

Testimony of Richard J. Powell
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House Ways and Means Committee
"The Economic and Health Consequences of Climate Change"
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Good morning Chairman Neal, Republican Leader Brady, and other members of the committee. My name is Rich Powell. I am the Executive Director of ClearPath, a 501(c)3 organization that develops and advances conservative government policies that accelerate clean energy innovation. ClearPath provides education and analysis to policymakers and collaborates with relevant partners to inform our independent research and policy development. An important note: we receive zero funding from industry.

Thank you for the opportunity to appear before you today and for holding this important hearing. Climate change is an urgent challenge with significant public health, safety, and economic development implications, meriting significant policy action at every level of government and the private sector. For example, the National Oceanic and Atmospheric Administration (NOAA) finds that the five-year average of climate related weather events has risen from \$20 billion per year to \$100 billion per year over the past 20 years.¹

As this Committee considers its part in a serious set of U.S. climate and clean energy policies, those solutions should be ambitious but also technology-inclusive and politically and substantively pragmatic. Too often, solutions are oversimplified to a set of false choices: renewable versus fossil, economy versus the environment, immediate action versus inaction. The reality is that solutions must follow a technology-inclusive agenda to make the global clean energy transition cheaper and faster. This will be essential for deep, global emission reductions by mid-century.

Any serious federal policy proposal must also reflect the global nature of the challenge: every molecule of carbon dioxide emitted on the other side of the world has the same impact as one released here. Policies that simply accelerate American fuel switching, or merely subsidize already commercialized technologies here, will do little to affect global emissions. A more effective strategy is rooted in American clean energy abundance, innovation and exports.

Why? Look no further than China. Chinese coal power generation has quadrupled since 2000. More than 250 gigawatts of new domestic coal capacity still remains planned², not to mention plans to finance 100 gigawatts of coal in at least 27 countries as part of the Belt and Road Initiative.³ The expected emissions growth from developing Asian countries alone would offset a complete decarbonization of the U.S. economy by mid-century.⁴ We have a choice - bet that the Chinese and their partners shut down their coal-fired power plants at the expense of economic

¹ <https://www.ncdc.noaa.gov/billions/time-series>

² <https://www.bloomberg.com/news/articles/2018-11-30/almost-half-of-coal-power-plants-seen-unprofitable-to-operate>

³ http://iefa.org/wp-content/uploads/2019/01/China-at-a-Crossroads_January-2019.pdf

⁴ <https://www.eia.gov/outlooks/aoe/data/browser/#/?id=10-IEO2017®ion=0-0&cases=Reference&start=2010&end=2050&f=A&linechart=Reference-d082317.3-10-IEO2017~~~~~Reference-d082317.17-10-IEO2017&map=&ctype=linechart&sourcekey=0>

growth; or develop, demonstrate, and deploy affordable U.S.-based emissions control technologies abroad as we have previously done for acid rain and aerosols.

More broadly, despite significant global renewables deployment, the share of global energy supplied by clean sources has not increased since 2005. Global emissions continue to rise. Simply put, clean technology options currently available, while important and improving in cost and performance quickly, are simply not up to the challenges facing us today and tomorrow.

We require better, cheaper clean technology so developing nations consistently choose those tools over the higher-emitting options they are choosing today.

This stark reality motivates ClearPath to focus on unlocking breakthroughs in the broad suite of lower-carbon technologies - including next-generation nuclear, hydropower, carbon capture from both coal and natural gas generation, grid-scale storage, and advanced renewables. Every clean tech tool in the toolbox will be needed to meet economic development and environmental objectives. Yet only 4 of 38 critical technologies are on track, according to the International Energy Agency⁵. Thus, an aggressive and comprehensive public-private technological innovation policy to accelerate clean technology commercialization is needed. We must focus first on making clean energy cheaper, not making traditional energy more expensive.

What does that mean? If history is any indicator, a comprehensive suite of policies starting with public-private research, development and demonstration, combined with financing tools and regulatory reforms, have repeatedly been our national recipe for breakthroughs.

Take America's shale gas revolution, rooted in decades of public-private research partnerships.⁶ This R&D, coupled with a \$10 billion alternative production tax credit, yielded breakthroughs in combined cycle turbines, diamond drill bits, horizontal drilling and 3D imaging.⁷ The private sector took it from there, increasing natural gas from 19 to 32% of the grid⁸ between 2005 and 2017. The U.S. Energy Information Administration has found that this shale gas revolution accounts for $\frac{2}{3}$ of the dramatic 28% emissions decline in the power sector over the past decade.⁹ Unlike the global economic growth to emission trend, U.S. gross domestic product increased roughly 19 percent over that same timeframe.¹⁰

To be clear, we cannot just throw money or mandates at this problem. Neither a command-and-control government power grab nor unlimited basic research investment with little guidance or guiding goal are going to tackle what is inherently a technology challenge.

Effective innovation policies include both a push and a pull - they facilitate basic and applied R&D investments, demonstrate technologies in public private partnerships, *and* accelerate the early deployment. This early deployment enables the all-important "learning by doing" which

⁵ <https://www.iea.org/tcep/>

⁶ <https://static.clearpath.org/2019/02/shale-gas-fracking-doc.pdf>

⁷ <http://americanenergyinnovation.org/wp-content/uploads/2013/03/Case-Unconventional-Gas.pdf>

⁸ <https://www.eia.gov/survey/#eia-923>

⁹ <https://www.eia.gov/environment/emissions/carbon/>

¹⁰ https://apps.bea.gov/iTable/index_nipa.cfm

has driven the huge cost declines in natural gas, wind, and solar. Financing policy is a critical component of that learning by doing.

Federal tax incentives have been one effective tool in financing the early commercial deployment of cutting-edge clean technologies - such as the unconventional natural gas credit that scaled up shale in its early days. And as this committee knows well, these types of policies enjoy broad bipartisan appeal and have been enacted by wide margins multiple times over the last 15 to 20 years.

Chairman Neal, Congressman Reed, and many others on this Committee championed the solar ITC and PTC phasedown deal that was enacted in the final days of the 114th Congress.

Representatives Conaway (R-TX), McKinley (R-WV), Curbelo (R-FL), Sewell (D-AL), and Boyle (D-PA) were instrumental in the 45Q reform package¹¹ enacted last year that will accelerate technologies that capture carbon emissions from power plants and industrial facilities, as well as even mine CO2 directly from the air.

And Congressman Rice's (R-SC) Advanced Nuclear Production Tax Credit reform bill¹², supported by Reps. Blumenauer (D-OR), Marchant (R-TX), Sewell (D-AL), Ferguson (R-GA), and Schweikert (R-AZ), will play an important role in facilitating the first wave of new advanced nuclear reactors that promise to produce clean baseload power more cheaply, more flexibly, and with a smaller spent fuel profile than current commercial technology.

Nevertheless, moving forward this challenge requires new and innovative policy designs. The technology-specific approaches currently in the code are virtually all scheduled to phase out over the next 5 to 8 years. We all anticipate political battles to handle the fate of those policies, and I will not begin to predict how those play out. Regardless, those tax incentives, while historically important, have become ill suited to stimulate the breakthrough innovation needed to expand the set of cheap clean technology options for decarbonizing the global electricity system.

Historically, policies developed by this committee have been extremely effective in deploying new technologies. The Committee should focus on this area of bipartisan consensus as an opportunity for meaningful near term clean energy solutions

For example, Representatives Reed and LaHood have put forth a nuanced new proposal, the Energy Sector Innovation Credit¹³, to allow energy markets to direct tax incentives toward the most promising emerging clean technologies. Its unique incentive structure facilitates step-change performance breakthroughs across generation sources, not simply subsidizing a specific technology or fuel type. It can therefore help solve pressing challenges such as how to make the power sector more flexible to accommodate the rise of cheap but intermittent renewable energy.

This technology-neutral approach would leverage significant new private investment in nascent clean technologies, help cutting-edge technologies break into the market, and then naturally

¹¹ www.congress.gov/bill/115th-congress/house-bill/1892

¹² www.congress.gov/bill/115th-congress/house-bill/1551

¹³ <https://www.congress.gov/115/bills/hr7196/BILLS-115hr7196ih.pdf>

phasedown as each technology proves commercial viability. Also importantly, it is structured in a way that limit market distortions, like negative pricing events in wholesale electricity markets, posed by existing price per kilowatt tax credits.

In other words, it addresses a key policy gap that could bring about the new technologies needed to quickly and cheaply reduce global emissions.

Importantly, the incentive would only apply to technologies that offer some pressing new performance over existing technologies. While this will mostly apply to technologies that don't currently exist, our analysis has identified at least three potential candidate technologies that would qualify for the credit: small modular nuclear reactors currently making their way through the NRC licensing process, floating offshore wind turbines currently undergoing early demonstration in the seas off of Europe, so-called "Allam Cycle" natural gas turbines that incorporate carbon capture technology into design of the gas power plant, and long-duration energy storage technologies such as those recently funded by ARPA-E.

A recent report sponsored by Bill Gates' Breakthrough Energy Coalition, Daniel Yergin's IHS Markit, and former Energy Secretary Ernest Moniz's Energy Future Initiative, identifies federal tax policy to spur innovation as a key enabler for clean energy innovation.¹⁴ Moniz and Yergin specifically recognize the Reed-LaHood bill as the type of policy needed to encourage early commercialization and to move down the learning curve.

Concurrently, some preliminary modeling conducted by OnLocation, one of the nation's premiere energy-economic modeling and analysis firms, project the Reed-LaHood proposal to result in gigaton scale carbon dioxide emission reductions by 2040 with contributions from the select group of clean technologies -- SMRs, floating wind, Allam cycle gas, and energy storage - - identified above.

The Committee's work should not be limited to this specific tax incentive proposal; there are other innovative financing ideas that warrant consideration. For example, ClearPath is part of a group of policy institutes, advocacy organizations, and scholars, called the Clean Capitalist Coalition, focused on innovative policy ideas to reduce barriers to clean free enterprise. Some of those ideas include proposals like the Energy Sector Innovation Credit, new tax-exempt private clean technology bonds to accelerate deployment, and voluntary emission reporting frameworks.

Members of this Committee have been working on bipartisan legislation¹⁵ to expand innovative financing structures, like Master Limited Partnerships, to a broader suite of clean technologies. Last Congress, Senator Portman, Senator Bennet, former Congressman Curbelo and Congressman Veasey proposed legislation¹⁶ to finance the high upfront capital costs of CO2 pipelines and associated infrastructure. These are just few of the ideas that have been recently proposed.

¹⁴ <https://energyfuturesinitiative.org/news/2019/2/6/clean-energy-innovation-report>

¹⁵ <https://www.congress.gov/115/bills/hr4118/BILLS-115hr4118ih.pdf>

¹⁶ <https://www.congress.gov/115/bills/hr2011/BILLS-115hr2011ih.pdf>

No one project is financed the same, so a broad suite of policies should be considered to accelerate an energy system modernization.

A serious debate on climate solutions must include a dose of political and technical realism. I am here to tell you firsthand that it is all right to be conservative, *and* agree that climate change is an urgent problem that must be addressed today, not tomorrow. It's also imperative for all sides to agree that a hastily deployed renewable-only strategy will neither impact the global climate problem nor stand any chance of becoming law in this or any Congress anytime soon. Instead, this Committee should collaborate on stronger financing and incentives policies that will commercialize the broad suite of cutting-edge clean energy technologies needed to reduce global emissions as quickly and cheaply as possible. Indeed, many members of this Committee know firsthand that bipartisan cooperation on clean technology policy is not only attainable but essential.

Thank you again for this opportunity, and I look forward to the discussion.