

Spencer Household Minisplit Outdoor Unit

Did the Inflation Reduction Act miss an opportunity for a true heat pump revolution?



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I've spent significant time over the last couple of days trying to think through exactly how the Inflation Reduction Act passed by the Senate will influence building electrification through it's promotion of heat pumps. While I commend the effort and I'm pleased that it has passed, my conclusion is that the ultimate impact will depend on how it is implemented. Note that I've been withholding any criticism until AFTER the bill passed the Senate, since I still support the efforts that were made.

Reading through the bill itself, not just the summaries from others, I've come up with four main pathways for promotion of heat pumps and building electrification generally:

1. **New tax credits for heat pumps** and **changing to an annual cap** from a cumulative cap on energy efficiency tax credits.
2. **$4 billion for low to moderate income building electrification programs** across the country.
3. **$500 million to back up the exercising of the Defense Production Act through 2024**, some of which will be focused on heat pumps.
4. Piles of energy research funding. You should trust somebody else to break this one down for you, rather than me, but it's in there.

As I've thought through these, I have concerns that they likely won't do enough to promote heat pumps of all sorts to make much of a difference. Let's break them down one at a time.

1. **We're not doing enough to promote conversion of all air conditioners to heat pumps.** When I was reading about various proposals to promote heat pumps being manufactured and sold in lieu of air conditioners through something that was analogous to a national midstream or upstream energy efficiency program for heat pumps, I got very, very excited, because this costs so little money and can have such big impacts on fossil fuel consumption. In the energy efficiency industry, we've been quixotically searching for the next LED light bulb, the thing that will cost very little and generate huge carbon savings in every household in America. Well, I think we've finally found it and it's a standard heat pump being installed in lieu of an air conditioner to reduce the use of the furnace in the winter. The cost difference is literally a few hundred dollars and the carbon savings are huge. What we're left with in the final bill is underwhelming. Maybe this is where the Defense Production Act funding is supposed to make a difference, but I don't think we've allocated enough funds to make it happen. Let's just say that hypothetically, I wanted to pay manufacturers $200 per central heat pump produced, enough to offset the

difference in price between central air conditioners and central heat pumps and convince them to sell only heat pumps from hear on out. To provide this level of production subsidy for 6 million central systems sold annually would cost about $1.2 billion per year, $12 billion over the next decade. In the grand scheme of $300 billion in climate expenditures, this would be tiny, much less than is going to be spent on the variable speed heat pump tax credits. And everybody with an air conditioner would have benefited. That's an awful lot of renters and plenty of low to moderate income households. So I think we're about a billion dollars per year short of what would have been a true climate moonshot. I'm not sure how exactly DOE is going to spend the $500 million that was allocated for Defense Production Act activities over the next two years and I hope that I am proven wrong and every air conditioner sold in America in 2025 is a heat pump. But I think this was a missed opportunity.

2. **There's too much focus on current high cost variable speed heat pumps.** The valuable tax credit specifies a CEE top tier requirement, which at this point entails a variable speed heat pump. Variable speed heat pumps are wonderful pieces of technology and come both as minisplits (I own one of these) and central ducted split systems. They are quiet and efficient, but they cost A LOT compared to cheaper options, like a standard split system heat pump, millions of which are already sold every year. Prices vary, but you can generally expect a variable speed central ducted heat pump to cost $5,000-$10,000 more than a standard heat pump. It's kind of like buying a Mercedes or a BMW instead of a Ford or Toyota. Is it nice? Oh, yes, it's very nice. But is it worth the extra money? My analyses to date say probably not. Yes, it's nice to get $2,000, but I worry that this doesn't make much of a difference for most people, only for people with the extra cash to spend on a BWM. As a result, most of this money is going to go to folks like myself who were installing a high cost minisplit heat pump or two. If I can get 30% off a nice minisplit heat pump, I might put one in my bedroom, because it's never that comfortable, especially in winter. Is that a good use of my personal funds? Maybe yes! But is it a good use of federal funds? Maybe not so much.

3. **The change to an annual energy efficiency tax credit without a cap by technology type might encourage some expensive heat pump installations.** Because of the annual nature of the tax credit, I could put a minisplit in my bedroom, then do the same thing a year later for my office, then a year later for the guest bedroom, then one in the kitchen and finally one in the living room. At that point, I'd have spent $20,000 on some very nice heating and cooling equipment and the feds would have subsidized my purchase to the tune of $6,000. That's a great

> deal for me, but a pretty expensive way to buy carbon savings. That same $6,000 could have incented standard heat pumps installed in 30 homes instead. I think that a total credit cap by technology type of $2,000 could have solved this problem and encouraged folks to diversify their expenditures over time.

On the whole, I still love the change to an annual energy efficiency tax credit, so that people can make repeated energy efficiency investments over time. I can see a marketing campaign now encouraging people to make their New Year's climate investment pledge. What investment in your home are you going to make this year to fight climate change, save money, and take full advantage of your federal tax credit?

This bill is still a huge step in the right direction, but we missed a chance to go to the moon. We could've had American factories pumping out an extra 4 million heat pumps per year and started installing them in every home in America.