



Jobs vs. Jobs

The Refusal to Rapidly Cut Greenhouse Gas Emission Is Destroying Jobs, The Economy, and The Climate

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Executive Summary

Numerous polls indicate that most Americans want their government to take meaningful action to reduce the emission of greenhouse gases that are disrupting Earth's climate, acidifying the oceans, and raising sea levels.¹ Some members of Congress, as well as state and local elected officials, however, oppose actions that would reduce emissions to levels that prevent catastrophic climate disruption. Why? One of their primary justifications is that by not acting they are protecting middle class jobs. America faces a choice, they say, between protecting jobs or protecting the environment, and jobs are more important.

Both extensive research and common sense, however, tell us that jobs-vs.-the environment is an erroneous depiction of the choice we face today. The economics of climate disruption are about *Jobs-vs.-Jobs*. Specifically, the real choice policymakers face today is between *climate and economy destroying jobs* and *climate and economy restoring jobs*. Although refusing to aggressively reduce emissions protects jobs in some sectors of the economy in the near term, it also destroys existing job in many other sectors. Moreover, it sacrifices the growth of millions of future jobs that our children will need when they enter the workforce.

Elected officials must come to grips with the fact that every action—from private investments and public subsidies, to deferred or relaxed regulation, and deficient public engagement—that delays reductions in greenhouse gas emission accelerates the economic harm caused by climate disruption and will destroy many more jobs than it protects.

America does not need to continue down this path. It can save and create jobs and protect the climate. Industries and good paying jobs that help power and revitalize communities, infrastructure, transportation, communications, and ecosystems while protecting the climate are growing rapidly. What's needed is an economic transition plan. The plan should include policies that reduce greenhouse gas emissions and promote energy efficiency and the shift to renewable energy. It should offset the competitive impacts of those policies on energy and greenhouse gas intensive industries. And, it should provide transition assistance to compensate workers affected by emission reductions and help them obtain family-wage jobs in the emerging "restorative economy." This type of economic transition plan is a much more effective way to protect and grow jobs than blocking emission reductions.

This document provides an initial overview—not an extensive accounting—of the actual choices we face today between *climate and economy destroying jobs* and *climate and economy restoring jobs*. Further research is needed to develop a more refined estimate of the exact jobs losses for American workers and impacts on GDP caused by greenhouse gas emissions.

I. Job Losses from the Effects of Climate Disruption on the Economy

A glimpse into the extent of the job losses from climate disruption stemming from greenhouse gas emissions can be estimated by looking at the job impacts of recent extreme weather events, the health impacts of fossil fuels, the impacts of heat stress on workers' productivity, and climate-related reductions in gross domestic product (GDP).

A. Jobs Losses Associated With Extreme Weather Events

For decades climate scientists have predicted that climate disruption would lead to an increase in the intensity and possibly the frequency of extreme weather events, including droughts, rainstorms, windstorms, heat waves and more. Their warnings certainly appear to have been accurate. From Hurricane Katrina in 2005, Ike in 2008, Irene in 2011, and Superstorm Sandy last year, to the 2012-13 historic drought, extreme weather events are having a significant impact on the US economy and jobs.

Superstorm Sandy offers the most recent example. As evidenced by the rise in unemployment claims, it caused tens of thousands of job losses as businesses were flooded, physically damaged, or destroyed. Sandy shut down businesses from North Carolina to Maine and cut off power to 8 million homes in 10 states. Many people could not go to work and weren't paid for weeks. Trade was also impacted as ports closed and were damaged. The storm also caused at least 100 deaths.

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Although Sandy created clean-up jobs and most people impacted by the storm will eventually adjust, many will also end up worse off than before the event due to financial losses, the destruction of family treasures, and a reduced sense of safety and wellbeing. Reconstruction is estimated to cost at least \$51 billion, including \$18 billion in New York alone, most of which will be paid for by the government. This is a net drain on the economy at a time when revenue is in short supply and public funds could be better spent to foster long term job growth. ²

We will see many more of these big storms unless we reduce emissions quickly. The climate warming that has already occurred has doubled their frequency, and, if the current rate of emissions continues, they will become ten times more frequent in this century, with a storm similar to Hurricane Katrina occurring every other year, on average.³

Emission reductions also are needed to keep the costs of drought from getting worse. The historic drought of 2012-13 is the most widespread in half a century, with 62% of the continental United States experiencing moderate to exceptional drought. It has cost more than \$35 billion in the Midwest alone so far, including between \$14.2 billion in indemnity payments to producers for 2012 crops, pushed up the price of many commodities, and forced many farms and food processing firms into bankruptcy. When all is said and done the total costs, according to some economists, might top \$77 billion which would make it the third-costliest natural disaster in U.S. history. ⁴

These examples only begin to illustrate the extent to which the failure to reduce greenhouse gas emissions contributes to the increase in extreme weather events that already cause and will increasingly accelerate job losses in the U.S.

B. Job Losses from Fossil Fuels

A 2010 study by the Clean Air Task Force estimated that air pollution from coal-fired power plants in the U.S. accounts for more than 1.6 million lost workdays, 13,000 premature deaths and 20,000 heart attacks annually. The total financial cost of these health impacts is estimated to be over \$100 billion annually.⁵

A 2011 report by Harvard researchers found that the use of coal costs the U.S. between a third and one half a trillion dollars each year in health, economic, and environmental impacts.⁶ Although these effects may generate some jobs—to provide health care for people made ill by pollution, for example—the net impact of lost workdays is significant. In Appalachia alone, for example, the researchers found that the public health impacts from coal mining cost \$74.6 billion each year. Just the greenhouse gas emissions from coal-fired plants, and their related climate change effects, impose costs on households, businesses, and the overall economy of \$61.7 – \$205.8 billion.

C. Reductions in Work Capacity Due To Heat Stress

A recent study found that the combination of rising heat and humidity caused by climate change has already cut humans' work capacity during summer months by 10% in the southeastern states.⁷ If emissions of greenhouse gases are not cut sharply and soon, by mid-century the effect will be twice what exists today, with work capacity declining by 20% and the effects extending into the Midwest and Great Plains. With the even greater heat and humidity at the end of the century, workers' ability work would decline by 40%, and the effects would extend across most of the eastern US.

These reductions do not represent the loss of jobs for individual workers but, instead, the loss of labor productivity across the national economy. Applying the percentages to the South Census Region illustrates the extent of the economic loss. Employment in this region totals more than 50 million.⁸ Past emissions of greenhouse gases are depriving the US economy of workers' productivity equal to 10% of this number during summer months. On an annual basis, this effect is equivalent to the loss of about 1.25 million jobs.

By 2050, if greenhouse gas emissions are not abated, the job loss from heat stress will double, to 50,000.

The discussion below indicates that the nation's annual emissions of carbon dioxide have an impact equal to about 2 percent of the total impact of past emissions. Thus, the annual emissions generated by the fossil-fuel industry can be expected to diminish national labor productivity during subsequent years by an amount equivalent to the permanent loss of about 25,000 jobs. By 2050, if greenhouse gas emissions are not dramatically cut, the loss from annual emissions will double, to 50,000 jobs.

D. Job Losses Associated with Reductions in GDP

Climate disruption has already reduced annual GDP in the US by between 1–5%. This conclusion comes from two studies. One, a landmark 2006 examination of the economic

consequences of greenhouse-gas emissions concluded that the impacts in future years will be equivalent to losing at least 5% of global GDP each year.⁹ A more recent analysis concluded that climate disruption has already held back global development by about 1% of world GDP.¹⁰ These estimates may well underestimate the actual effect, insofar as the lead author of the 2006 report recently observed that climate change and its economic consequences will be “far, far worse” than predicted.¹¹

Past US emissions of greenhouse gasses account for more than 25% of the global build-up from pre-industrial levels,¹² which suggests we are responsible for the loss of 0.25–1.25% of GDP each year. Assuming the loss of GDP is accompanied by a proportional loss of jobs, then past US emissions are reducing employment by 0.25–1.25%. By applying these percentages to the total US 2012 employment of 135 million,¹³ the results indicate that US greenhouse gas emissions have already permanently destroyed between 0.3–1.7 million jobs.

These job losses get larger each year as the combustion and other uses of coal, oil, and gas produced by the US fossil fuel industries add even more greenhouse gas emissions to the atmosphere. US annual greenhouse emissions are currently about 2% of the nation’s total past emissions,¹⁴ which suggests that each year’s emissions are responsible for the permanent loss of about 6,000–30,000 jobs in subsequent years. If our elected officials fail to enact climate protection policies and fail to meaningfully engage Americans in emissions reductions, the additional job losses over the next ten years would total 60,000–300,000 jobs permanently lost to US workers.

It should be noted that adverse weather on its own, which climate disruption exacerbates, can diminish annual US GDP by up to \$485 billion, equal to 3.4% of national GDP in 2008.¹⁵ As an example, the historic drought of 2012-2013 is predicted to reduce U.S. gross domestic product by 0.5-1%, equating to a loss of \$75 to \$150 billion.

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It should also be noted that the U.S.F.S. Southern Research Station has concluded that rural communities in the U.S. tend to be more vulnerable than their urban counterparts to the socio-economic impacts of climate disruption due to differences in occupations, earnings, literacy, poverty incidence, and dependency on government funds.¹⁶ Thus, climate disruption related job losses might affect rural communities more than urban areas.

These numbers do not mean that the displaced workers would remain forever unemployed. Instead, they represent the extent of the job destruction that accompanies greenhouse gas emissions and the number of workers that would have to seek replacement jobs.

II. Job Losses from Subsidies to the Fossil-Fuel Industries

Studies of the federal budget suggest the coal, oil, and gas industries receive cash subsidies of \$52 billion per year in the form of tax breaks and other benefits.¹⁷ Additional subsidies materialize as these industries ask others to bear some of their costs by, for example, exposing them to the health and climate risks of their pollution emissions, for example. In a study described above, researchers at Harvard Medical School estimated that the coal industry imposes costs on—and, hence, receives subsidies from—the rest of society that total one-third to one half trillion dollars per year.

All of these subsidies cause job losses. Money spent on these industries is no longer available to generate jobs in other sectors. When businesses must close due to storms intensified by emissions of carbon dioxide from the burning of fossil fuels, they lay off workers. When people are made ill by the pollution from burning fossil fuels, they earn less and spend less, depriving the economy of jobs. The jobs lost exceed the jobs created in the fossil-fuel industries insofar as the mining industries create lower jobs per million dollars of output than other industries.

We know of no study that has directly estimated the job losses attributable to the subsidies, cash-based or total. One general estimate, though, comes from a 2002 study in which the Economic Policy Institute modeled the economic consequences of an energy package with (a) a modest carbon/energy tax on major energy sources, with most of the revenues returned through cuts in taxes on wages; (b) policies to promote energy efficiency and renewable energy; (c) policies to offset competitive impacts on energy-intensive industries; and (d) financial assistance to adversely affected workers and communities.¹⁸ If the package had been implemented in 2001, the analysis showed that it would have generated net increases in jobs of 600,000 by 2010 and 1.4 million by 2020. It also would have increased real hourly wages, relative to the baseline, in every year.

III. Future Jobs Sacrificed By The Failure to Aggressively Reduce Emissions

If members of Congress and other elected officials protect industries responsible for large amounts of greenhouse gas emissions, they discourage, even prevent the development of new jobs in industries that can meet the needs of consumers and businesses with fewer emissions. Google, for example, concluded that aggressive innovation and adoption of green energy technologies could generate 1.1–1.9 million new jobs, generate annual savings for consumers of more than \$900 per household, and increase annual economy output by \$155–244 billion.¹⁹ Time is of the essence if we are to realize these benefits. The analysis concludes “a mere five year delay in starting aggressive cost reduction...could cost the economy an aggregate \$2.3–3.2 trillion in unrealized GDP gains...by 2050.”

Additional gains could be realized from investments that enable US homes, businesses, and agencies to use energy more efficiently. An investment of just \$520 billion could reduce projected energy demand by 23 percent and yield gross energy savings of \$1.2 trillion by 2020.²⁰ These savings are dollars that can be used by households to stabilize their finances and/or invest in new industries and technologies that generate jobs. These savings can be realized now. American businesses have already made significant progress in energy efficiency, with the energy intensity of commercial buildings now 40% less than in 1980, but much more can be achieved.²¹

The longer we delay the shift to restorative development, the worse that climate disruption and associated economic impacts and job losses will become.

Aggressive implementation of clean energy technologies could provide a powerful economic stimulus across the nation. For example, Arizona, California, Colorado, Nevada, New Mexico, and Utah have the potential to install 34 gigawatts of capacity to generate electricity from renewable energy sources. With the \$135 billion in investment this shift would create

almost 210,000 direct jobs and provide electricity for 7 million homes.²² Making this investment while unemployment is high would boost the economic recovery and result in an overall net increase in jobs that approximates the direct impact.

IV. The Need For A National Economic Transition Plan

The US is stuck between the first stage of economic development, which can be called the “pioneer phase”, and the next stage, which for our purposes can be considered the “restorative phase.” The economic sectors involved in the restorative stage already contribute a great deal to the economy, create thousands of jobs, and most are holding their own or growing even during the great recession. The longer we delay the shift from the first to the next stage of development, the worse that climate disruption and associated economic impacts and job losses will become.

The pioneer stage of economic development is what created our cities and nation. It emphasized the frontier-style conversion of virgin lands to farms and urban areas, the extensive extraction of raw materials, the transfer of virgin resources into goods, and the generation of massive amounts of waste. The pioneer stage of economic development has been powered largely by fossil fuels. It produced net economic benefits until limits were reached—including limits on the availability of undeveloped land, key natural resources, and ecological capacities, such as the climate’s capacity to absorb greenhouse gasses without overheating the planet. When these and other limits were reached, the continual promotion of pioneer style development significantly degrades and destroys essential natural capital, such as the earth’s climate, while also impairing financial and human capital, even as it often appears as a net gain in GDP. The result is the appearance that our economy is creating wealth when in fact we are getting poorer.

The restorative phase, in contrast, is a dynamic stage of economic development that includes, but goes well beyond, so-called green jobs. One way to think about it is to identify industries that begin with ‘Re’: jobs that reduce energy use through significantly greater efficiency; develop clean sources of renewable energy; redesign processes, products, and services to shrink energy and material use; rehabilitate buildings, infrastructure, and whole cities and revitalize the built and the natural environment. These jobs lift the human spirit and enhance social, economic and natural capital.

Rather than blocking actions that reduce greenhouse gas emissions and destroy as many jobs and they protect, policymakers would save and create jobs by developing economic transition plans that expand sectors involved with the restoration economy and compensate workers and communities affected by the shift.

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Restorative development can be found in agriculture, food processing, forestry, transportation, construction, energy production, communications and more. It creates jobs, rebuilds, and adds value to existing assets. The vast majority is paid for by the private sector. With sound planning, many of these emerging industries and jobs can be found, or established in, communities impacted by reduced greenhouse gas emissions. For instance, restoring landscapes impacted by mountain top removal for coal would create jobs using heavy machinery and other skills already held by many local workers, while also increasing public health and reestablishing the capacity of those lands to sequester carbon.

Examples of the existing status and the future potential of industries involved with the emerging restorative phase of economic development include the companies and communities across the nation that recently announced that 300 clean energy and clean transportation projects in 2012 are expected to create 110,000 jobs.²³

Rather than blocking actions that reduce greenhouse gas emissions and destroying as many or more jobs and they protect, members of Congress and other policy makers would save and create jobs by developing economic transition plans that expand sectors involved with the restoration economy. The transition plans would include policies to reduce the generation of greenhouse gas emissions and promote the development of new energy efficiency and renewable energy technologies. The plan would also include policies that offset the competitive impacts of those actions on carbon and energy intensive industries, and policies that provide transitional assistance, retraining, and business development assistance to compensate workers and communities impacted by the emission reduction policies.²⁴

V. Conclusion

This overview makes it clear that the real choice facing elected officials today is not between saving jobs or saving the climate, but between protecting jobs that impose widespread harm on workers and the economy and undermine the climate, and jobs that do the reverse. Every year that Congress and other elected officials delay policies or avoid active public engagement that would meaningfully reduce greenhouse gas emissions, they seriously harm the tens of thousands of workers, families, and communities whose jobs are jeopardized by storms, drought, heat waves, sea level rise, and other effects of climate disruption. Delay also seriously diminishes the likelihood that American workers will secure good paying jobs in the many sectors involved with what we call restorative development over the next several decades. This report provides an initial look into the job impacts of the failure to adopt policies that protect the climate and engage all Americans in emission reductions. We hope it triggers a more rigorous investigation so that current and future workers obtain good jobs that are climate safe and restorative.

The Authors

The authors listed below produced this report for the National Partnership for Climate Solutions (NPCS), a broad-based non-partisan coalition that sees climate disruption as the most important issue facing humanity today, and thus is an issue that goes beyond traditional politics. The NPCS seeks to engage all Americans in reducing greenhouse gas emissions and building resilience to the impacts of climate change where they live, work, play, and pray. A solutions-focused national climate summit hosted by the President in partnership with officials from both parties, linked with action-planning meetings hosted by governors, mayors, businesses, civic and faith leaders nationwide, is one of the NPCS's top initial priorities. For more information see: www.natpcs.org

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