

# Tackling climate cripplers

I just finished reading an article by Jessie D. Jenkins, titled, “Electrify Everything Everywhere, All at Once.” Jenkins is a macrosystems engineering expert and for the last four years has been leading a research team at Princeton that has modeled and mapped different approaches for America to achieve “net-zero greenhouse gas emissions.”

His team has analyzed the impacts of proposed and already enacted federal climate and energy policy. More on this later because I found his conclusions interesting, and, honestly, a bit staggering in what we in the US, and the world for that matter, need to do.

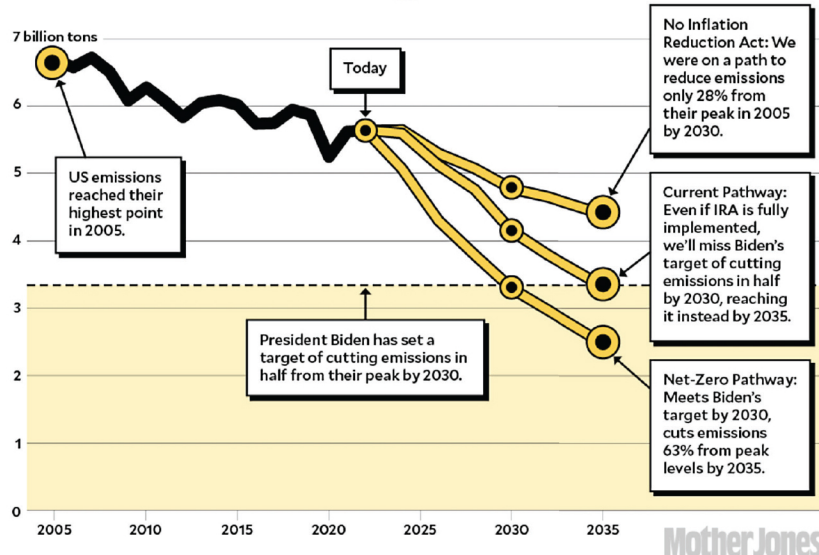
Along with that esoteric treatise, I also finished “Waste Not,” a true account of using anaerobic digestion (yup) to convert methane and food scraps into electricity. This was a really neat story in *Smithsonian* and so coincidental as I had just finished a pretty detailed explanation of that process.

The interesting part about both is the focus of using “nature” and natural resources to create energy. The message in both is that “fossile” is the enemy, costing billions, not millions, but billions, in contiguous liability that includes health and waste and affects every aspect of our lives. Fossile is the “climate crippler” (a Calvin euphemism) and we need to replace that form of energy with a more friendly solution.

The solution has to eliminate trainloads of coal being moved hundreds of miles to the point of consumption. The solution has to eliminate soot, which is fine particle air pollution that is responsible for at least 100,000 deaths each year just here in the US. The solution has to eliminate plastic waste contaminating our drinking water and oceans where fish feed on micro-particles, which we then eat. You see, everything is inexorably connected, and these two articles attack the culprit – fossile energy.

## PATH TO THE FUTURE: THE DAUNTING TASK OF GOING CARBON-FREE

Annual CO<sub>2</sub> emissions of the US energy sector



be done. We're still caught up in a quagmire in Washington, and everyone is in everyone's pocket with divided interests.

I've included a Jenkins' chart on page 38 that shows where we need to go. What it doesn't show is Jenkins' calculations that include:

- 75,000 miles of new high voltage transmission drive
- Additional wind farms all over the country
- Utility-scale solar projects that are gigantic

Jenkins is convinced we have the ability to rebuild a non-fossile economy here in the US. He writes about a number of large projects totaling \$200 billion and providing 70,000 jobs. And his beat goes on. What I would rather see is more “waste-not” projects, small in comparison to the Jenkins vision, but effectively reducing greenhouse gas. I would like to mandate no leakage of methane in natural gas harvesting. Further, if fracking must continue, implement rules that eliminate contaminated water and more leakage. While “waste-not” may not be as ambitious as the Jenkins decarbonization scheme, it looks at manure, waste-water solids, household and restaurant food waste, and other organics and converting these huge volumes into either biogas or digestate. The biogas goes into bioplastics, electricity, heat, fuel for automobiles, and RNG. The digestate goes into organic fertilizer, animal bedding, renewable construction materials, horticulture products, and so on. Aren't we better funding projects like these?

It's not only complicated, but solutions are expensive. But, are they? If you go back to the Lester Brown thesis of ultimate responsibility, the manufacturer of the item that causes the problem is responsible, e.g., tobacco causes lung cancer, therefore the industry is responsible for paying for health issues associated with lung cancer. The point here is about assigning proper financial responsibility for using anything that creates problems downstream.

On another track, and I'll try to weave this all together, the same changes and demands are occurring in packaging. Like electricity, the changes boggle the mind. At the end of the day, it's not just EPR (extended producer responsibility) legislation. It's the demand for new requirements by international brands (Unilever, Kraft Heinz, Coca-Cola, Pepsi, to name a few) for measured PCR (post-consumer recycled) content, whether it be used in plastic or paper/paper board packaging. I'm referring to the conversion of methane into RNG (renewable natural gas). And the grand-daddy of them all – legislation that is now being considered and debated in Europe that will add a tax on packaging based on the kind of energy and emissions generated in the manufacturing process. This is not a dream. This is under serious study right now.

Think about this: if a company uses fossile energy to make a box or plastic container, the manufacturer will pay one tax. Let's bring it closer to home: if a company laminating pressure sensitive substrate uses fossile energy, they will pay one tax. If a company prints labels using fossile energy, the printer will pay one tax. However, if all of the above examples use “renewable” energy, electricity generated by hydro, wind, or solar, those companies will pay a much lower tax or even get a tax credit.

Think about this and think about the management systems needed to regulate this kind of legislation. This is potentially where we're going.

Let's go back to the Jessie Jenkins' thesis for a minute:

Today, about 40% of our electricity comes from carbon-free sources – about 25% from nuclear and hydropower plants and 14% from rapidly expanding wind and solar power. (New options like advanced geothermal and nuclear, carbon capture and storage, clean hydrogen, and cheap, large-scale energy storage are all being brought to market, but none are yet significant.) Generating electricity is our second-largest source of greenhouse gas emissions (after vehicles), producing about a quarter of US climate-warming pollution.

Jenkins continues with two critical challenges. First, going from 40% carbon-free electricity to 100%. Second, we have to expand our electricity supply. The numbers and requirements are massive. Are we, as a nation, resolved to hit net-zero emissions? I really don't think we have the political will to do what needs to

Regardless, change must occur voluntarily or by consumer demand, or we will be caught up in the latest legislation occurring in Europe. Listen up: The European Union's Parliament approved legislation to tax imports on the “greenhouse gases emitted to make them, clearing the final hurdle before the plan becomes law and enshrines climate regulation in the rules of global trade for the first time.”

Put Jenkins and Waste Not to the side. Forget about weaving all of this together. This legislation, if it passes, and I believe it will, taxes manufacturers on carbon-dioxide emissions while protecting EU manufacturers from countries that aren't regulating emissions at all. Obviously, this is directed at third world countries, China included, that have no regulations, that use child labor, and sell products in Europe well below European manufacturers' costs. The tax gives credit to countries that put a price on carbon, allowing importers of goods from those countries to deduct payments from the amount owed at the EU's borders.

Who is going to monitor this? It turns out this is not some draconian European move for protection. There are many here in the US who have suggested a carbon tax on emissions from foreign suppliers that would protect domestic manufacturing. Who is going to monitor this?

While change is costly, if we are to improve our “global” culture it must happen. It doesn't make any difference if you're in packaging or label printing or plastic extrusion. We're all in this together, and our goal has to be a better place to live.

Another Letter from the Earth **LNW**



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