



# ECONOMIC PROSPECTS

## *Getting Real on Jobs and the Environment: Pipelines, Fracking, or Clean Energy?*

PRESIDENT OBAMA'S 2009 ECONOMIC STIMULUS PROGRAM—THE AMERICAN Recovery and Reinvestment Act (ARRA)—represented a dramatic forward advance on the issue of jobs and the environment. The ARRA included roughly \$100 billion in clean energy investments as part of the overall \$787 billion two-year measure. The ARRA also embraced the concept that green investments

could serve as a significant new engine of job opportunities throughout the economy. This idea directly contradicted the long-dominant view that the goals of environmental sustainability and job creation were inevitably and painfully at odds.

Over the past two years, and especially since the 2012 election season began, the level of mainstream political support for the green investment agenda has eroded substantially, while the traditional position—that economic policies can protect the environment or expand job opportunities but can't do both at once—has regained traction. According to the revived traditional view, the government has wasted tens of billions of taxpayers' dollars on dubious

“green jobs” programs, and it is now time to return to what we know works—that is, generating energy by burning oil, coal, and

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natural gas, supplemented by nuclear power. This means tearing down the existing barriers, environmental or otherwise, that have been

stifling the traditional energy sectors. Mitt Romney is running hard on this line while President Obama has retreated markedly from his previous support for a green investments/jobs agenda.

Three main factors are driving this reversal on jobs and the environment. The most important is the perception that the \$100 billion green stimulus program failed to deliver the jobs it promised. If the green jobs agenda was successful, why is the unemployment rate stuck so high?

Renewable energy is also increasingly seen as being impractical. The big story here was the bankruptcy, in September 2011, of Solyndra, the Northern California-based manufacturer of solar panels. Solyndra had received \$535 million in federal loan guarantees through the Obama stimulus program only two years prior to declaring bankruptcy.

A final factor has been the widely touted projections of huge new supplies of cheap oil and natural gas from within the United States itself and Canada. These new supplies would come from two main sources. One is oil extracted from tar sands in Northern Alberta, then transported to U.S. refineries via the proposed Keystone Pipeline, which would run through the U.S. heartland down to the Gulf of Mexico. The other is natural gas supplies deposited in shale rock formations running from West Virginia to upstate New York. The gas embedded in these shale formations is released through the recently-developed technique of hydraulic fracturing, or “fracking,” of the shale.

These matters need to also be framed within a larger context, encompassing two fundamental realities about the world today. The first is that the entire globe faces a potential ecological disaster over the next generation if we do not take effective action to dramatically cut greenhouse gas emissions generated by burning fossil fuels. The other is that the

U.S. and most of the rest of the advanced economies are still experiencing the most severe employment crisis since the 1930s Depression. These realities mean that we now hardly have the luxury of choosing either jobs or the environment. If at all possible, we need to figure out how to advance a unified agenda for full employment and ecological sanity. But has the experience over the past few years shown that this is not possible?

## THE ARRA, GREEN INVESTMENTS, AND JOBS

**T**HE CLEAN ENERGY AGENDA includes energy efficiency measures such as building retrofits, public transportation, and a “smart grid” electricity transmission system; and renewable energy investments in the solar, wind, and geothermal industries. The money spent on these projects did create jobs, pretty much exactly as anticipated. There are a lot of

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technical challenges in trying to pin down one overarching set of accurate figures here. But considering only projects within the Department of Energy itself, the best estimate is that about two hundred thousand one-year-long jobs (or their equivalent over

longer time periods) were created by spending about \$17 billion. This amounts to about twelve jobs per \$1 million in spending.

Generally speaking, spending on green investments creates approximately three times as many jobs as spending the same amount of money on maintaining our existing fossil fuel sector. The reasons are straightforward. First, clean energy investments are simply more labor intensive. Also, a higher proportion of overall spending on the green economy remains within the domestic economy as opposed to purchasing imports.

Nevertheless, there was, indeed, a serious problem with the green stimulus program, which was that not enough money went out the door quickly enough. Given that the budget under President Bush for clean energy investments never even reached \$2 billion per year, ratcheting up to \$100 billion with the ARRA inevitably entailed major administrative bottlenecks. Indeed, the Congressional Budget Office had anticipated from the start that the green investment features of the ARRA would require five years, not two, to be fully disbursed, with the bulk of the overall budget being spent in the later years. However, by the end of 2011, with only about 40 percent of the allocated funds (at most) having been spent, the remaining allocations were cancelled as part of the new mantra in Washington for deficit reduction.

### LESSONS FROM THE SOLYNDRA FAILURE

**T**HERE ARE CERTAINLY LESSONS that need to be learned from the spectacular collapse of Solyndra. But the broad-brush claim that all subsidies for renewable energy are boondoggles is not one of them. In fact, if the world is going to have a chance of controlling climate change over the next twenty to thirty years, renewable energy needs to become abundant and cheap. Among renewable

energy sources, wind, geothermal, biofuels, and hydroelectric are already either as affordable or within range of oil, coal, natural gas, and nuclear power strictly in terms of costs. These renewable sources will therefore not require major levels of continued subsidies to establish and maintain commercial competitiveness.

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Solar power is different. The costs of generating electricity from solar are still two to three times higher than those for conventional energy. The total share of U.S. energy consumption that is supplied by solar is correspondingly miniscule, less than 1 percent of total supply. However, over the long term, solar promises to be the cleanest, safest, and most abundant energy source. As such, solar deserves to be subsidized, in ways that parallel the research and development (R&D) programs that, for generations, have been housed in the U.S. Defense Department. These programs have led to some spectacular technological breakthroughs, including jet aviation, the computer, and the internet. Moreover, Pentagon-supported R&D was further enhanced by the Defense Department's procurement policies, which created and sustained huge guaranteed markets for the products emerging from its R&D programs. This is what enabled emerging technologies such as the internet to incubate slowly over time rather than having to prove their value prematurely to private businesses and consumers. The incubation period for the internet was about thirty-five years. We should

not expect solar energy to be commercially viable without subsidies for some time to come. Solyndra did, indeed, fail the test of the market. But that is because this was never a fair test to begin with.

## MORE PIPELINES AND FRACKING: NO SOLUTION

**T**HERE IS A GOOD LIKELIHOOD that we could increase our domestic energy supplies by a substantial amount through building the Keystone Pipeline and extracting natural gas from shale through hydraulic fracking. Investments in these areas, especially fracking, could even lead to falling energy prices, though that is never a sure thing, no matter what the crystal ball says today. Of course, these projects will also create jobs, but only because spending money on anything creates jobs. As a case in point, investments in fracking create only about 6.5 jobs per \$1 million in spending, about half the level of jobs per dollar generated by the green stimulus programs and less than one-third what would result through focusing green investments in relatively labor-intensive areas such as building retrofits and public transportation. But beyond this is the fact that both of these energy paths will deepen our dependence on burning fossil fuels long into the future. Greenhouse gas emissions from oil and natural gas are lower than those from coal. But they are still too high. If we rely increasingly on oil and natural gas as substitutes for coal, the U.S. will not be able to achieve anything close to the emissions reductions needed to control climate change over the next generation.

This fact should be decisive. But in addition, both the Keystone Pipeline and the spread of hydraulic fracking also represent serious threats to water supplies. Fracking technology has thus far been demonstrated to contaminate drinking water with methane gas in aquifers overlying the major shale formations of north-eastern Pennsylvania and upstate New York. That is why, this past May, Vermont became the first state to pass legislation banning fracking. Other states—including Ohio, New York, and New Jersey—are operating under moratoriums.

Overall then, there is no way that increasing our dependence on conventional energy sources—that is, oil, natural gas, coal, nuclear power, or combinations thereof—will provide an adequate solution to any parts of our environmental and employment crises. But aggressive investments in energy efficiency and renewable energy, including subsidies especially to solar power to make it commercially competitive, do offer a viable program today and into the future, even after taking full account of the many obstacles and pitfalls involved. That is, the project of building a clean energy economy stands by itself in its capacity to merge the aims of environmental protection and full employment. Of course, the Romney campaign has been proclaiming exactly the opposite for months on the campaign trail and Obama's positions have not been much better. But this doesn't gainsay the real facts of the matter, that the green agenda can be a major new engine of job creation over the next generation.