Clean Energy and Climate Action

Top 10 Benefits for the United States

Climate change is one of the most urgent issues of our day. Several recent studies show that acting quickly and decisively to address this challenge and shift our economy to clean energy will bring significant benefits to the United States—while also helping us avoid some of the worst consequences of unchecked global warming.[1]

Congress has begun the historic process of enacting legislation to reduce global warming emissions and transition the United States to a clean energy economy. To be most effective, such legislation should put the nation on a path to cutting emissions by at least 80 percent by 2050, and require significant reductions in the near term as well. The legislation should also be comprehensive, combining a cap on carbon emissions with crucial policies that help us shift to more efficient and cleaner forms of energy and transportation, while also protecting tropical forests and funding adaptation to climate change.

Below are 10 reasons for strong action to promote clean energy and curb climate change.

1. Helping Avoid the Runaway Costs of Climate Change

Every region in the United States is already experiencing the costly effects of climate change—including coastal areas threatened by rising sea levels and more intense hurricanes; Midwest farmlands facing more crop-damaging heat waves, pests, and flooding; and communities in the West and Southwest experiencing drought and wildfires.

Action to sharply reduce our global warming emissions can greatly curtail the costs of climate change, especially over the longer term. For example, climate action can help numerous businesses that are vulnerable to a changing climate, from maple sugaring in the Northeast and skiing in Colorado to vital energy and transportation companies that depend on offshore oil rigs in the Gulf of Mexico and shipping on the Great Lakes.[2]

One study has estimated that, if emissions remain unchecked, losses related to just four areas—hurricane damages, energy costs, water costs, and residential costs stemming from sea-level rise—could equal 1.4 percent of GDP by 2025, and 1.9 percent of GDP by 2100.[3]

2. Creating Jobs

Renewable energy has been one of the bright spots of the U.S. economy during these hard times. The solar industry estimates that it created more than 15,000 jobs in 2007 and 2008,[4] and the wind industry boasts of having created more than 35,000 new direct and indirect jobs in 2008.[5]

> Acting quickly and decisively to shift our economy to clean energy will bring significant benefits to the United States.

A recent Union of Concerned Scientists (UCS) study found that a standard requiring the nation to produce 25 percent of all electricity from renewable sources by 2025 would create nearly 300,000 new U.S. jobs. That is three times the number of jobs that would be created by producing the same amount of electricity from coal and natural gas. Such a "renewable electricity standard" could also stimulate the national as well as local economies by generating $263 billion in new capital investment, $14 billion in income for U.S. farmers, ranchers, and rural landowners, and $12 billion in new local tax revenues.[6]

3. Competing Internationally

The clean energy economy is poised to be the growth industry of the future worldwide, and the United States could be at the vanguard of that trend if we adopt strong renewable energy policies today. But we will have to pick up the pace to stay competitive internationally. China—already the world's largest producer of solar panels—recently committed to increasing its solar power capacity 15 times over by 2011, aiming for two gigawatts of installed capacity by that year.[7] Similarly, India is planning to boost solar power from near zero to 20 gigawatts by 2020, part of an ambitious $19 billion, 30-year plan to increase the share of renewables in that country's energy mix.[8]

The United States must continue to expand its burgeoning clean energy industries—wind,

National Guardsmen bring relief supplies to Texas, where Hurricane Dolly hit in 2008. Unchecked climate change could increase the severity of extreme weather events such as hurricanes, thus increasing the burden on U.S. troops.

solar, biomass, geothermal power, and efficient vehicles, among others—to keep pace with other countries. Strong policies to promote investment in renewable energy, energy efficiency, and clean transportation, as part of a comprehensive climate plan, will create the momentum to keep these industries internationally competitive.

4. Improving Public Health

If global warming continues unabated, extreme heat waves that now occur once every 20 years are projected to occur about every other year by the end of the century in much of the country. Urban areas such as Philadelphia, Chicago, and Indianapolis will likely experience the worst effects. Higher temperatures and the associated stagnant air masses, interacting with pollution from vehicles and industry, are also expected to increase the frequency and intensity of conditions conducive to smog formation. Children, the elderly, and the poor are particularly vulnerable to respiratory, cardiovascular, and heat-related illnesses exacerbated by these conditions.[9]

Conversely, reducing our emissions through a shift to cleaner forms of energy will not only help slow global warming but will also improve air quality, reducing the cases of asthma and other respiratory illnesses that result from high levels of ozone and airborne particulates. Such cuts in emissions will also reduce the amount of mercury and other heavy metals—by-products of coal-fired power plants—that enter our air, water, and food.[10]

5. Saving Households and Businesses Money

A 2009 UCS study found that unleashing the full potential of policies designed to promote efficiency and renewable energy, along with a sharp limit on global warming emissions, would save U.S. households an average of $900 annually by 2030, while businesses would save a total of $126 billion annually. To garner those savings, the nation will need to make some up-front investments—in more efficient appliances, vehicles, heating and cooling systems, and production processes, for example. However, the resulting drops in energy bills from reductions in electricity and fuel use will more than offset the costs of these investments.[11]

Independent analyses of the American Clean Energy and Security Act (ACES), the energy and climate bill now being considered by Congress—such as by the Environmental Protection Agency, the Congressional Budget Office, and the Energy Information Administration (EIA)—show that the act's costs to the U.S. economy would be minimal.[12] According to the EIA, for example, household energy costs would be less than $10 a month higher in 2020, or less than 33 cents a day, and the total discounted GDP losses from the 2012 to 2030 time period would amount to just 0.2 percent of GDP.[13] And these studies exclude or underestimate important mechanisms for containing these costs, such as greater efficiency, and ignore the savings that would come from avoiding many of the costs of climate change itself.

6. Enhancing National and Global Security

Top military officials have warned for years that climate change could have serious ramifications for our nation's security and increase the stress on our armed forces. Drought, extreme weather events, changes in food production, and pandemics caused by climate change could drive resource conflicts and migrations in vulnerable parts of the world. These stresses have the potential to act as "threat multipliers," raising the number of failed states. The U.S. military may be called upon to respond to humanitarian disasters in these regions; moreover, state failure often exacerbates extremism and terrorist activities, further increasing the burden on overstretched U.S. troops.[14]

Addressing global warming would also reduce the nation's reliance on oil, including the portion that comes from unstable regimes around the world. UCS estimates that investing in cleaner vehicles and a more efficient transportation system could cut our use of petroleum products by 6 million barrels a day—

as much oil as we now import from OPEC (the Organization of Petroleum Exporting Countries).[15]

Humanitarian agencies also warn that the world's poorest people are already bearing the brunt of climate change, and that poorer countries could lose 50 years of development gains if richer nations do nothing.[16]

7. Providing Benefits to Farmers

The U.S. Department of Agriculture estimates that ACES would lead to very modest costs for the agricultural sector in the short term, but potentially significant net benefits over the medium to long term from the growing market for agricultural "offsets." Instead of directly reducing their own emissions, industries subject to a cap on global warming emissions would pay farmers and ranchers to increase the amount of carbon stored in soils and vegetation, reduce methane emissions from animal waste, or reduce nitrous oxide emissions from fertilizer use. These payments would equal about $1 billion per year from 2015 to 2020, and $15–$20 billion per year from 2040 to 2050.[17]

Farmers can also make money by installing wind turbines, solar panels, and other clean energy technologies on their land and buildings. By leasing land for one utility-scale wind turbine, for instance, a farmer could earn $3,000 a year. The U.S. Department of Energy estimates that, over the next two decades, U.S. farmers and rural landowners could earn $1.2 billion in new income through such steps.[18]

By addressing global warming, we can also help farmers avoid the most severe consequences of climate change. Under an unchecked-emissions scenario, many farmers could face more frequent heavy rains and flooding in the spring, which delay planting; expanded ranges of agricultural pests; and rising temperatures, which stress plants and livestock and reduce yields. Each of these effects can significantly raise costs. And while agriculture in some parts of the country could benefit from warmer temperatures in the short run, eventually most areas would see costs. Some degree of adaptation may be possible—such as by changing crop types, planting dates, and irrigation and fertilizer practices; investing in livestock cooling systems; and taking advantage of crop insurance programs—but these adaptations, too, will likely come at considerable cost.[19]

8. Delivering Benefits to Low-income Households

Using energy more efficiently and reducing global warming emissions would help all families—especially low-income families—lower their energy bills. The Congressional Budget Office estimates that ACES would help households with income in the lowest fifth of the U.S. income distribution save $40 each year by 2020.[20] The bill would also provide monthly cash refunds and annual tax credits to low-income individuals.[21] The burgeoning clean energy economy could also be an important source of jobs for disadvantaged workers in inner cities and Rust Belt towns.

> Families would lower their energy bills by using energy more efficiently.

Low-income communities will bear a disproportionate share of the impact of climate change and have fewer resources to cope. Poorer populations are more likely to lack health insurance, and in urban areas are disproportionately exposed to ground-level ozone and airborne allergens, increasing the incidence of asthma and other respiratory diseases. The poor in coastal and low-lying areas are also less likely to have insurance against losses from hurricanes and floods, and may be less able to relocate if necessary. In addition, one study found that nearly twice as many people of color as the general population lack access to air conditioning, which could lead to more heat-related illnesses and deaths.[22] A warming climate would worsen these conditions, while lowering emissions can lessen their impact on low-income families.

9. Preserving Vital Ecosystems and Species

Addressing global warming could help lessen the harm to ecosystems that now provide us with multiple benefits. For example, rising seas threaten coastal barrier reefs, which protect communities from storm surges, and wetlands, which filter impurities from water. Drought

Farmers and rural landowners can earn new income by leasing their land for renewable energy projects such as wind turbines.

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and pests threaten forests, which provide lumber. Warming temperatures and growing acidification threaten oceans, lakes, and rivers, which sustain our fisheries. Because nature does not charge market prices for these services, we tend to greatly undervalue them.

Moreover, many animal and plant species that provide us with important medicines and other products—in addition to having intrinsic value—could face extinction. According to the Nobel prize–winning Intergovernmental Panel on Climate Change (IPCC), if global temperatures rise more than 3˚–5˚F, up to 30 percent of plant and animal species could become extinct. Many projections suggest that the low end of that temperature range could be breached by mid-century.[23] While we cannot avoid some of these harms, lowering our emissions quickly would give us a chance to diminish them.

10. Conserving Water Resources and Clean Water

The IPCC has concluded with high confidence that, by mid-century, precipitation changes owing to climate change will mean that less water will be available in already arid parts of the world, including the western United States.[24] Climate change is contributing to snowpack losses and melting glaciers in the United States, leading to water shortages in the West.[25] Addressing global warming could lessen the threat to these water resources.

Water shortages have wide-ranging consequences. For example, as sources of water used for irrigation dry up, the costs of producing food could rise. Lower water levels and higher temperatures in streams and rivers could diminish the capacity of hydropower and cause the collapse of some fisheries. And water prices could rise not only for farmers but also for industry and homeowners, especially in areas where growing populations are already putting stress on water resources, such as the southwest United States. Finally, because the concentration of pollutants increases when water levels drop, water shortfalls could also lower water quality.

An important note is that nuclear power and fossil fuel plants that produce electricity rely on vast quantities of water for cooling, while many climate-friendly renewable sources (excluding conventional biofuels) require far less water, leaving more for other purposes and making them better suited to a climate-constrained world.[26]

Conclusion

For all these reasons, making swift and deep cuts in our emissions is a smart choice for the United States. Recent polls show that most Americans strongly support congressional action to promote clean energy and tackle climate change.[27] We need Congress to enact strong legislation without delay.

A fully referenced version of this fact sheet is available online at *www.ucsusa.org/smartclimatechoices*.

Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

The Union of Concerned Scientists is the leading science-based nonprofit organization working for a healthy environment and a safer world.

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ENDNOTES

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