

**The Stimulus Package and Its Effect
on the Renewable Energy Industry**

April 7, 2009

Prepared by
Senior Consulting, LLC t/a Green Business Plan Consultants
tim@thebusinessplanconsultants.com
(732) 233-4625

Introduction

Many of the readers of this Report have heard of the Stimulus Package of 2008-09, and they have questions regarding the funds that are newly available and how to access them. This Report will answer some of these questions, and provide resources to find out more about the various new programs.

Overall, nearly 10% of the entire bill provides funding and tax credits for green energy related projects. The American Recovery and Reinvestment Act will invest nearly \$79 billion in renewable energy, energy efficiency and green transportation, according to a final tally of the legislation by the nonprofit Environment California.

Many in the industry are hailing a piece of the recovery legislation that allows developers of renewable-energy projects to swap their existing tax credits for cash grants from the Department of Energy. The switch means little to taxpayers, because the cost to the government is about the same. But it removes a huge financing obstacle that has stymied the sector. That's because solar and wind projects are driven as much by tax policy as they are by the weather. Renewable-energy companies historically have relied on tax credits to help them generate competitive returns and attract investors, a process that has been short-circuited by the U.S. financial meltdown.

The workings of these tax breaks are complicated. But in essence, because they're used to offset tax liability, a project developer needs to be making a big profit to take full advantage. Many clean-energy firms don't have a tax bill that large, so they partner with financial institutions or other investors that do. This tax-driven financing system worked well until the nation's banking system got slammed by the subprime mortgage crisis. Large commercial banks and investment houses that had bankrolled billions in wind and solar deals suddenly were bleeding red ink. Major financiers no longer had a so-called tax appetite for renewable-energy deals.

"It affects everyone from the investor all the way to the guy installing panels on the roof," said Ron Kenedi, vice president of the U.S. solar operations of Sharp Corp., a major manufacturer of solar photovoltaic cells. "It has really hurt us." Kenedi said that it would take some time for the revamped incentive system to get up and running, but that it would "open the floodgates" to new investment.

Notable provisions of the recovery act include \$5 billion for weatherization of more than 1 million homes, \$4.5 billion for energy upgrades to federal buildings and \$4.5 billion in federal matching funds to upgrade the nation's outdated energy grid. The bill sets aside \$5 billion to weatherize more than 1 million modest-income homes, saving families an average \$350 a year. It devotes \$6.3 billion to improve federally backed and public housing projects with new insulation, windows and furnaces. Higher-income households can make similar improvements and get expanded tax credits.

The legislation did not include a national "renewable portfolio standard" sought by many environmentalists, which would have forced utilities nationwide to boost their use of clean energy. California is one of several states to adopt such measures. A renewable portfolio standard (RPS) is a regulatory policy that requires the increased production of energy from renewable resources, such as wind, solar, biomass, and geothermal. But the mandates are opposed by legislators from states that are heavily dependent on low-cost coal. "There are a lot of roadblocks," said Stuart Bush, managing director of alternative-energy research at RBC Capital Markets. "The question is how much momentum [President] Obama has left after the stimulus" to keep pushing for such a change.

Though the stimulus package fell short of what some green advocates wanted, others were heartened. Former President Bill Clinton said it represented a breakthrough in U.S. energy policy. "We've never had a jobs program before in American history where the heart and soul of it was a commitment to clean energy," Clinton said. "Am I excited by what's in it? I am."

Tax Credits, Bonds & Grants

Extends for three years through 2012 the tax credit for producing electricity from wind and through 2013 for electricity generated by biomass, geothermal, hydropower, landfill gas and ocean currents. Some of the features of this legislation are:

- Allows renewable facilities to claim investment tax credit instead of production tax credit.
- Removes cap on investment tax credit for small wind property.
- Allows renewable energy producers to claim a 30 percent cash grant from the Treasury Department in lieu of the 30 percent investment tax credit.

The Treasury Department will issue a grant in an amount equal to thirty percent (30%) of the cost of the renewable energy facility within sixty days of the facility being placed in service or, if later, within sixty days of receiving an application for such grant. An applicant will qualify for a grant if an application is received by September 30, 2011.

The bill authorizes an additional \$1.6 billion of new clean renewable energy bonds to finance facilities that generate electricity from the following resources: Wind, closed-loop biomass, open-loop biomass, geothermal, small irrigation, hydropower, landfill gas, marine renewables and trash combustion facilities. This proposal is estimated to cost \$578 million over 10 years. There is also a provision to authorize an addition \$2.4 billion of qualified energy conservation bonds to finance state, municipal and tribal government programs. This proposal is estimated to cost \$803 million over 10 years.

In addition to those measures, manufacturers in the wind, solar, storage, efficiency and transmission spaces will be able to take advantage of a new 30% tax credit designed to benefit manufacturers of advanced energy property. Credits are available only for projects certified by the Secretary of Treasury, in consultation with the Secretary of Energy, through a competitive bidding process. The Secretary of Treasury must establish

a certification program no later than 180 days after date of enactment, and may allocate up to \$2.3 billion in credits. This proposal is estimated to cost \$1.647 billion over 10 years.

Caps on the tax credits for residential solar hot water, geothermal heat and small wind systems will be removed under the new bill as well. Under current law, businesses are allowed to claim a 30% tax credit for qualified small wind energy property capped at \$4,000. Individuals are allowed to claim a 30% tax credit for qualified solar water heating property capped at \$2,000; qualified small wind energy property, capped at \$500 per kilowatt of capacity, up to \$4,000; and qualified geothermal heat pumps capped at \$2,000. This proposal is estimated to cost \$872 million over 10 years.

The alternative refueling property credit that provides a tax credit to businesses that install alternative fuel pumps, such as fuel pumps that dispense E85 fuel, electricity, hydrogen, and natural gas will be extended. For 2009 and 2010, the bill would increase the 30% alternative refueling property credit to 50%, and cap it at \$50,000. The cap for hydrogen refueling pumps will be increased to \$200,000. This proposal is estimated to cost \$54 million over 10 years.

The bill would extend the tax credits for improvements to energy-efficient existing homes through 2010. This tax credit is capped at \$50 for any advanced main air circulating fan, \$150 for any qualified natural gas, propane, oil furnace or hot water boiler, and \$300 for any item of energy-efficient building property.

Finally, the bill modifies and increases a tax credit passed into law at the end of last Congress for each qualified plug-in electric drive vehicle placed in service during the taxable year. The base amount of the credit is \$2,500.

Wind Power

From wind energy to solar power, the stimulus package offers the industry support at a time when sales have slowed and financing has dried up. “The solar industry has been buzzing with excitement,” Blake Jones, president of Boulder Colorado’s Namaste Solar Electric Inc., said.

“The stimulus package is a shot in the arm,” said Roby Roberts, the senior vice president of external affairs for Vestas, the Danish wind turbine manufacturer that is planning to make Colorado its major manufacturing center in the United States. Vestas last year opened a manufacturing plant in Windsor, north of Denver, to build the giant blades that turn in the wind, generating electricity. The company also has announced plans for two more manufacturing plants in Brighton and Pueblo for other pieces of its wind turbines.

A three-year extension in tax credits for producing wind energy, until 2012, is the longest extension the industry has ever had in the United States. The timeline will stabilize the market and open it up to buyers who hadn’t been interested in wind energy before,

Roberts said. The package also has tax credits for U.S.-based manufacturing of the equipment associated with renewable energy, Robert said.

Monday, February 16, 2009 Denver Business Journal – by Cathy Proctor

“The U.S. wind energy industry is grateful to Congress and the President for taking this important step to secure an economic recovery that includes a strong focus on renewable energy,” said Denise Bode, CEO of the American Wind Energy Association (AWEA). “We are thankful to be called upon, and ready to deliver. Wind power will create jobs by the thousands today and help build the vibrant, clean energy economy of tomorrow.”

Solar Power

The ARRA provides for the Department of the Treasury to issue grants of up to 30 percent of the basis of “qualified facilities,” which include: wind, closed-loop biomass, open-loop biomass, geothermal energy, **solar energy**, landfill gas, municipal solid waste, incremental hydropower production attributable to efficiency improvements or additions to capacity, marine and hydrokinetic renewable energy, and certain fuel cell facilities. Microturbine and cogeneration facilities may be eligible for grants of up to 10 percent of the facility’s basis.

The grants may only be accepted in lieu of PTCs or ITCs and apply to (1) facilities placed in service in 2009 or 2010, and (2) facilities that initiate construction in 2009 or 2010 and are completed by the “credit termination date,” which ranges from January 1, 2013 to January 1, 2017 depending on the type of facility. Including geothermal, **solar**, qualified fuel cell, qualified microturbine, combined heat and power system, qualified small wind energy and geothermal heat pump property placed in service by January 1, 2017. The grants generally would be payable upon achievement of the commercial operation date for the applicable facility.

Biofuels

\$300 million for federal fuel efficient vehicles. Service station owners will receive credit for 50 percent of cost (capped at \$50,000) for installing pumps that dispense alternative fuels, such as gasoline made of 85 percent ethanol.

The alternative refueling property credit that provides a tax credit to businesses that install alternative fuel pumps, such as fuel pumps that dispense E85 fuel, electricity, hydrogen, and natural gas will be extended. For 2009 and 2010, the bill would increase the 30% alternative refueling property credit to 50%, and cap it at \$50,000. The cap for hydrogen refueling pumps will be increased to \$200,000. This proposal is estimated to cost \$54 million over 10 years.

Specific Allocations

- *Transmission Upgrades and Smart Grid Investments: \$11 billion*

An amount of \$4.5 billion is appropriated for research and development, pilot projects and federal matching funds to modernize the electricity grid. To promote smart grid technology, matching grants for smart grid demonstration projects would be increased to 50 percent of investment costs from the previous 20 percent. The ARRA also stipulates that the Office of Electricity Delivery and Energy Reliability, in coordination with the Federal Energy Regulatory Commission, will provide technical assistance to the North American Electric Reliability Corporation, the regional entities, the states, and other transmission owners and operators for the formation of interconnection-based transmission plans for the Eastern and Western Interconnections and ERCOT.

* \$11 billion in spending and loan guarantees to build a “smart grid” to move renewable electricity supplies and build 3,000 miles (4,800 km) of transmission lines.

The big barrier to an alternative energy future is getting the renewable energy power through the grid and/or stored in batteries, so it’s no surprise that it receives most of the funding. However, \$11 billion isn’t going to be nearly enough says Jon Wellinghoff of the Federal Energy Regulatory Commission: “(It’s) seed money...but it really isn’t enough money to make huge advances in the overall backbone grid that we’re talking about to integrate substantial amounts of wind.” He estimated the total cost could be as high as \$200 billion and that between 200 - 300 GW of drafted wind projects remain stranded because their isn’t enough transmission capacity to link them to demand.

* \$8.4 billion in public transit, which will save 10.3 million barrels of oil and create or preserve 252,000 jobs, with \$1.5 billion set aside for expanding capacity and upgrades to existing transit systems

* \$8 billion for new high speed rail projects.

* \$6 billion in loan guarantees for renewable energy projects and electricity transmission projects.

* \$5 billion for the Weatherization Assistance Program for low income families

* \$4.5 billion in green building funding to improve energy efficiency of the federal government (estimate of \$2 billion/year in energy savings)

* \$3.4 billion in funding for “fossil energy” research (i.e., clean coal)

* \$3.1 billion to help citizens and businesses save energy;

* \$3.2 billion in block grants for local government energy efficiency and renewable energy projects

* \$2.5 billion for energy efficiency and renewable energy research

* \$2 billion for grants to advanced battery manufacturers

* \$300 million for federal fuel efficient vehicles

* Extends for three years through 2012 the tax credit for producing electricity from wind and through 2013 for electricity generated by biomass, geothermal, hydropower, landfill gas and ocean currents.

Wind farm developers who previously receiving a production tax credit (which was set to expire this year, now extended to 2012) paid out slowly over time can now choose to take a 30% tax credit the year in which they open for business

* Grants of up to 30 percent of the cost of building a renewable energy facility for the production of solar cells, wind turbine blades and advanced batteries

* \$500 million for green jobs over 2 years, which will train 70,000 workers in renewable energy and energy efficiency jobs

* \$300 million for state matching grants for rebates to consumers buying higher-tier energy-efficient appliances

* Service station owners credit for 50 percent of cost (capped at \$50,000) for installing pumps that dispense alternative fuels, such as gasoline made of 85 percent ethanol.

* Tax credit of at least \$2,500 for purchases of plug-in hybrid vehicles with a max credit of \$7,500

DETAILED SUMMARY

CREATE JOBS WITH CLEAN, EFFICIENT, AMERICAN ENERGY

According the Congressional Appropriates Committee, To put people back to work today and reduce our dependence on foreign oil tomorrow, the American Recovery and Reinvestment Act is aimed at doubling renewable energy production and renovate public buildings to make them more energy efficient.

Reliable, Efficient Electricity Grid: \$11 billion for research and development, pilot projects, and federal matching funds for the Smart Grid Investment Program to modernize the electricity grid making it more efficient, secure, and reliable and build new power lines to transmit clean, renewable energy from sources throughout the nation.

Renewable Energy Loan Guarantees: \$6 billion for loans for renewable energy power generation and transmission projects.

GSA Federal Buildings: \$4.5 billion for renovations and repairs to federal buildings, focused on increasing energy efficiency and conservation.

Local Government Energy Efficiency Grants: \$6.3 billion to help state and local governments make investments that make them more energy efficient and reduce carbon emissions.

Energy Efficiency Housing Retrofits: \$250 million for a new program to upgrade HUD sponsored low-income housing to increase energy efficiency, including new insulation, windows, and furnaces. Funds will be competitively awarded.

Energy Efficiency and Renewable Energy Research: \$2.5 billion for energy efficiency and renewable energy research, development, demonstration, and deployment activities to foster energy independence, reduce carbon emissions, and cut utility bills. Funds are awarded on a competitive basis to universities, companies, and national laboratories.

Advanced Battery Grants: \$2 billion for the Advanced Battery Grants Program, to support U.S. manufacturers of advanced vehicle batteries and battery systems. America should lead the world in transforming the way automobiles are powered.

Home Weatherization: \$5 billion to help low-income families reduce their energy costs by weatherizing their homes and make our country more energy efficient.

Smart Appliances: \$300 million to provide consumers with rebates for buying energy efficient Energy Star products to replace old appliances, which will lower energy bills.

GSA Federal Fleet: \$300 million to replace older vehicles owned by the federal government with alternative fuel and plug-in automobiles that will save on fuel costs and reduce carbon emissions.

Electric Transportation: \$400 million for a new grant program to encourage electric vehicle technologies.

Cleaning Fossil Energy: \$3.4 billion for carbon capture and sequestration technology demonstration projects. This funding will provide valuable information necessary to reduce the amount of carbon dioxide emitted into the atmosphere from industrial facilities and fossil fuel power plants.

Department of Defense Research: \$300 million for research into using renewable energy to power weapons systems and military bases.

Alternative Buses and Trucks: \$300 million to help state and local governments purchase efficient alternative fuel vehicles to reduce fuel costs and carbon emissions.

Diesel Emissions Reduction: \$300 million for grants and loans to state and local governments for projects that reduce diesel emissions, benefiting public health and reducing global warming. This includes technologies to retrofit emission exhaust systems on school buses, replace engines and vehicles, and establish anti-idling programs. Last year EPA was able to fund only 27% of the applications received.

Training for Green Jobs: \$500 million to prepare workers for careers in energy efficiency and renewable energy fields.

Energy Related Items in Stimulus Package (# in millions)

1. Home Weatherization Grants to low and Middle-Income Families \$5,000
2. Funding for *Energy Star Program* offering tax credits to consumer purchasing new, efficient appliances \$300
3. Advanced Batteries manufacturing grants \$2,000
4. Energy efficiency grants to states and local governments \$6,300
5. Funding for states and local governments to buy efficient alternative fuel buses and trucks \$300

6. Research and development of renewable and efficient energy technology \$2,500
7. Loan guarantees for standard renewables \$4,000
8. Fossil energy research and development \$1,000
9. Grants for industrial carbon capture and energy efficiency improvement projects \$1,520
10. Grants for identifying sites to store carbon dioxide emissions \$50
11. Grants for training and research on safe storage of carbon emission \$20
12. Physics research including high-energy physics, nuclear physics and fusion energy sciences \$1,600
13. High-risk research into energy sources and energy efficiency \$400

Energy Tax Cuts

1. Extending by three years the placed-in-service date for renewable energy investments \$13,143
2. Investment credits in lieu of production credits for renewable energy purchases \$285
3. Removal of cap on tax credits for purchase of small wind systems \$604
4. \$1.6 billion extra allocation of clean energy bonds \$578
5. \$2.4 billion extra qualified energy conservation bonds \$803
6. 30% cap on tax credit for energy efficiency purchases by homeowners, up to \$1500 per residence \$2,034
7. Credit for purchase of residential solar, geothermal, wind and fuel cells \$268
8. 50% tax credit for purchase of alternative refueling stations \$54
9. Tax credit for plug-in electric vehicle conversion \$2,002
10. Equalization of parking and transit tax-free employer benefits at \$230 for 2009

Jobs

Environment America, a federation of state-based, environmental advocacy organizations, analysed the final bill and said there were \$32.80 Billion in funding for clean energy projects, \$26.86 Billion for energy efficiency initiatives and \$18.95 Billion for green transportation, giving a total of \$78.61 Billion directly earmarked for green projects.

The wind industry has been calling for many of the changes to the tax credits that the bill includes. The U.S. wind energy industry in 2008 installed about 42% of all the new electric generating capacity added that year and created 35,000 jobs, primarily in construction and manufacturing. The renewable energy measures in the stimulus bill will help sustain that momentum and will encourage additional clean energy investment and job creation.

Rhone Resch, president and CEO of the Solar Energy Industries Association (SEIA) said the bill, which the Administration says will create or save more than 4 million total jobs,

will create a host of jobs in the solar industry. "The solar industry is poised to lead the new, clean energy economy and the strong solar provisions in this legislation will help give hundreds of thousands of out-of-work Americans a job that they can be proud of. The solar energy provisions in this bill will help create 60,000 jobs in the solar industry in 2009 alone and a total of 110,000 over the next two years," Resch said.

\$500 million for green jobs over two years which will train 70,000 workers in renewable energy and energy efficiency jobs. Four strategic sectors will receive money targeted for job creation, either directly or indirectly: energy (459,000 jobs), infrastructure (377,000), education (250,000) and healthcare (244,000), according to a report by Obama administration officials.

Obama has said that he hopes the Act will create or save 3.5 million jobs over the next two years, and a sizable chunk of these jobs are now expected to be so-called "green-collar jobs". The non-partisan Congressional Budget Office says the bill could increase employment in a range of 800,000 to 2.3 million jobs by the fourth quarter of 2009 and 1.2 million to 3.6 million by the fourth quarter of 2010.

The need for private capital to piggyback the US government's initiatives was highlighted by University of Massachusetts economist Robert Pollin writing in *Nation* magazine. Banks could be required to devote a percentage of loan portfolios to green investments, he wrote. "The central facts here are irrefutable: spending the same amount of money on building a clean energy economy will create three times more jobs within the US than would spending on our existing fossil fuel infrastructure," he observed. "The transformation to a clean energy economy can therefore serve as a major long-term engine of job creation."

His comments were echoed by the Solar Energy Industries Association, which forecasts that the stimulus package will create 67,000 solar jobs in 2009, and 119,000 in total through 2010. The stimulus plan will "catapult the US to be the world's largest solar market by the end of 2010", predicted Suvi Sharma, chief executive of Solaria, a solar-cell maker.

Striking a similarly upbeat note was Kevin Surace, president and chief executive of Serious Materials, a Silicon Valley company that makes green building materials. With the final document providing \$5 billion for a Weatherization Assistance Program, enough to supposedly prevent 9.7 million tons of global warming pollution and create 375,000 jobs, he predicted that the company would "be hiring hundreds of people over the next 12 to 18 months".

In the United States, each megawatt of installed wind energy capacity creates 4.85 full-time jobs, according to the Renewable Energy Policy Project (REPP), a U.S.-based research group. A local job is typically created whenever a wind turbine is installed or maintained.

But manufacturing a turbine's 8,000 components is often outsourced to Asian countries such as China and India, so it is likely that many jobs will not be created in the countries that are demanding the clean energy technologies, some analysts say. "Any [U.S.] federal policy that aims to simply stimulate the number of wind and solar projects that are placed in the ground has a real chance of leaving 70 percent of the jobs uncaptured. The jobs remain offshore," said George Sterzinger, REPP's executive director.

A growing number of turbine parts manufacturers are opening their doors in the United States, however. More than 70 facilities opened, expanded, or announced future expansions in the past year, according to Christine Real de Azua, a spokeswoman for the American Wind Energy Association.

"Since 2005, we have gone from less than 30 percent of components [being] U.S.-made to 50 percent today," Real de Azua said. "The reason there was no domestic investment before was that there was no clear [nationwide] policy commitment." Clean energy advocates hope that expanded renewable energy investments in the United States will inspire more countries to follow its lead. Already, more than 2.3 million people worldwide work directly with renewable energy or indirect supplier industries, according to the Worldwatch Institute.

"Over 400,000 people are now employed in this industry, and that number will be in the millions in the near future," said Global Wind Energy Council Chairman Arthouros Zervos in a press release last week.

In addition to lobbying for green jobs to remain in the United States, U.S. green jobs advocates are keen on requirements that the jobs be unionized. Many wind and solar manufacturing facilities pay less than the average national wage for workers who manufacture durable goods, according to a report commissioned by the Sierra Club and the Teamsters and Laborers Unions.

"It's not just about jobs. Slaves had jobs," said Larry Cohen, president of the Communications Workers of America at last week's jobs conference in Washington. "It's about green jobs. It's about good jobs. It's about labor jobs."

Ben Block is a staff writer with the Worldwatch Institute. February 9, 2009

Many of the jobs created will utilize clean and renewable energy and products to fulfill the requirements of the governmental mandates associated with the funding. Some employers will recall workers recently laid off because of the recession, and others will hire workers without any experience in the green industries.

Funding

As mentioned elsewhere in this Report, there are a lot of unknowns:

- Type of Funds – Grants, Loans

- Timing of Funds
- Procedure for obtaining Funds
- Amount of Funding available for an individual entrepreneur

For the rest of this year, more and more information will become available so that businesses can refine their plans to seek funding and incorporate the funding into their budgets.

Conclusion

The Stimulus Package will create many jobs of various duration through out the country. Estimates for the jobs created from the specific provisions of the ARRA vary so much because the means by which the funds will be distributed, including which level of government will manage which type of funds, have not been determined. Although your business may seem perfect as a recipient of funds from the Stimulus Package, it is too early to ascertain how much you might receive and the timing thereof. Senior Consulting, LLC will continue to update this report to identify opportunities for entrepreneurs, and can help businessess navigate the bureaucratic red tape and channels to maximize the funds you receive from the ARRA.