fastest and most heavily traveled passenger rail corridor is the Amtrak Acela. The District of Columbia to New York City Acela is an old-fashioned rail carrier and travels at an average of 83 mph—not even half that of high-speed rail in the rest of the world.

But it's not all bad news, we are about to start—if the political will and the financing fall into place and the commitment to it does not falter.

Funding for high-speed rail is increasing by the week. In October 2008, the President signed the Rail Safety Improvement Act. Title V of that bill is devoted to the development and implementation of high-speed rail and budgets $1.5 billion through 2013. It sets timelines, initial funding, calls for proposals to be submitted, and calls for the establishment of commissions to evaluate those proposals for the eleven identified high-speed rail corridors within the 48 contiguous states.

Additionally:

- President Obama's 2009-10 budget contains $5 billion for high-speed rail;
- President Obama's stimulus package passed in March 2009 budgets $8 billion for high-speed rail;
- California's Proposition 1A, passed in November 2008, authorized a $9 billion bond issue for a high-speed rail from Los Angeles to San Francisco; and,
- Thirty-five states have high-speed rail projects in various stages of planning.

All told, that puts funding for high-speed rail at $23.5 billion—a drop in the bucket for what will be the equivalent of the interstate highway system—but it is the first substantial financing of high-speed rail in this country and we can anticipate funding for high-speed rail to increase in future budgets. Department of Transportation Secretary Ray LaHood says that President Obama wants to be known as the High-Speed Rail President.

Why invest in high-speed rail? Because it relieves congestion, frees up national airspace, provides a reliable transportation alternative, provides positive economic development, and is good for the economy; it's good for employment; it reduces air pollution and green house gas emissions; it is more energy efficient than cars or airplanes, and high-speed rail will enhance local commuter rail and nationwide freight operations because separating high-speed passenger rail service from commuter and freight rail would benefit all three types of service.

Studies have demonstrated that high-speed rail is time-competitive with air and/or auto for travel markets in the 100-500-mile range.

Why haven't we done it yet? Congressional interest in high-speed ground transportation dates back at least to 1965, with the passage of the High-Speed Ground Transportation Act. In the 1980s, grants were set aside to analyze various corridors.

In 1991, the Senate passed a High-Speed Rail Transportation Act that would have encouraged research, development, design, and implementation of Maglev and other high-speed rail.

On and on it goes, study after study, commission after commission, for nearly 40 years. High-speed rail has to be one of the most studied and analyzed transportation issues of our day—and we have yet to build a single mile of high-speed track in this country.

It is critical that we get out of the study mode and into the construction mode. We must. The strain on transportation facilities will accelerate and overwhelm mobility in the densely populated regions of this country. There are currently more than 250 million registered passenger vehicles. The number of motor vehicles has been rising by approximately 3.69 million each year since 1960. By 2050, there will be an estimated 400 million. Our roads in densely populated regions, already saddled with long commutes, will descend into virtual gridlock. We cannot continue to widen and build enough highways to carry the kind of traffic that we are experiencing now and that will only increase exponentially as the years pass. Four-lane freeways widened to eight or twelve lanes will provide what relief to our congested city streets?

Quality of life is one of our most important cherished rights and one of the qualities of life is how much time you get to live it. If you're stuck on the road, if you're stuck in congestion, your quality of life suffers.

High-speed trains are a reality in the rest of the industrialized world. The Title V of the Rail Safety Act of 2008 is a start but in this time of severe budgetary constraints, one fear is that it is just another start that will go nowhere.

California, as in so many issues, has taken the lead in high-speed rail. This past November, voters approved a $9.9-billion bond initiative to begin funding of the first segment of high-speed rail in this country—from Los Angeles to San Francisco.

This statewide high-speed train project will create nearly 160,000 construction-related jobs to plan, design, and build the system. The Chamber of Commerce in California estimates that an additional 450,000 permanent jobs are expected to be created as a result of the economic growth the train system will bring to California.

By reducing congestion, the high-speed trains will increase productivity. California has three of the top five most congested urban areas in the United States. Right now, California's congestion costs approximately $20 billion per year in wasted fuel and lost time.

A network of high-speed rail lines connecting cities in densely populated corridors would be a tremendous benefit to our nation. Not only would its construction bring economic development and the creation of thousands of new jobs, but once completed, we would also see improvements in our air quality, reductions in greenhouse gas emissions, congestion relief on our highways, and greater mobility for people currently underserved by other forms of transportation.

In California, feasibility studies document high-speed trains' ability for linking metropolitan regions together in a highly efficient, environmentally friendly network by 2020.

High-speed rail has proven itself to be the safest and most reliable form of transportation in the world, ideally suited for the needs of the United States in the 21st Century.

The longer we wait, the more expensive it's going to be. The most current estimated cost to build the 800-mile system in California is about $45 billion. Once built, the system will not require operating subsidies and will generate more than $1 billion in annual profits. We better act now.

John Judis wrote an article in *The New Republic*, comparing the massive investment needed for high-speed rail to what the country invested in World War II. Some of these arguments bear repeating here.

Many economists fear our country may not simply be facing a steep recession that will last the traditional 12 to 16 months, but are at the precipice of another Great Depression. Our current economic crisis is global, as it was in the 1930s. The world is going to rise or fall together in this one.

Over the last 60 years, our financial stewards utilized many of the same methods utilized during the Great Depression to combat recessions—these include job creation by investing in infrastructure, repairing crumbling roads, bridges, water and sewage systems; transferring payments to raise consumer demand; and infusing vast amounts of money into our moribund credit system. Today, however, this remedy may be woefully inadequate to provide a lasting rebirth of our economy because we lack the powerful production and manufacturing base of the 20th Century.

Many economists believe what finally extracted the United States from the malaise of the Great Depression was the massive amount of spending and the enormous investment in our military production capabilities demanded to meet the challenges of World War II—tanks, airplanes, transport vehicles, battleships, etc. This country marshaled its resources and workers to successfully engage its adversaries.

That same call to arms must be issued today—we need to embrace our current economic situation as a challenge to reinvigorate our transportation and manufacturing base—or as some call it—to embrace a strategy that could be called the fiscal equivalent of war.

It wouldn't entail simply addressing our nation's crumbling infrastructure. This call to arms demands not tens of billions of dollars but hundreds of billions in

massive new investments that would expand the scope of American industry, and address other urgent problems in the process that we have collectively neglected for decades: global warming, our addiction to oil, and reviving our country's manufacturing capabilities—not just to provide good, high-paying jobs, but also to improve our trade balance by once again producing tradable goods.

High-speed rail is such an investment. It would be the most energy-efficient and quickest means of getting between places like Boston and New York, or Los Angeles and San Francisco, Cleveland and Chicago, Dallas and Austin, Seattle and Portland, Miami and Orlando.

But it requires enormous political will and would require a massive investment. For instance, installing high-speed rail in the Northeast corridor could cost about $32 billion. A system that would address other areas of the country could easily raise the cost to the hundreds of billions. The stimulus package's $8 billion for high-speed rail is a drop in the bucket but it is a beginning.

Investing in high-speed rail would be very expensive, but unlike tax cuts—the benefits of which can be siphoned off in the purchase of imported goods—the money spent would go directly to reviving American industry and improving the country's trade balance.

It would not just create hundreds of thousands of jobs to build dedicated tracks or new rail stations but to revive our faltering manufacturing base.

How? Like so much of its manufacturing capabilities, our country abandoned the production and manufacturing of trains decades ago to the French, Germans, Canadians, and Japanese. We have an opportunity to return this kind of production capability to this country, which could be undertaken by our ailing auto and aircraft companies, industries of strategic importance to our national security. Additionally, we could increase our steel production capabilities in this country, long ago ceded to other countries, for the manufacturing of the rails for a high-speed train system. Manufacturing environmentally friendly trains that run on electricity, instead of pollution belching diesel-fueled locomotives, would be an example of the "green jobs" that are the future of our economy and the custodianship of our planet.

It is this kind of commitment to the larger picture that characterizes the American experience. It is a challenge that the country finally appears willing to take on. Repairing our infrastructure, our roads, bridges, sewer and water systems, improving our electrical grid and the like are important for the maintenance of an efficient and effective status quo. But to create a rebirth of production and manufacturing capacity, the country must be willing to take on the kind of ambitious industrial expenditures that the country committed itself to in World War II and for the construction of the interstate highway system in the 1950s. It is at once a commitment to our strategic national security, a foresighted commitment to our future transportation needs, and a demonstration of our commitment to the environmental health of the planet. And in the midst of fulfilling all those noble goals, it will create millions of jobs.

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