

Clothing

I think it is safe to say that most of us don't think a lot about laundry, except as a nuisance. Something that needs to be done, but which is, quite frankly, a pain.

But it is also a major climate and environmental problem or opportunity, depending on how you look at it.

On average, doing our laundry is responsible for more than 8% of total residential greenhouse gas emissions. It may not sound like a lot, but that's the equivalent to the total energy needs of 21 million US homes.

So, what's to be done about the problem?

Well, since all of this energy can come from renewable sources in the form of electricity, the first thing to do is ensure that we are using electricity rather than natural gas (i.e. methane) to run our dryers. Then, we need to make sure that the electricity that we are using comes from renewable sources.

This – once again - brings us back to the issue of collective activism and political change, as we need to ensure that our electrical grid is converted to renewable energy as quickly as possible. In other words, we need to put politicians into office who will make renewable energy one of their primary concerns and to keep pressure on them through collective activism.

But is there anything else that we can do? I am glad you asked, as there are personal changes that we can make that will reduce this problem by a factor of 10 or more. And you can implement these today, by yourself. If we had collective activism and political change to the mix, we can reduce it by a far greater amount.

How? Even though it seems like a trivial example, let's start with washing clothes.

Roughly 90% of the energy used in laundry comes from heating the water that flows into our washing machines. However, experts note that washing your clothes in cold water usually does a good job, unless they happen to have an oil stain. It also significantly increases the life of clothing.

So, it's as easy as that: just turn the dial to "cold." And, for good measure, make sure that you are always doing a full load, as "[c]lothes washers use about the same amount of energy regardless of the size of the load."

Next, comes drying our clothes, which requires at least two times more energy than washing clothes, even when we are using hot water.

In this case, the solution is simple enough: simply dry your clothes on a clothesline rather than in a machine. Of course, not everyone has this option. Indeed, it might simply be impossible if you live in an apartment complex. However, as we shall see, shared resources, like laundries in apartments and cohousing facilities, can significantly reduce our carbon footprints.

But let's first go through the relevant numbers that pertain to washers and dryers:

In the US, 70% of the energy used for laundry goes to drying clothes. By using a clothesline, we eliminate all of this.

19% of the energy used goes to heating water for washing machines. By using cold water, we eliminate all of this.

11% goes to the electricity running the washing machine. If we do full loads, my guess is that this drops to less than 10%.

So, there you have it.

One of the major residential sources of our greenhouse gas emissions can be cut by a factor of 10. Just like that.

But we can, in fact, go even further. However, to do so, we need to shift from just personal action back to collective activism and political change, as the remaining energy still required here, that 10 or 11% that goes to running our washing machines, can – and absolutely should – come from renewable sources, like wind and solar.

To ensure that it does, it requires a little more effort than turning a dial, but not a lot more. As I never tire of saying, it takes only around one hour per year to vote, thereby ensuring that we have politicians in office that will do things like convert our grid to renewable energy, so that we can cook our food and wash her clothes sustainably.

And this is also an example where we can do our part to help with the grid, assuming that we know something about the “duck curve.” This refers to the fact that, during the day, electricity produced by solar energy is often available to directly add to the grid, but demand from consumers is relatively low.

In contrast, from 6 PM to 9 PM, when people get home from work and begin doing all sorts of things, like cooking their food and washing their clothes, demand goes way up. (Incidentally, if you chart this increased production during the day and then increase demand in the evening, it looks sort of like a duck, which is what gave the curve its name.) Unfortunately, this demand cannot be met by solar, as the sun is setting or already set at this time of the evening. From the point of view of energy suppliers, this creates a major problem - which either necessitates storage solutions, like massive batteries or, worse, requires generating electricity from the burning of fossil fuels.

However, we can do our part, by simply washing our clothes during the day when there is abundant solar energy (you might want to check with the weather report to make sure that there is before hitting the “start” button). It would also help if there was legislation to require that every washing machine had a timer function, so that you could load your clothes in in the morning, but have the machine start up midday you were away.

Even better, we could have washing machines design to interact with a smart grid, which would start in response to available energy. In this scenario, you would load your clothes in the washer in the morning and push the “start” button. However, instead of starting, your washing machine, which would be part of the “Internet of things,” would send a message to the AI running the electrical grid, informing it that it was ready to begin washing. When energy production was up enough and demand was low enough, a message would be sent back telling the machine that it could begin washing.

Although some people might balk at the inconvenience here, if the cost of electricity during peak production was lower than in the evening, many people might be incentivized enough to willingly take this option, as it would simply be cheaper.

With respect to doing our laundry, there is one other obvious option that needs to be mentioned. As one popular British guide succinctly stated it, “The best way to lessen the environmental impact of your laundry load is to do less laundry.” This has an added bonus, as it can significantly prolong the life of garments.

When a range of experts was asked about washing jeans in order to preserve their life, most suggested infrequent washings: One noted that if “[t]here is one rule to washing your jeans: Do it as seldom as possible to keep your jeans in optimal shape, quality, and color.” Another suggested that “you should wash jeans every six weeks.” Still another estimated after “10 or so wears.”

Washing clothes less frequently has environmental consequences related to more than the climate crisis. For example, water use. “Washing laundry is a significant use of water in the average home; accounting for 15% to 40% of the overall water consumption inside the typical household of four persons.”

And then there is the release of microplastics. As the Pew Charitable Trusts notes, “Microplastics Are a Big - and Growing - Part of Global Pollution.” Their 2016 study found that “the breakdown of plastic fibers caused when synthetic textiles are washed” was one of four primary sources “making up more than three quarters (78%) of microplastic pollution in the ocean. Notably [but not surprisingly, I think], high-income countries are the main contributors” here. Another study found that over 700,000 synthetic microplastic fibers could be released when washing a single average load of laundry.

Hence, reducing the number of our wash loads would, in addition to adding to the life of our clothes and helping with the climate crisis, significantly reduce domestic water use and also the extent to which each of us are personally polluting the environment with microplastics.

So far, we have only been talking about the energy required to wash and dry our clothes. However, there is the whole additional issue of “embedded carbon,” which refers to the greenhouse gases (GHG) emissions released during the production of our washer and dryer machines. This is the same issue as with automobiles, as enormous amounts of greenhouse gases are released during the production of cars, which is separate from GHG emissions that come from driving them.

These two situations are, in fact, quite similar, as a good deal of the emissions released during the production of cars, washers, and dryers comes from the manufacture of the steel, which is the major constituent of all of these. Although estimates vary, somewhere between 4-5% and 8% of percent of global CO2 emissions comes from the manufacture of steel.

Regarding clothes dryers, the answer is embarrassingly simple, as we can substitute a smooth hemp clothesline for a complex machine that emits (literal) tons of GHG emissions from its creation to its use to its disposal. And if we take care of that hemp clothesline, by taking it down and bringing it in after each use, it can last many years. When it finally frays too much to use, it can simply be composted.

With respect to embedded carbon, it might seem like we hit an impasse with washing machines. True, we could pursue the idea of using them more efficiently (such as only washing full loads), as well as producing these machines more efficiently (for example, by using renewable energy in their manufacture), but there is in fact another way of approaching this issue.

Perhaps not surprisingly, given that I am the one offering it up, it involves cultural rather than technological change.

We often think that every house and apartment (even tiny houses and micro apartments) needs to have its own washer and dryer. In fact, “over 85 percent of the nation's households have a washing machine.” Moreover, over 90% of homeowners want an entirely separate room, a laundry room, in their houses.

Like so many things, there is a good deal of cultural baggage here.

Ever since the introduction of the agitator-type washing machine and the drum-type dryer in the 1930s, people in the US. were sold on their convenience. The problem was that they were often initially prohibitively expensive.

Enter the laundromat, which allowed people to use washers and dryers without having to buy them, let alone to build a separate room to house them. Although the first laundromat in the US, the “Washateria,” opened in 1934, they explode on the American landscape after World War II.

Having your own washer and dryer soon came to signal convenience - and status. Once there was sufficient market infiltration that most Americans owned these machines, a new, complementary rhetoric took hold: if you didn't have a washer and dryer and needed to use a laundromat, it became a sign of reduced social status. The same thing happened with cars, as riding a bus is often now stigmatized.

Consequently, it is hardly surprising that today nearly everyone wants to have a washer and dryer in their house, and that 9 out of 10 people want to have a separate laundry room.

However, there are, of course, people who not only want to sell you a washer and dryer, they want to regularly sell you a new washer and dryer.

In his classic treatment of consumerism, *The Waste Makers*, Vance Packard noted that in 1960, “the board chairman of Whirlpool Corporation, Elisha Gray, II, delivered a speech to the engineers of the American Home Laundry Manufacturers' Association technical conference that was most forthright. In it he stated: ‘An engineer's principal purpose as an engineer is to create obsolescence’...He continued that if engineers and other professional people had not created ‘obsolescence at a tremendous rate,’ Americans would not be as prosperous, well fed, and long-living as they are.”

In other words, this industry very much wanted to make sure that the washing machine that they sold you either broke or seemed old fashion relatively quickly so that you would have to buy another one. Consequently, we should be aware of the fact that there are powerful forces (principally marketing forces) encouraging us to buy a whole series of washers and dryers, rather than on these machines for decades, and hence spread out the embedded carbon over a long period of time. The same is obviously the case with automobiles.

But when you think about it, it doesn't make a whole lot of sense to create an entire room in our homes to house machines that only get used for a few (perhaps just one or two) hours per week.

Cohousing communities nicely sidestep this problem by having a single laundry room for a number of families, perhaps 10 or so. Sure, it may be little less convenient, as you might have to walk a little further with your laundry and coordinate when you can use the washer and dryer with your neighbors, but this is a much less expensive option.

It also means that, with one washing machine used by 10 families, rather than a separate machine for each, there is one tenth of the embedded carbon.

Pulling this all together, if you 1) lived in a cohousing community with a shared washing machine, which 2) you only use with cold water and which is 3) powered by renewable energy 4) during peak daytime production, 5) wash your clothes less, and then 6) you dry them on a line, you would reduce the carbon footprint for doing laundry, which currently is about 8% of total greenhouse gas emissions for the average American family, down to a pretty insignificant number (far less than 1/10 of a percent), especially as you would not have to build, heat, and cool a separate laundry room for everyone in the community.

In other words, you would reduce the climate footprint for doing laundry not just 1 a factor of 10, but rather a factor of 100.

Incidentally, although living in a cohousing community is desirable for a whole host of reasons, you could see similar gains by simply taking your clothes to a laundromat during the day - assuming, of course, that you didn't drive there.

In addition, the embedded carbon would be greatly reduced as well, as 1) the need for clothes dryers would be eliminated and 2) the need for washing machines would be reduced by a factor of 10. Hence, everything else being equal, the embedded carbon required here would be reduced to just 5% of what it would otherwise be. Moreover, as industrial washing machines (which presumably would be used in both cohousing facilities in laundromats) are made to work day-in-and-day-out, they have considerably longer lifecycles than their domestic counterparts, which would likely reduce that number even further.

It is noteworthy that, if you are really in love with clothes dryers, better technology can help here. For example, a new generation of clothes dryers uses heat pump technology, which “[c]an reduce energy use by at least 28% compared to standard dryers,” while also being gentler on clothes because they work at lower temperatures.

Consequently, heat pump technology coupled with a shared dryer (either in a cohousing community or a laundromat) could make clothes dryers more sustainable. In other words, 1) a single clothes dryer shared by 10 families, 2) employing a heat pump, 3) powered by renewable energy 4) during peak daytime production would have a very small carbon footprint indeed.

It is also important to note that drying clothes on a line could potentially help people reconnect with their environments.

In his essay on “The Question Concerning Technology,” the philosopher Martin Heidegger noted that an almost irresistible appeal of the fossil fuel economy stems from the fact that it converts the environment into “standing reserve.” In terms of our example, for thousands of years, human beings had to wait on perfectly sunny days to do their clothes on a line. Now however, we don't have to wait at all, as we can simply turn a knob that either directly (in the form of methane) or indirectly (as electricity produced by burning coal or methane) releases energy into our clothes dryers that is derived from fossil fuels. Day or night, rain or shine.

In this sense, the convenience of using these machines stems from the fact that they are able to convene the earth's resources (in the form of fossil fuel) for our use at any time. In contrast, it is simply not possible to convene the sun at 11 PM at night to wash our clothes. Although this is obviously hugely problematic from an environmental point of view, we have very much gotten used to this sort of convenience provided by fossil fuels.

Although this approach is certainly more convenient (if none-the-less disastrous for the planet), something else is lost here: a connection to the environment. In other words, if you dry your clothes on a line, it requires that you pay attention to the environment outside your door, thus potentially making you more appreciative of a bright sunny day, for which you may have been waiting for quite a while.

I imagine that right about now (or perhaps a little while back) you might be thinking that this all sounds complicated, perhaps excessively so. After all, who knew that laundry involves so many options and was so confusing!

But the simple fact is that the past 60 or so years, which is when washing machines, clothes dryers, and laundry room came on the scene in a big way in the US, was the same period of time when the US. and the rest of the high-income countries put nearly 2/3rd of the CO2 in the atmosphere (in my series on “Climate and Generation,” I consider US. emissions during this period in some detail). I do not think this is coincidental.

In other words, having a washer and dryer in your house, perhaps in the laundry room, may seem like the most natural thing in the world. However, there is nothing natural about them, as these are relatively new innovations that are, quite frankly, environmental disasters, at least in the way that many of us use them.

More generally, we really need to pull back a moment from our day-to-day practices, like the entirely pedestrian activity of laundry, to consider the larger implications of what we’re doing. One of the cornerstones of day-to-day practices, which I would argue as one of the greatest dangers, is that we just never think much about them.

I know this may seem like a silly example and this is not to say that we need to go back to washing our clothes on rocks by a stream. But it is the case that we need to carefully reconsider laundry (along with the host of similar) practices. Since this particular cultural practice was written into being in its current form in the past 60 or so years, there is absolutely no reason that we can’t rewrite it into another, far more sustainable form. One that might even help us reconnect with our environments, as we come to appreciate the simple wonder of a sunny day with light breezes.

