

Testimony of Jason Hartke, Ph.D.

President

Alliance to Save Energy

U.S. Senate Committee on Energy and Natural Resources

“Hearing to Examine Renewable Energy and Energy Efficiency Efforts in the U.S.”

May 21, 2019

Thank you for the opportunity to testify today about the opportunities before us to advance energy efficiency and improve U.S. energy productivity. We appreciate the committee’s bipartisan leadership and consistent focus in recent years on energy efficiency as a leading solution to our nation’s energy and environmental challenges. We look forward to continuing to work with you in the 116th Congress.

The Alliance to Save Energy is a non-profit, bipartisan coalition of business, government, environmental, and consumer-interest leaders that advocates for enhanced U.S. energy productivity to achieve economic growth; a cleaner environment; and greater energy security, affordability, and reliability. The Alliance enjoys the participation of nearly 130 businesses and organizations that collectively represent at least \$615 billion in market capital. The Alliance was founded in 1977 by Sens. Charles Percy (R-Ill.) and Hubert Humphrey (D-Minn.), and today has 14 members of Congress serving on an Honorary Board of Advisers. We are honored that several of those honorary advisers serve on this committee, including Chairwoman Murkowski, Sen. Alexander and Sen. Wyden. Thank you, again, for your leadership.

I want to start with some context. We all know about the oil embargo and fuel shortages of the 1970s – a crisis from which the Alliance was born. That’s when the United States – realizing the dire energy and economic security dangers stemming from our overwhelming oil dependence – got serious about using our resources wisely, about making energy efficiency a centerpiece of our energy policy. And, of course, when we get serious about doing something, the U.S. usually succeeds.

That’s exactly what we’ve done with efficiency. Today, the United States would be using 60 percent more energy than we are right now if we hadn’t achieved the efficiency gains of the last 40 years. We’re doing more with less. In fact, our energy productivity has doubled since 1980, so we’re generating more than twice as much gross domestic product (GDP) for each unit of energy we consume now compared to then.¹ Think about how much money your constituents are saving as a result of those gains. Think about how many new jobs have been created in communities in every part of the country. Think about all the unnecessary carbon emissions and other pollution we’ve avoided. Think about how much more productive and competitive our manufacturers and other businesses are. Energy efficiency is a foundational piece of our energy and environmental puzzle, and it enables many of the exciting new technologies we’re talking about today such as storage and renewables.

¹ In 1980, the U.S. consumed 78 quads (quadrillion British thermal units (BTUs)) while GDP was \$6.8 trillion, which produces an energy productivity ratio of 87.2. This compares to energy productivity of 186.8 in 2018 (i.e., 101.2 quads and GDP of \$18.9 trillion). Energy consumption data is from the Energy Information Administration. GDP (real dollars, 2012) is provided by the Bureau of Economic Analysis.

While technology and innovation certainly have played a significant role in our efficiency gains, we can't understate the role that policy has played. Most of the time these policies have been passed by Congress with strong bipartisan support and enacted by Republican presidents.

Consumers and business save billions every year because we have minimum efficiency standards for appliances and equipment. Our buildings are more energy-efficient and resilient because of regular updates to model building energy codes. States and local governments are able to deliver direct savings and other benefits to homeowners in need because of the Weatherization Assistance Program. Thousands of buildings and manufacturing facilities are saving billions of dollars in energy and water costs thanks to the Better Buildings partnership program. We've reduced the energy intensity of federal government operations by 49 percent since 1975 thanks to leadership of the Federal Energy Management Program. We have world-class federal research and development (R&D) activities underway at the most sophisticated laboratories in the world - facilities that Energy Secretary Perry calls the "crown jewels" of his department. I could go on.

There is no question we wouldn't be where we are today without those policies and programs, not even close. And yet, there is so much more we can do. That's what I want to focus on today – that despite our gains, energy efficiency remains our greatest energy resource, and the opportunities ahead are even greater than our past accomplishments. It is a huge opportunity - just as much an economic opportunity as it is an environmental one.

Many people think of energy efficiency as *turning off the lights*, and they're probably surprised to learn that this diverse and growing industry is actually one of the largest employment sectors across the entire energy field, and by far the largest employer among clean energy industries. According to Environmental Entrepreneurs' Clean Jobs America report released in March, we have 3.3 million clean energy jobs across the country, from energy storage to wind and solar to clean vehicle manufacturing.² Energy efficiency doesn't just lead the pack, it accounts for nearly 70 percent of all clean energy jobs, coming in at more than 2.3 million jobs. These are good-paying, stable jobs that are spread across the country. In fact, six in 10 of our efficiency jobs are in construction. The states represented by members of this committee account for nearly half a million of these energy efficiency jobs.³

Senator	State	Jobs	Senator	State	Jobs
Lisa Murkowski <i>Chairwoman</i>	Alaska	4,617	Joe Manchin III <i>Ranking Member</i>	W. Va.	6,844
John Barrasso	Wyo.	7,528	Ron Wyden	Ore.	42,547
James E. Risch	Idaho	8,748	Maria Cantwell	Wash.	63,877
Mike Lee	Utah	31,798	Bernie Sanders	Vt.	11,035
Steve Daines	Mont.	8,673	Debbie Stabenow	Mich.	85,061
Bill Cassidy	La.	22,152	Martin Heinrich	N.M.	5,636
Cory Gardner	Colo.	34,342	Mazie Hirono	Hawaii	5,850

² E2 (Environmental Entrepreneurs), "Clean Jobs America 2019," March 2019, <https://www.e2.org/reports/clean-jobs-america-2019/>. Last accessed May 17, 2019.

³ National Association of State Energy Officials (NASEO) and Energy Futures Initiative (EFI), "Energy Employment By State – 2019," March 2019, <https://www.usenergyjobs.org>. Last accessed May 17, 2019.

Cindy Hyde-Smith	Miss.	15,403	Angus S. King, Jr.	Maine	8,647
Martha McSally	Ariz.	43,418	Catherine Cortez-Masto	Nev.	11,155
Lamar Alexander	Tenn.	53,006			
John Hoeven	N.D.	5,425			
Total Energy Efficiency Sector Jobs: <u>475,762</u>					

Energy efficiency is also the workhorse of tackling climate change – the fastest, cheapest, smartest tool we have for reducing emissions. According to the International Energy Agency (IEA), energy efficiency alone must account for more than 40 percent of the emissions reductions needed to meet the goals of the Paris climate accord. Put another way, it’s virtually impossible to achieve even modest carbon reduction goals without robust gains in energy efficiency.

But I want to be clear on this: Advancing efficiency at the pace required by the urgency of our climate crisis will certainly require sound policy. We did not get where we are without it, and we will not meet future goals without it.

In fact, we’ve recently seen some troubling indicators about our progress. IEA recently found that rising global demand drove a 2.3 percent increase in energy consumption last year, resulting in a 1.7 percent increase in carbon emissions globally and a 3.4 percent increase in the United States. This increase was partly due to the global economy and partly due to varying temperatures. U.S. energy consumption hit an all-time high of 101.2 quads. The demand for all sources of generation increased, yet energy efficiency gains saw only modest improvement. Similarly, the 2019 Sustainable Energy in America Factbook found that U.S. energy productivity – a measure of economic output per unit of energy consumed – ticked down by 0.4 percent as energy consumption outpaced GDP growth.

The good news is that the energy policy solutions, particularly in energy efficiency, double as powerful economic policy. To those wondering if we can tackle climate change while simultaneously strengthening our economy and global competitiveness, the answer with efficiency is a resounding yes. As I’ve mentioned, improving efficiency creates jobs, whether it’s workers retrofitting homes and buildings or factory workers manufacturing high-efficiency windows, insulation, or air conditioners. Efficiency helps our manufacturers and other businesses grow faster and be more productive, and therefore making us more competitive globally.

Critical investments in energy efficiency R&D are the invaluable engine for innovation and technology breakthroughs here in the U.S., helping U.S. companies capitalize on growing global markets. But we often neglect to highlight the return on that investment. An independent evaluation of \$12 billion of R&D led by DOE’s Office of Energy Efficiency and Renewable Energy (EERE) showed that that investment yielded more than \$388 billion in net U.S. economic benefits – again, according to third-party, peer-reviewed studies. That’s an extraordinary return on taxpayer dollars, and a testament to American ingenuity.

And being a leader on innovation on efficiency technology and solutions means so much more. It means we can improve public health by reducing pollution and improving indoor and outdoor air quality. Efficiency can even significantly reduce government spending by increasing efficiency across local, state and federal buildings and operations. The federal government spends \$6 billion annually

on energy in buildings – a number we could significantly reduce through smarter energy management. Last but not least, efficiency saves consumers and businesses hundreds of billions of dollars a year on reduced energy bills, money that can be reinvested throughout the economy. To date, across our collective energy efficiency gains, businesses and consumers are saving a staggering \$800 billion a year⁴.

I would note that these consumer savings are particularly important for rural and low-income households, which spend a disproportionately high share of their income on utility bills. The average U.S. household spends almost \$2,000 per year on energy. According to Oak Ridge National Laboratory, the cost of energy represents an average 16.3 percent of the income of households making less than 200 percent of the poverty level versus just 3.5 percent of the income of households making more than 200 percent of the poverty level. These consumers often are pinched by the “split incentive” that exists when a landlord owns a house or purchases new appliances, but the utility bills are paid by the tenants. Efficiency policies are cost-effective, high-impact tools for reducing household energy burden. Minimum energy efficiency standards for common household appliances, for example, are estimated to save the average U.S. household \$500 annually, amounting to an annual carbon reduction equivalent of removing 63 million vehicles from the roads.⁵

The good news of today’s hearing is that there are many actions this committee can take to make the most of great opportunities to continue advancing energy efficiency and ensure the full range of benefits. In some cases, the committee could act immediately. In others, the legislative process will need to run its course. But given your past leadership on energy efficiency I am optimistic sitting before you today that together we can get the job done.

At the top of my list of recommendations for the committee is engaging in constant and rigorous oversight of the Department of Energy’s (DOE) portfolio of energy efficiency programs. Most of the examples of progress I cited are a direct result of DOE’s historical commitment to carrying out its duties, as authorized and directed by Congress, including setting and updating minimum efficiency standards, supporting state and local efforts to adopt and enforce building energy codes, and providing critical funds and technical assistance to state energy offices and local agencies responsible for delivering cost-effective savings to homeowners, consumers, and businesses. I am convinced that EERE’s leadership and professional staff have the expertise and ability to do their job as Congress intended, but this committee can play an important role in making sure their work is done on time, in compliance with the law, and insulated from political interference.

Perhaps the most obvious examples of this need for oversight concerns the 16 energy conservation standards that have missed statutory deadlines and the ill-advised proposal to rollback lightbulb standards set to take effect in January. Many thousands of Americans submitted comments to DOE in opposition to the lightbulb rollback, yet the department continues to follow that route that will only lead to confusion and market uncertainty. This committee could help hold DOE to account for its

⁴ “Energy Efficiency in the United States: 35 Years and Counting,” American Council for and Energy-Efficient Economy, June 30, 2015, <http://aceee.org/research-report/e1502>. Last accessed May 17, 2019.

⁵ “Appliance Standards Questions and Answers,” Appliance Standards Awareness Project, 2017, https://appliance-standards.org/sites/default/files/Why_National_Appliance_Standards%202017_0.pdf. Last accessed May 17, 2019.

“Appliance Standards Rank as #2 Energy-Saving Tool in US,” Appliance Standards Awareness Project, <https://appliance-standards.org/image/appliance-standards-rank-2-energy-saving-tool-us>. Last accessed May 17, 2019.

decision to press on with a proposal that, by its own admission, will lead to a very preventable 540 million metric tons of carbon dioxide emissions by 2030 and cost consumers and businesses \$12 billion. And their rationale is, essentially, a new belief that only now does DOE really understand the law as Congress intended and the department acted outside the limits of the statute when the latest rule was issued in 2017, which I find unconvincing.

When it comes to energy efficiency, delay comes at a steep cost in terms of never-realized savings and unnecessary waste. I know members of this committee have pressed DOE leadership on the status of the standards program, which is helpful and appreciated. I encourage your continued attention to this program and a fresh commitment to oversight in general to ensure that critical energy efficiency programs continue to generate economic and environmental benefits and DOE is carrying out the full range of R&D, development, and commercialization activities – including a timely deployment of funds for Weatherization Assistance and state energy office and funding opportunity announcements – with duly appropriated funds on an acceptable schedule.

I also respectfully encourage the committee to take up and pass bipartisan legislation to advance opportunities for energy efficiency in the buildings sector, manufacturing, and industry and ensure the federal government is leading by example, wisely spending taxpayer dollars, and managing energy waste in its own facilities. Much of these bills could easily pass as part of an “infrastructure” package. After all, infrastructure is more than roads and bridges – it’s our utility grid, water and wastewater facilities, transit hubs, public buildings, ports, and other structures. These facilities use enormous amounts of energy, and a nationwide infrastructure initiative presents an opportunity to “get it right” and save consumers and taxpayers decades of wasted energy costs. In some cases, infrastructure projects can pay for themselves through public-private partnerships and innovative financing of energy savings investments.

As you continue to look at the possibilities of an infrastructure bill, I urge you to remember the importance of the built environment and its impacts on U.S. energy consumption. Existing homes and buildings – and new ones under construction – will be in use for decades to come, with enormous implications for U.S. energy consumption. The built environment currently accounts for about 40 percent of our energy use, and as with the transportation sector, innovation and technology are creating new opportunities for savings in residential, commercial, and industrial applications that can play a significant role in decarbonizing the economy. In addition to encouraging traditional efficiency solutions such as improved building envelopes and equipment, there are tremendous policy opportunities to pave the way for highly efficient homes and buildings through systems-oriented practices and technologies such as integrated design, active-energy management, internet of things, grid integration, and artificial intelligence.

Specifically, let me call your attention to three bills that would deliver savings and help lower greenhouse gas emissions. The first is the Energy Savings and Industrial Competitiveness Act, more commonly known as the namesake of its sponsors, Senators Rob Portman (R-Ohio) and Jeanne Shaheen (D-N.H.). The Portman-Shaheen energy efficiency bill is supported by a broad and diverse coalition of energy, industrial, and environmental stakeholders. Moreover, this committee has approved the legislation in the past on an overwhelmingly bipartisan basis. Many current committee members were cosponsors of the bill when it was last introduced, about two years ago. And this bill was the first title of S. 2012, the comprehensive energy bill from the 114th Congress, that was passed

by the Senate 85-12 in April 2015. It means a lot when this committee chooses energy efficiency as its best foot forward in comprehensive energy bills. The Portman-Shaheen bill is not yet introduced this year, but I know committee staff is working hard with the sponsors with the goal of introduction soon in the 116th Congress. I urge your prompt consideration of this bill, which has long been a top priority of the Alliance, at the earliest opportunity.

A second bill worthy of the committee's support is S. 2155, the All-of-the-Above Federal Building Energy Conservation Act, sponsored by Senator John Hoeven (R-N.D.) and Ranking Member Joe Manchin (D-W.Va.). The Alliance has supported this legislation in the past. But what makes this bill so important are the forward-looking energy intensity reduction targets that would drive energy efficiency improvements in federal buildings. This bill would push the federal government to lead by example at a time when the administration is backing away from making cost-effective improvements to its facilities. Much of the gains of this bill could also be accomplished with little impact on taxpayers by leveraging public-private partnerships, including performance contracting, so that savings from energy efficiency measures are used to pay for the investments. To date, performance contracting has helped spur more than \$5 billion in energy efficiency improvements in federal buildings and saved more than \$12 billion in energy costs. It's an incredible vehicle that saves energy, saves taxpayers money, and, on average, creates nearly 100 jobs for every \$10 million in federal performance contracting. That's why we're thankful for the willingness of the sponsors of S. 2155 to work with us as part of a diverse coalition of utilities and businesses on a bill that would lead to significant savings and quantifiable carbon emissions reductions.

Third, I urge your support for S.983, the Weatherization Enhancement and Local Energy Efficiency Investment and Accountability Act. This bill, which was introduced by Alliance Honorary Advisors Senators Chris Coons (D-Del.) and Susan Collins (R-Maine), also enjoys strong bipartisan support. Special thanks to Chairwoman Murkowski and Ranking Member Manchin for your cosponsorship of this important bill as it has been improved over the years. This bill would strengthen the Weatherization Assistance Program, an already-successful program that supports 8,500 jobs, reaches 35,000 households each year, and reduces a family's annual utility bills by an average of \$283. This program has already helped seven million families. Your approval of S. 983 would help the program help even more going forward.

In closing, I would like to emphasize the opportunity before us if we take aggressive steps to advance energy efficiency. Yes, we must work on energy supply and power generation. But there is an energy goldmine on the other side of that equation – the demand side. It doesn't require sacrifice or reducing our economic output. It simply requires doing things smarter, and yes it requires investment and it requires policy.

I tend to say, "I could go on" a lot when it comes to energy efficiency. And that is because the opportunities of energy efficiency are practically boundless. I'd also like to mention that I appreciate Senator Ron Wyden's (D-Ore.) interest in exploring the potential for systems efficiency in commercial buildings. This is one area of energy efficiency policy, which the Alliance has developed in close partnership with many of our private-sector Associate members, with the potential to lead to much greater market acceptance of leading-edge systems efficiency and controls technologies. And lastly, I would like to recognize Senator Gardner's (R-Colo.) continued support for the use of performance

contracting to improve energy efficiency in federal buildings by leveraging private-sector capital. There's simply no shortage of good ideas and sound policies that this committee could act on that would deliver even more of the full range of benefits of energy efficiency.

My friend Amory Lovins, thought leader on energy efficiency and founder of the Rocky Mountain Institute in Senator Gardner's home state of Colorado, talks about this opportunity at this moment in an interesting way. If we found a massive new oil reserve tomorrow, it would be all over the newspapers and the nightly news. But the enormous potential that technology is unlocking for energy efficiency – through smart meters, smart buildings, materials innovation, connected devices and other innovation – is a greater opportunity than any oil discovery. While the innovation of efficiency is sometimes hard to see, the opportunity is real and right in front of us – uniquely able to drive economic development, create jobs, save Americans money and protect the environment.

I urge you – and the Alliance stands ready to work with you – to keep our focus on energy efficiency as America's greatest energy resource, what IEA called, "the cornerstone for building a secure and sustainable energy system."

Thank you again for inviting me to testify. I'm happy to take any questions you might have.