21st Century Communities: Capitalizing on Opportunities in the Clean Energy Economy
Testimony Before the Committee on Banking, Housing, and Urban Affairs
of the United States Senate

April 22, 2021

David W. Kreutzer, Ph.D.

Chairman Brown, Ranking Member Toomey and other member of the committee, I want to thank you for giving me this opportunity to testify on the clean energy economy.

My name is David Kreutzer. I am senior economist at the Institute for Energy Research. The opinions I express today, are my own and do not necessarily reflect those of the Institute for Energy Research.

The economic impact of a shift to energy sources with lower carbon dioxide emissions depends on how that shift is made. The reductions in CO2 emissions brought on by the smart-drilling revolution and the dramatically increased access to natural gas helped revive our industrial base, increasing income and employment. Forced reductions in CO2 emissions that raise energy costs have negative impacts on income and employment. In addition, policies that force CO2 reductions have been hijacked by political opportunists in the past and are susceptible to similar problems in the future.

Creating and maintaining a dynamic, robust, and resilient economy is critically important for the nation's welfare today and for generations to come. We are the beneficiaries of decades and centuries of phenomenal economic growth and we should hope to see that growth continue.

Over the past 150 years, inflation-adjusted income per capita in the U.S. has increased by a factor of 18. Even this nearly 20-fold increase cannot fully measure the benefits of modern medicine and technology.[1] For instance, that same period saw the tragedy of childhood mortality drop from 317 per thousand to seven per thousand—a 98 percent decrease.[2]

We see similarly dramatic improvements in human well-being on a shorter time scale. Since the year of my birth (1953), per-capita energy consumption has doubled and the atmospheric CO2 concentration has risen 32 percent.[3,4] These changes were associated with:

- A 76-percent drop in childhood mortality;[5]
- The death rate from famine dropping 98 percent;[6]
- An increase in inflation-adjusted World per-capita GDP of 300 percent.[7]

This is only a partial list of the beneficial changes in human welfare the decades have seen. Of course, there are many factors driving these benefits, but economic freedom and affordable energy are among them. The Heritage Foundation's *Index of Economic Freedom* consistently shows a link between economic freedom and economic growth.[8] Government subsidies and

mandates work against economic freedom and can undermine the process that creates the best jobs. The push for green jobs too often ignores this lesson.

In his first term, President Obama promised to create 3 million new green jobs. A significant chunk of $787 billion stimulus package was devoted to meeting that goal. The package included grants, loan guarantees, and funding for job-training programs. The resulting green-job creation fell pathetically short of its goal. The failure was documented in two reports from the inspector general at the Department of Labor and two reports from the Bureau of Labor Statistics.

The title for the first inspector general report, "Recovery Act: Slow Pace Placing Workers into Jobs Jeopardizes Employment Goals of the Green Jobs Program," is a surprisingly good summary.[9] The report noted:

- Nearly three-fourths of the way through, only 61 percent of the target level of participants had even been signed up for training;
- Job placement was only 10 percent of the target level; and
- Participants who retained employment for at least six months met only 2 percent of the target level.

A follow-up report a year later was no more upbeat.[10] It found:

- More than 20 percent of certificates and degrees went to recipients who had only one day of training;
- 47 percent of those completing the Green Jobs program received five or fewer days of training;
- Grantees could not document between 24 percent and 44 percent of the employment outcomes;
- The number of trainees who entered employment was less than 40 percent of the target; and
- 38 percent of those who did enter employment already had jobs before the training program.

On the surface the BLS reports are more positive, asserting that the economy had over three million green jobs.[11] A little digging shows that number to be so misleading as to be nearly comical. First, they were not the promised new jobs. Second, to get the three-million count, the definition of a green job was made so broad that most of the green jobs had greenness that was, at best, tenuous. Even if the definition was accepted, few of the green jobs could have been attributed to the green jobs program. For instance:

- There were 30 times as many green jobs in portable-toilet and septic-tank servicing as in solar electric utilities;
- More than 50 percent of all jobs in steel mills were green;[12]
- There were more green jobs in school bus and employee transportation (160,896), trash collection (116,293), and used merchandise stores (106,865) than in either engineering services (100,847) or architectural services (71,891); and
- The acting commissioner of the BLS admitted that lobbying for the oil-industry could be considered a green job.[13]

Of course, all of these jobs are important, but they are not what people envision when they hear about green jobs of the future, nor can many of them be attributed to Obama-era green-jobs policies.

Though there were few green jobs to show for it, a lot of money was spent on green initiatives.

Much of that money went to wealthy corporations and the politically well-connected. A *Washington Post* investigation into the clean-energy program found a disturbing amount of political influence:[14]

> **Meant to create jobs and cut reliance on foreign oil, Obama's green-technology program was infused with politics at every level, The Washington Post found in an analysis of thousands of memos, company records and internal e-mails. Political considerations were raised repeatedly by company investors, Energy Department bureaucrats and White House officials.**

The story went on:

> **"What's so troubling is that politics seems to be the dominant factor," said Ryan Alexander, president of Taxpayers for Common Sense, a nonpartisan watchdog group. 'They're not talking about what the taxpayers are losing; they're not talking about the failure of the technology, whether we bet on the wrong horse. What they are talking about is 'How are we going to manage this politically?'**
>
> **The administration, which excluded lobbyists from policymaking positions, gave easy access to venture capitalists with stakes in some of the companies backed by the administration, the records show. Many of those investors had given to Obama's 2008 campaign. Some took jobs in the administration and helped manage the clean-energy program.**

It is hard to spend hundreds of millions of dollars in Washington and not have serious political influence involved. Some things may need to be done by government, but federal funding of

private ventures is not at the top of the list. Two cases from the Obama Administration's green initiatives illustrate the problem with government financing of private ventures.

The poster child for politically directed bad green investment is Solyndra—a story of failed technology and successful rent-seeking. An early beneficiary of the Stimulus Package, Solyndra received a $535 million loan guarantee in 2009. However, improvements in older technology undercut that of Solyndra. This problem was evident from almost the first day, and the company declared bankruptcy in September of 2011, laying off all 1,100 of its workers. Of course, taxpayers were left on the hook for the millions of dollars on the outstanding loan.

The second example, the Ivanpah solar-power project, highlights a logical flaw in the Department of Energy's loan-guarantee program and illustrates problems in green-energy accounting.

The Department of Energy's loan program supposedly targeted projects that were economically viable and unable (despite the supposed market viability) to get private financing. That the owners of Ivanpah might be unable to finance a market-viable project is laughable. The owners include the following corporations (or their subsidiaries):

- Google
- General Electric
- Chevron
- BP Alternative Energy
- StatoilHydro Venture
- Morgan Stanley
- Black River Asset Management
- Draper Fisher Jurvetson
- Vantage Point Capital Partners
- Riverwood Capital
- Double Bottom Line Venture Capital
- California State Teachers' Retirement System
- NRG Energy

The combined market capitalization of the partners exceeded $1 trillion at that time. Further, the list of partners included some of the most sophisticated and accomplished firms in corporate finance. Nevertheless, the Department of Energy awarded them a $500 million grant and a $1.6 billion loan guarantee.

Ivanpah is a solar-thermal power plant that uses mirrors to concentrate solar energy to heat a liquid that then drives conventional turbines. Though the liquid has some thermal mass that moderates short-term fluctuations in power output, nighttime and cloudiness are still problems. Overnight, the liquid cools so much that it takes a while to reheat it in the morning until it is hot enough to drive the turbines. To overcome this problem, Ivanpah uses natural gas

to keep the liquid hot overnight, which is not a technological problem, but it is a problem for calculating green credits. The solution is to ignore the overnight use of natural gas when calculating how much electricity is generated by solar heat. This matters because virtually all of Ivanpah's power is sold at the higher prices commanded by renewable electricity and because that power is used by its customers to satisfy renewable portfolio requirements. I have estimated that were the natural gas burned in a modern powerplant it would generate nearly one-third of the power sold by Ivanpah.[15]

Companies that should not need loan subsidies to finance their project, got the subsidies and produce "green" power, in large part, with natural gas. This bit of mislabeling is ignored by Ivanpah's owners, the Department of Energy, California regulators, and the utilities that purchase the power to meet mandates, because none of them have any incentive to do otherwise.

Though problems like those with Solyndra and Ivanpah were not universal, they were all too common. In his broad overview of the Department of Energy's Loan Portfolio, Nick Loris found these recurring themes:[16]

- Failed companies that could not survive even with the federal government's help;
- Projects that have the backing of companies with large market capitalizations and substantial private investors. These companies should have no trouble financing a project without government-backed loans if they believe it is worth the investment;
- Private investors hedging their bets and congregating toward public money. These projects on their surface appear to be financial losers but the government involvement entices companies to take a chance;
- Companies and projects that benefit from a plethora of federal, state, and local policies that push renewable energy;
- Government incompetence in administering and overseeing the loans.

In 2009, the American economy was just beginning its recovery from the 2008 recession. The billions of dollars in green expenditures were promoted as a tool to combat the unemployment crisis of the time. The green expenditures of the Stimulus Package failed to provide significant help to the unemployed workers whose plight was used to justify the programs.

Today, a multi-trillion-dollar policy is offered as a source of jobs. It is also offered as a solution to problems of climate justice, despite the fact that these programs will have no measurable climate impact for decades and are unlikely to have significant positive impacts beyond that. With history as a guide, there is reason to think these programs will be encouraged and then usurped by the politically well-connected and the economically powerful. We saw this in 2009 and we have seen it more generally for decades.

Big government expenditure too often helps the well-connected and powerful instead of the supposed beneficiaries. Hints of this diversion can also be seen in the accumulating wealth of Washington, DC and its suburbs.

In 1970, three of the twenty wealthiest counties in America were in the DC area and six were in the Midwest.[17] By 2019, eight (nine if you count the independent city of Falls Church, VA) of the richest twenty counties were in the DC suburbs and none of these twenty were in the Midwest.[18] Real estate prices show a corresponding trend. Between 1970 and 2017, the median house price in Washington, DC grew faster than in any state and 3.5 times as fast as the national average.[19]

The changing fortunes of industries and regions spring from many factors, but the data in the previous paragraph do not support a claim that the burgeoning government programs and budgets have stimulated the economy of our manufacturing heartland. We should be skeptical that several trillion more dollars will have a significantly different impact.

Even if the shift to reduced carbon dioxide emissions is done without the political rent-seeking, the costs to the economy come early and are significant, while any impacts on climate come with long delays, are speculative and small.

My former colleagues, Kevin Dayaratna and Nick Loris, and I estimated the projected economic impact of the U.S. meeting its CO2 reduction targets of the Paris Agreement.[20] We projected the twenty-year impact would lead to:

- An overall average shortfall of nearly 400,000 jobs;
- An average manufacturing shortfall of over 200,000 jobs;
- A total income loss of more than $20,000 for a family of four;
- An aggregate gross domestic product (GDP) loss of over $2.5 trillion; and
- Increases in household electricity expenditures between 13 percent and 20 percent.

The climate impact of these significant costs would be a moderation of global warming of only 0.03 degrees centigrade in 2100.[21]

The beginning of this testimony highlighted the amazing increase in the standard of living witnessed over the past 150 years. Though it may be hard to imagine, the next 150 years should see similar increases in wealth and amazing improvements in technology. In addition to providing a higher standard of living, economic growth provides for resiliency and protection against adversity of all sorts, whether from natural disasters, pandemics, or something else. Economic growth is, in a sense, an insurance policy.

The benefits of economic growth are most significant over long periods, but growth is also effective in the shorter run. Before the worldwide COVID pandemic, the U.S. economy, spurred by lower tax rates and reduced red tape, was recording record low unemployment rates for

African Americans and Hispanic Americans. In addition, wages at the lower end were growing faster than average for the first time in decades.

To ensure they reap the benefits of this increasing standard of living, we should deliver to our grandchildren a world that is not impoverished by anti-growth ideology, a world where major conflict is not driven by minor differences, and a world where leaders do not exaggerate problems so there will be a false crisis to exploit.

---

[1] For the span 1870 to 2020. Found at Measuringworth.com, https://www.measuringworth.com/datasets/usgdp/result.php (accessed April 19, 2021).
[2] Statista.com, "Child mortality rate (under five years old) in the United States, from 1800 to 2020," https://www.statista.com/statistics/1041693/united-states-all-time-child-mortality-rate/ (accessed April 19, 2021).
[3] Theoildrum.com, "World Energy Consumption Since 1820 in Charts," http://theoildrum.com/node/9023 (accessed April 19, 2021).
[4] Sealevel.info, "Atmospheric Carbon Dioxide (CO2) levels, 1800–present," https://sealevel.info/co2.html (accessed April 19, 2021).
[5] Max Roser and Jaiden Mispy, "Global child mortality: it is hard to overestimate both the immensity of the tragedy, and the progress the world has made," Our World in Data, https://ourworldindata.org/child-mortality-globally (accessed April 19, 2021).
[6] Joe Hasell and Max Roser, "Famines," Our World in Data, December 7, 2017, https://ourworldindata.org/famines (accessed April 19, 2021).
[7] Max Roser, "Economic Growth," Our World in Data, https://ourworldindata.org/economic-growth (accessed April 19, 2021)
[8] The Heritage Foundation, *Index of Economic Freedom*, https://www.heritage.org/index/ (accessed April 19, 2021).
[9] U.S. Department of Labor Employment and Training Administration, Office of the Inspector General, "Recovery Act: Slow Pace Placing Workers into Jobs Jeopardizes Employment Goals of the Green Jobs Program," September 30, 2011, https://www.oig.dol.gov/public/reports/oa/2011/18-11-004-03-390.pdf (accessed April 20, 2019).
[10] David W. Kreutzer, Heritage Foundation Commentary, November 1, 2012, https://www.heritage.org/environment/commentary/green-jobs-go-0-4 (accessed April 20, 2019)
[11] Bureau of Labor Statistics, News Release, "Employment in Green Goods and Services—2011," March 19, 2013, https://www.bls.gov/news.release/pdf/ggqcew.pdf (accessed April 20, 2021).
[12] David Kreutzer, "Green Jobs Count: Fewer than Before, Sillier than Ever," Daily Signal, July 9, 2012, https://www.dailysignal.com/2012/07/09/green-jobs-arent-shrinking-because-they-dont-exist/ (accessed April 20, 2021).
[13] Youtube, "Oil Lobbyists Have Green Jobs?" June 15, 2012, https://www.youtube.com/watch?v=DsEMHQ2sjOk (accessed April 20, 2021).
[14] By Joe Stephens and Carol D. Leonnig, "Solyndra: Politics infused Obama energy programs," *The Washington Post*, December 25, 2011, https://www.washingtonpost.com/solyndra-politics-infused-obama-energy-programs/2011/12/14/gIQA4HllHP_story.html (accessed April 20, 2021).
[15] David W. Kreutzer, "The Status of Ivanpah and Other Federal Loan-Guaranteed Solar Energy Projects on Bureau of Land Management Lands: Testimony before the Committee on Natural Resources Subcommittee on Oversight and Investigations: United States House of Representatives," July 14, 2016, https://republicans-naturalresources.house.gov/uploadedfiles/testimony_kreutzer.pdf (accessed April 20, 2021).
[16] Nick Loris, "Examining the Department of Energy's Loan Portfolio: The House of Representatives Committee on Science, Space and Technology's: Subcommittee on Energy and Subcommittee on Oversight," March 3, 2016, https://docs.house.gov/meetings/SY/SY20/20160303/104591/HHRG-114-SY20-Wstate-LorisN-20160303.pdf (accessed April 20, 2021).
[17] Jack Rosenthal, "50 Richest Counties Are in Suburbs," *The New York Times*, September 19, 1972, https://www.nytimes.com/1972/09/19/archives/50-richest-counties-are-in-suburbs.html (accessed April21, 2021).

[18] Terrence P. Jeffrey, "9 of 20 Richest Counties Are D.C. Suburbs; Virginia Suburbs Beat Silicon Valley," CNSNews, December 12, 2019, https://www.cnsnews.com/article/national/terence-p-jeffrey/9-20-richest-counties-are-dc-suburbs-virginia-suburbs-beat (accessed April 21, 2021).
[19] Hillary Hoffower and Andy Kiersz, "Home values have more than doubled in the US since 1970 — here's how much they've increased in every state," *Business Insider*, December 18, 2018, https://www.businessinsider.com/home-value-home-price-change-in-50-years-every-state-2018-12 (accessed April 21, 2021).
[20] Kevin Dayaratna, Nicolas Loris, and David Kreutzer, "Consequences of Paris Protocol: Devastating Economic Costs, Essentially Zero Environmental Benefits," Heritage Foundation Report, April 13, 2016, https://www.heritage.org/environment/report/consequences-paris-protocol-devastating-economic-costs-essentially-zero (accessed April 21, 2021).
[21] Bjorn Lomborg, "Impact of Current Climate Proposals," *Global Policy*, November 9, 2015, https://onlinelibrary.wiley.com/doi/full/10.1111/1758-5899.12295 (accessed April 21, 2021).