



## Interview with Dr. John Holdren

Conducted by Lia Abady, *JEI* Interview Editor  
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**Dr. John Holdren, Assistant to the U.S. President for Science and Technology and Director of the White House Office of Science and Technology Policy speaks to Lia Abady for the Journal of Environmental Investing. In the interview, Dr. Holdren talks about U.S. energy policy and touches upon the President’s FY2011 budget that proposes to eliminate a number of fossil fuel tax preferences projected to be worth about \$40 billion over ten years.**

### Interview:

**Ms. ABADY:** *Well thanks for taking the time to be interviewed. I’d like to begin with asking where you see the energy balance of the U.S in 30 years, in terms of nuclear, solar, wind, bioenergy, coal, oil and gas?*

**Dr. HOLDREN:** Today, 85 percent of U.S. energy supply is provided by fossil fuels. The carbon dioxide released from the burning of fossil fuels accounts for over 90 percent of U.S. greenhouse gas emissions. In order to address the challenge of climate change, we must change the way we produce and use energy. I am not willing to hazard specific predictions about what the structure of this nation’s energy portfolio will be decades from now. There are simply too many variables that are unknown and unknowable at this point, ranging from uncertainties about the likelihood of helpful disruptive technologies emerging to uncertainties about the evolution of political will in future Administrations.

But I can say without any hesitation that under President Obama the United States has done more to reduce greenhouse gas emissions than ever before, by supporting domestic policies that advance clean energy and by vigorously engaging in international climate negotiations. As these efforts bear fruit, I believe that the United States will increasingly shift its energy mix to renewable and other low-carbon technologies, including the use of fossil fuels with carbon capture and sequestration. As President Obama has said, “The nation that leads the world in creating new sources of clean energy will be the nation that leads the 21st century global economy. I want America to be that nation.”

**Ms. ABADY:** *How do you see scholars working with market actors to create scalable market-based solutions to environmental challenges?*

**Dr. HOLDREN:** The current economic downturn notwithstanding, the American economy remains the most dynamic, innovative, and resilient in the world. We have world-class research universities, flexible labor markets, deep capital markets, and an energetic entrepreneurial culture. The potential synergy among these components of our economy has been proven repeatedly through the development of such innovations as the electric grid and the Internet and the countless social and economic institutions that have spun off of them. So while it will be important, of course, to maintain Federal R&D investment to build the human, physical, and technological capital that conducts breakthrough research and transfers those innovations to the market, it will also be crucial in the years ahead to nourish new ways of ensuring that academics, entrepreneurs and others interact and build on each others' skills and expertise to help meet America's challenges, including environmental challenges. Along these lines, it's worth noting the emphasis that this Administration has given to the potential of contests, challenges, and prizes as a means of engaging experts and ordinary citizen solvers across the Nation to take their best shots at solving national problems large and small. Just this week the Federal government launched challenge.gov, a novel digital platform where people can compete for prestige and prizes by providing novel solutions to tough problems. Challenge.gov makes it simple and free for Federal agencies to post rules and resources for challenges; allows anyone interested to submit a solution; and helps manage the selection process. It showcases virtually any kind of government challenge, regardless of that challenge's technology platform, providing "one stop shopping" for academics, entrepreneurs, and others with expertise to bring to the competition. One such challenge in the environmental arena—the winners of which were announce in September—is the Progressive Automotive X Prize, sponsored in part by the Department of Energy, which offered a \$10 million prize for building vehicles with fuel-efficiencies exceeding 100 miles per gallon.

**Ms. ABADY:** *What do you consider the optimal role of government to be in the creation of solutions to the climate change problem?*

**Dr. HOLDREN:** Solutions to the climate change problem will come largely from the application of science and technology to innovations that will change the way we produce and use energy. Government has a critical role to play in ensuring that our economy has the necessary tools for successful innovation, from investments in energy research and development to the human, physical, and technological capital needed to perform that research and transfer those innovations to the marketplace. In addition to government investments in basic research, of course, it is government's role to promulgate policies that encourage the private sector—which today accounts for the majority of R&D

investments—to step up to the plate as aggressively as possible. That’s one reason why the President recently re-articulated his commitment to making permanent the R&D tax credit for businesses, without which industries are likely to remain wary about making the steady investments that are most likely to lead to real, energy-saving and environment-preserving solutions. We also need policies that put a price on greenhouse gas emissions, to spur additional private investment, innovation, and entrepreneurship.

**Ms. ABADY:** *Many thought the BP oil leak would prove to be a catalytic event in U.S climate and energy policy but to date this has not proven to be the case. Do you think we need such a catalyst and if so what do you think it could be? In general, what do you think it will take for the U.S to put in place policies that are “loud, long, and legal” and ultimately signal to potential investors the certainty they seek to make substantial commitments of capital?*

**Dr. HOLDREN:** President Obama supports comprehensive energy and climate legislation that will put a price on greenhouse gas emissions to stimulate investments in energy efficiency and in low-carbon energy supply. I am disappointed that the Senate has not yet acted on such legislation, despite clear and growing evidence that greenhouse gas emissions pose a serious threat to the welfare of the nation and the world. Ultimately, it is up to the American people to make clear that they favor policies that will encourage the development of low-carbon energy sources. We need to do a better job of educating the public about climate change and the changes in energy use that are needed to avoid dangerous changes in climate.

Climate is changing all across the globe. The air and the oceans are warming, mountain glaciers are disappearing, sea ice is shrinking, the great ice sheets on Greenland and Antarctica are slipping, and sea level is rising. The consequences for human well-being are already being felt: more heat waves, floods, droughts, and wildfires; tropical diseases reaching into the temperate zones; and coastal property increasingly at risk from the surging seas. And all this is happening faster than was expected. It is the responsibility of the Federal government but also of academia, the business community, and others to help Americans and people all around the globe become more aware of these scientifically verified realities, until it becomes more politically dangerous to avoid the issue than to engage it.

**Ms. ABADY:** *Do you think the proponents of renewable energy, in the public and private sector, have thought seriously about the scalability of their technologies and risk associated with their assets in the event of a natural disaster? (i.e., a tornado storm in the Mojave desert destroying solar panels?)*

**Dr. HOLDREN:** Utility-scale solar power installations are vulnerable to damage by weather, and this can be a legitimate concern for investors. Weather is also a concern for traditional energy sources, as was demonstrated in 2005 by the effects of hurricanes on oil and gas supplies in the Gulf of Mexico and by the shutdown of nuclear reactors in France during the heat wave in 2003. In general, underwriters provide insurance to protect against potential damage or loss based on the associated risks, but the risks for renewables are more difficult to estimate because the technologies are newer and less common. But efforts are underway to accumulate the information needed to better inform investments and insurance decisions. A recent report by the National Renewable Energy Laboratory, for example, identified various ways that the government could help to increase the availability of such information relating to solar power generation, improve public comprehension of relevant risks, and ultimately make insurance products for this sector more available and affordable.

**Ms. ABADY:** *According to a new report released by the Congressional Budget Office (CBO), the U.S deficit would be cut by \$19 billion over the first 10 years, and it would also not increase over the following 40 years if Senator John Kerry's energy and climate change bill is passed. What sort of signal would the Senate be giving the investment community if the potential to cut the deficit was ignored given it's a key political issue at the moment?*

**Dr. HOLDREN:** The CBO's analysis of Senator Kerry's climate and energy bill is consistent with the Administration's principle that climate and energy legislation should not increase the deficit. The President has consistently stated that we can limit greenhouse gas emissions, slow global warming, and jump-start the clean-energy industries of the future while being fiscally responsible. I'm disappointed, of course, that the Senate has declined to pass comprehensive energy and climate legislation until now. Most members of the business and investment communities—even fossil energy industry executives—would welcome such legislation because it would provide a long-term, predictable framework for making business and investment decisions and because it would provide stable incentives for making investments in clean energy technologies and industries. As a bonus, comprehensive legislation could make a contribution to addressing our long-term budget and deficit problems.

**Ms. ABADY:** *Regulatory uncertainty both in the U.S. and Europe is hampering investment flows into the cleantech sector. Spain, Italy and Germany are in the process of cutting solar and wind feed-in tariffs. And in the U.S., the 1603 cash grant is due to be phased out at the end of the year. The reduction in feed-in tariffs has already confused the market in Spain. What happens when the stimulus program is phased out in the U.S.?*

**Dr. HOLDREN:** The President has called on the Congress to enact comprehensive energy legislation that would spur U.S. development of advanced, clean-energy technologies to reduce our dependence on imported oil, create new jobs, and restore America's position as a global leader in efforts to mitigate climate change. Legislation that places a price on carbon emissions would be the most effective way to encourage robust investment in clean energy technology.

In the meantime, Recovery Act projects have contributed to economic growth and will serve as the foundation for long-term U.S. leadership in growth industries like renewable energy and energy storage. Furthermore, the President's 2011 Budget promotes innovative energy efficiency and renewable-energy projects through \$500 million in credit subsidies that will support \$3 to \$5 billion in lending; expands the Advanced Manufacturing Tax Credit by \$5 billion to help build a robust domestic manufacturing capacity for clean-energy technologies; and proposes to make the Research and Experimentation Tax Credit permanent, eliminate capital gains taxation on small businesses, and invest in innovative programs to help commercialize promising technologies and transition them to the private sector. The Nation's long-term economic recovery will be sustained by continued investments such as these in the new energy economy.

**Ms. ABADY:** *At the Toronto Summit, G-20 Leaders reaffirmed their commitment to phasing out fossil fuel subsidies. The estimated cost of fossil fuel subsidies to the global economy was \$557 billion in 2008. Which fuel source would be most impacted by the phasing out of the subsidy in the U.S? How likely is it that the savings would be re-directed towards government spending in the cleantech sector?*

**Dr. HOLDREN:** The President's FY2011 budget proposes to eliminate a number of fossil fuel tax preferences, which are projected to be worth about \$40 billion over ten years. The largest beneficiaries of these subsidies are oil and gas producers. Removing fossil fuel subsidies increases incentives to invest in clean-energy technologies. Furthermore, eliminating fossil fuel subsidies provides flexibility to expand our investments in clean tech innovation, which in the proposed FY2011 budget includes \$4.9 billion for climate technology R&D programs at the Department of Energy – an increase of 11 percent over the FY2010 enacted level. This climate technology funding includes \$2.4 billion for Energy Efficiency and Renewable Energy programs and \$300 million for the Advanced Research Projects Agency–Energy (ARPA-E).

**Ms. ABADY:** *Thank you for taking the time. I appreciate you taking time on your schedule to talk to us.*

**Dr. HOLDREN:** It was a pleasure. Thank you.

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**John P. Holdren** is Assistant to the President for Science and Technology, Director of the White House Office of Science and Technology Policy, and Co-Chair of the President's Council of Advisors on Science and Technology (PCAST). Prior to joining the Obama administration Dr. Holdren was Teresa and John Heinz Professor of Environmental Policy and Director of the Program on Science, Technology, and Public Policy at Harvard University's Kennedy School of Government, as well as professor in Harvard's Department of Earth and Planetary Sciences and Director of the Woods Hole Research Center. A member of PCAST during the Clinton administration, he chaired studies requested by President Clinton on preventing theft of nuclear materials; the prospects of fusion energy; and a U.S energy R&D strategy for, and international cooperation on, energy technology innovation.

Holdren holds advanced degrees in aerospace engineering and theoretical plasma physics from MIT and Stanford and is highly regarded for his work on energy technology and policy, global climate change, and nuclear arms control and nonproliferation. He is a member of the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences. A former president of the American Association for the Advancement of Science, his awards include a MacArthur Foundation Prize Fellowship, the John Heinz Prize in Public Policy, the Tyler Prize for Environmental Achievement, and the Volvo Environment Prize. He served from 1991 until 2005 as a member of the MacArthur Foundation's board of trustees.