

 **Spotlight on Climate****Ounce of Prevention: Building Better vs Paying for Damages****STEFAN SOMMER**

(700 words)

As we think about cutting emissions to reduce the rate of climate change, it raises the question of costs. What are the relative costs of prevention vs paying for the damages if we do nothing? Fortunately for us, the answers to these questions have been carefully calculated at the global level, but we do need answers at the local level as well.

On the global level, the frequency and intensity of storms, floods, droughts, and wildfire have been increasing around the world because of human-caused climate change. In 2017 climate disasters in the US cost us over \$300 billion. Globally, the costs of climate disasters are now over \$16 million per hour (Newman and Noy 2023). The EPA reports that each ton of CO<sub>2</sub> we emit costs the world \$204 in climate damages. The IPCC\* reports that human activities are now putting over 59 Gigatons of CO<sub>2</sub> eq into the atmosphere annually. So that comes to \$12 trillion in climate damage costs every year.

We see where these costs are coming from in the global headlines every day, and we experience some of these effects locally as well. Our forests and some of our neighborhoods have burned and flooded. Rising summer temperatures in Phoenix are causing more people to escape for the weekend or buy a second home in Flagstaff if they can afford it. These are pressures on our housing market that reduce housing availability and raise housing costs.

The costs of the 2010 Schultz fire added to \$110 million over 10 years. We now see the effects of the Radio, Museum, Pipeline, and other fire scars as they interact with more intense monsoon downpours. The resulting floods cost local residents and the city millions in damages with ongoing municipal costs of \$16-18 million per year in stormwater infrastructure improvements.

So, the costs of doing nothing to reduce our emissions are significant. What are the costs of cutting emissions? The IPCC reports one-time costs of about \$20 per ton to reduce CO<sub>2</sub> eq emissions by converting to wind and solar, through energy efficiency improvements, and methane emissions reductions. To reach zero emissions, the cost would amount to \$1.18 trillion. So, let's compare, \$12 trillion annual vs \$1.2 trillion one-time cost. While \$1.2 trillion is a lot even on a global scale, it is significantly less than we will be forced to pay if we do nothing.

Looking at things on the local level, there are some additional benefits that emerge. Installing wind and solar power plants benefits our local economy. Local businesses and regional corporations are investing to build a 477-megawatt (MW) wind power plant at Chevelon Butte south of Winslow. Babbitt Ranches is putting in 161 MW of wind power

and 80 MW of solar just north of the Peaks, and next year they will start building another 480 MW of solar power. These projects are good for our local economy and the planet. They also mean lower energy bills for us, since wind and solar are the cheapest ways to generate electricity.

Increasing energy efficiency means a lot of things. Better home insulation reduces emissions and reduces energy bills. Replacing old appliances with more efficient ones also reduces energy bills as does replacing our inefficient old fossil fuel furnaces with heat pumps. Heat pumps cost just a little more to install, but city and federal rebates bring those costs below what you would pay for a new fossil fuel furnace.

Our combustion vehicles are another big source of emissions. What to do? Well, walking and biking aren't just for recreation anymore. They're fun, they're less expensive, and they don't choke the air with emissions. Electric vehicles are also clean, as long as your source of electricity is emissions-free. They can be a bit more expensive, but 'filling them up' is less expensive, and again there are federal purchase incentives.

Going vegan also costs less and eliminates a lot of emissions. Fish and meat are expensive, unless you catch your own. So, reducing your emissions can be good for a lot of things in addition to saving the planet. It can also stimulate the economy, spare your pocketbook, improve your health, and bring a smile to your face.

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Newman, R. and I. Noy. 2023. The global costs of extreme weather that are attributable to climate change. Nature Communications 14: 6103 (<https://doi.org/10.1038/s41467-023-41888-1>)

IPCC: Intergovernmental Panel on Climate Change which is a body of thousands of scientists from around the world charged by the United Nations to report on the findings of climate change research.