



Testimony to the Joint Economic Committee

“Examining the Economic Benefits of Electrifying America’s Homes and Buildings”

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Vice Chairman Heinrich (presiding), Chairman Beyer, and other Distinguished Members of the Committee, thank you for having me and for shining a spotlight on HOUSEHOLD AND BUILDING ELECTRIFICATION, the most central path for Americans to take to cut climate-changing emissions in half by 2030 and zero them out by 2050.

I am CEO of the nonprofit Rewiring America, founded just over one year ago by Saul Griffith and Alex Laskey. Saul was hired by the U.S. government, through DOE and ARPA-e, to map the energy sector down to .1 percent fidelity on both the supply side and the demand side. The roughly 100 Quads of energy we generate and consume as a country each year produce 90 percent of our emissions. When it comes to reducing emissions, much attention has been paid to the supply side as we transition through tax credits, clean and renewable electricity standards, and other government and market incentives to decarbonize our energy supply. The conversation on the demand side has been largely focused on replacing combustion engine vehicles, which comprise almost a third of our greenhouse gases, with electric vehicles.

The residential housing sector is another – and very large – part of the demand side. But when it comes to our emissions, we have principally understood our housing in two ways: as an opportunity for energy efficiency to reduce consumption, or as a location for solar or (very rarely) some other renewable energy source to further transition and clean our supply.

These are both important and laudable strategies. But the simple truth is that if we are cleaning our grid, we must also clean the machines that use it. We cannot get to zero emissions by any date unless we do. And that results in the realization that building decarbonization is the great unmet need in our climate policy.

Indeed, at Rewiring America we calculate that over 40 percent of energy-related emissions in the U.S. exist as a result of decisions made around the kitchen table: what we drive, how we heat and cool our homes, how we heat our water, how we cook our food, how we dry our clothes, and myriad other machine-based decisions from lawnmowers to firing up dinner on our outdoor grills.

There are 121 million households in America. In order to get to zero emissions by 2050, we have calculated America must replace or install one billion machines across all of those households in that timeframe. The timeframe is important, because these machines last for a long time: 10 to 25 years, on average. Every time a water heater needs replacement in America, it presents an opportunity to install an efficient, electric heat pump alternative. Every time that opportunity is missed, we put further pressure on hitting our 2050 target. Every machine counts.

For us, that is an affirming and optimistic prognosis. If those one billion machines represent around 40 percent of our emissions as a country, then we can develop a plan for addressing them, one efficient electric machine at a time. We do not need to wait on any moonshot technology: it has all already been invented. We do not need to ask Americans to sacrifice or change their lifestyles to survive: indeed, their lives will improve with efficient, electric appliances and equipment. And we can define our climate strategy in a way that benefits every American directly and immediately, designing policies that ensure the economic, health, and climate benefits of electrification are shared equitably by all, especially where they were systemically denied in the fossil fuel era.

The one billion machines also provide a window into the economic opportunity at hand for America. Because, if we need all of these efficient, electric machines, so too does the rest of the world. If America invests in making them, imagine the manufacturing boom we could create.

Prior to some heroic legislative heavy lifting in the last year to address this policy gap, by yourself and some others Mr. Vice Chairman, that has been a real missed opportunity in American policy. According to our modeling at Rewiring America, replacing carbon-dependent appliances increases household discretionary income, creates local jobs that cannot be automated or offshored, and reduces the health costs of burning fossil fuels in our homes. That is a win-win-win (three wins) on the economic front. All in in addition to the emissions reduction, or fourth, win.

One way to capture these wins is with the following numbers:

- At least **85 percent of households in the United States** — 103 million — could **save \$37.3 billion a year** on energy bills if they were using modern, electrified furnaces and water heaters instead of their current machines. This is money that will flow through our economy, having multiplier effects that easily justify this investment.
- Of the households in the United States that would save by electrifying, **44 percent are low- and moderate-income**. Each year, they would save an average of \$377. Many would save **up to \$493 per year** on average.
- The savings are biggest for **the 64.9 million households in the United States** across every county who are currently using electric resistance, fuel oil, or propane and

would **save \$496 per year** on average. 67 percent of households using natural gas would also save on annual energy bills. The number of households that would save and the average savings will continue to increase given the trajectory of heat pump technology improvements.

- Those average savings of \$496/year should not be short-handed to a hundred lattes. The Federal Reserve tells us that 4 in 10 Americans would have trouble meeting a \$400 or more emergency expense if needed.
- Outside of these direct pocketbook benefits to Americans and especially low- and moderate-income Americans, electrification would create **462,430 installation jobs** in the United States. In addition, it would further generate **80,000 manufacturing jobs and 800,000 indirect and induced jobs**.
- And on the healthcare front, which has boomeranging effects into our economy as well, electrifying household appliances would address the **42 percent increased risk of children experiencing asthma symptoms and unhealthy indoor air quality** associated with gas stove use. Furthermore, outdoor air pollution from residential buildings currently accounts for **15,500 premature deaths in the United States** per year.

Those are a lot of numbers. The point is that – just in terms of return on investment over time – Mr. Vice Chairman, if the upfront costs were the same, we think Americans would choose to electrify their households each and every time an appliance fails and needs to be replaced. In fact, in not installing a heat pump to heat or cool air, an induction cooktop, an electric heat pump water heater or clothes dryer, and an upgraded circuit breaker box to handle it all, these households would be locking in emissions for a decade or more into the future because of the brand-new, carbon-dependent machines that would be installed instead.

Equalizing the upfront cost of these appliances at the top of this decade will have market-driving effects that will eventually reduce the need for government subsidies. Point of sale rebates can accomplish this, as you have proposed in the Zero-Emission Homes Act, but that is the subject of another day in another committee.

Finally, after years of inaction on the climate crisis, we know we are walking up a cliff to prevent the most catastrophic level of warming. So, while these household upgrades are vital to get to zero emissions, they would also make the most important infrastructure in America – where Americans spend the majority of their time – safer, healthier, and more resilient. If our 121 million homes and vehicles are also backup batteries and energy generators, we are a much more resilient nation facing the challenges to come.

We thank you for your bold leadership on electrifying the U.S. economy, creating jobs, improving health, and driving down the catastrophic impacts of climate change. By the numbers, there is

simply no greater opportunity for the U.S. Congress to unlock another American century of economic expansion and prosperity than by investing in the electrification of our economy, starting with the American household. We encourage you to use your vested powers to make real the opportunity before us, and to use your bully pulpit to educate Americans about the role we all can play in realizing our shared future and potential.

Thank you, Mr. Vice Chairman.