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Testimony before the Senate Energy and Natural Resources Committee
Hearing on "The State of Clean Energy Innovation"

Good morning Chairman Murkowski, Ranking Member Manchin and other members of the committee. My name is Jay Faison, and I am the Founder of ClearPath. ClearPath is a 501(c)3 organization that develops and advances conservative policies that accelerate clean energy innovation. We support solutions to unlock breakthroughs in lower-carbon technologies - including next-generation energy storage, nuclear, hydropower, and carbon capture from both coal and natural gas. I started ClearPath because I thought our national energy policy debate had become polarized between 100% renewables and "drill baby drill" - I knew there had to be a smarter middle path for both our climate and our economy.

I found the 2018 National Climate Assessment deeply sobering. Forest fires are one example the report highlights. On average, the annual amount of area burned has increased fourfold in the last 30 years.[1] Of the 10 most destructive wildfires in California's history, seven have occurred since 2015.[2] California's "Camp Fire", the deadliest in the state's history, killed over 85 people and did $16.5 billion in damage.[3] PG&E, one of the nation's largest utilities, has declared bankruptcy as a result of their liability for recent fires. Given the risks of climate change, what could be a bigger priority for DOE's national energy laboratories than developing the next generation of affordable clean energy technologies?

Heavy industry is now responding. Southern Company is reducing their emissions in half by 2030 and will be low to no carbon by 2050 - all while rapidly innovating clean tech. Shell also aims to cut its carbon emissions in half by 2050. Notably, senior executives from Southern, Shell, BP are among the growing list of big energy companies who are beginning to link future bonuses and other pay to their emission targets. These actions make it clear that large energy companies understand that a low carbon future is inevitable.

Some would argue that we have the technologies that we need to solve for climate change. If that was the case, we would not be as concerned about climate change as

[1] https://nca2018.globalchange.gov/chapter/6/
[2] http://www.fire.ca.gov/communications/downloads/fact_sheets/Top20_Destruction.pdf
[3] https://en.wikipedia.org/wiki/Camp_Fire_(2018)

we are today because the solution would be clear, imminent and deployable. Unfortunately, that's not the situation we face.

First, it is important to recognized that a molecule of CO2 emitted on the other side of the world has the same impact as one released here. Since 2000, coal power generation in China nearly quadrupled.[4] Bloomberg reports that over 250 gigawatts of new Chinese coal capacity remain planned, roughly the size of the entire U.S. coal fleet.[5] Abroad, China is financing another 100 gigawatts of coal in at least 27 countries.[6] The expected emissions *growth* from developing Asian countries alone would offset a complete decarbonization of the U.S. economy by mid-century.[7] We have a choice - bet that Chinese and Indians will close these recently built plants at the expense of economic growth; or develop, demonstrate and export U.S.-based emission control technology.

Second, we should not put our eggs into one basket of technologies. It is unknown how far batteries and other forms of storage can fill in for renewables when the sun isn't shining or the wind isn't blowing. This is where the Department of Energy comes in. Many people are well aware of the SunShot Initiative launched 8 years ago. It set ambitious cost-reduction targets for solar panels for the year 2020 and achieved their goals three years ahead of schedule.

Most people are not aware of how DOE made the shale gas revolution possible with decades of public-private research partnerships.[8] This R&D, coupled with a $10B alternative production tax credit, yielded breakthroughs in combined cycle turbines, diamond drill bits, horizontal drilling and 3D imaging.[9] This market-driven phenomenon has increased natural gas from 19 to 32% of the grid[10] between 2005 and 2017, resulting in a 28% emissions decline.[11]

The same ingenuity that produced the shale boom can make that gas fully clean. Last May, a company called NETPower, a joint venture between 8 Rivers, Exelon,

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[4] https://www.shell.com/energy-and-innovation/the-energy-future/scenarios/shell-scenario-sky.html
[5] https://www.bloomberg.com/news/articles/2018-11-30/almost-half-of-coal-power-plants-seen-unprofitable-to-operate
[6] http://ieefa.org/wp-content/uploads/2019/01/China-at-a-Crossroads_January-2019.pdf
[7] https://www.eia.gov/outlooks/aeo/data/browser/#/?id=10-IEO2017&region=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
[8] https://static.clearpath.org/2019/02/shale-gas-fracking-doc.pdf
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[11] https://www.eia.gov/environment/emissions/carbon/

Occidental Petroleum, and McDermott, successfully demonstrated a zero emission natural gas technology that could transform the global energy sector. Unlike traditional carbon capture, this new technology could capture all its emissions effectively at zero extra cost. More broadly, it's an immensely promising time for U.S. clean innovation. Public-private efforts like the ARPA-E and Bill Gates-backed QuidNet are developing innovative long-duration storage solutions that could expand renewables. QuidNet's energy storage could be deployed nearly anywhere by pumping and compressing water into depleted oil wells and harnessing the energy when it decompresses. Entrepreneurs are innovating small modular nuclear reactors and micro-reactors, in partnership with our national labs, that are less capital intensive and more flexible to work alongside renewables. NuScale, which submitted the first small modular reactor design for Nuclear Regulatory Commission review, is steadily progressing toward certification and could have demonstration reactors operational at Idaho National Lab in three years. Those building even more scalable and affordable microreactors will follow in NuScale's footsteps and start submitting licensing applications to the NRC as early as this year.

These efforts are representative of the aggressive public-private collaborations needed to dent this global problem.

The last Congress hasn't received the credit its due for boosting low-carbon technologies. Your broadly bipartisan agenda enhanced critical incentives for carbon capture, renewables, and advanced nuclear; invested in Department of Energy R&D at record levels; and reformed regulations to accelerate the licensing of advanced nuclear and hydropower.

But what exactly are we shooting for? What does success look like? Our nation's best scientists have been very clear about the answer to these risks - the solution must include greatly scaling up all of the low carbon technologies at our disposal, from more renewables to nuclear energy to carbon capture. I am a strong advocate for big ambitious goals that deliver a full tool box of clean and affordable energy solutions. Smart investments in "moonshot" goal programs that deliver low-cost, high-performing clean technology - from basic research all the way through demonstrations - are essential. Let's create stronger financing and incentives to commercialize cutting-edge companies and deploy those technologies globally. And let's enact deep regulatory reforms that remove barriers to rapidly scaling clean technology.

Bipartisan cooperation on clean energy innovation to address climate change is essential under divided government - and attainable. In fact, it is the only chance our

nation will have if it is going to play a significant role in the global solution. Thank you again for this opportunity, and I look forward to the discussion.