

Essays have been reprinted as submitted without grammatical and/or spelling corrections. Please note, they also do not include any endnotes or bibliographies.

First Place, Elyse Martin-Smith Renewable energy: The Time is Now

In 2014, the US emitted 15.1 trillion pounds of greenhouse gases into the air. Surprisingly, this represents a 7% decrease from 2005. The ultimate surprise is that 30% of these gases were from electricity, followed by 26% from transportation, both powered by fossil fuels. If we continue in this direction, we will not be able to ski the crystalline slopes of Vermont. How can we stop or lessen climate change? One essential transition is from fossil fuels to renewable forms of energy.

Three renewable energy sources include hydropower, windpower and solar power. Renewable energy provides a better alternative to standard energy conventions. Other options pose problems with sustainability, availability, and affordability. For example, inventions like hydrogen cars require special pressurized pumps to fuel them, which can be costly. This is why I am focused on renewable energy, which is an achievable goal with broad support.

“Hydropower is electricity generated using the energy of moving water,” says National Geographic. It “provides almost one-fifth of the world's electricity.” There are water reserves for storage, power plants for energy, and dams that control water flow. It is the cheapest option because after installation, the water is free and reusable. Hydropower’s drawbacks include the locations of dams and their impact on surrounding habitats. For example, salmon have a hard time swimming upstream to spawn. However, if we convert some of the thousands of existing dams to hydropower plants, the effect on wildlife may be less problematic.

Windpower converts kinetic energy from wind into electricity. It spins air in a generator to create power. Wind is abundant in the United States and does not emit pollutants. The U.S. Department of Energy says 90 to 175 million trees would be needed to divert the amount of pollutants that wind energy saves. Electricity is not all we gain from windpower. According to the American Wind Energy Association, “From 2008-15, the U.S. wind industry generated more than \$128 billion in private investment.” Alas, some concerns include space, noise, and cost. These drawbacks can be limited with precise solutions regarding location and noise reduction. Windpower’s cost has dramatically decreased over the past few years. Although still costly, it offers significant environmental benefits.

Solar power is a renewable energy source that cycles through a panel to create electricity. Earth’s surface receives 120,000 terawatts of sunlight – 20,000 times more than needed to power the world. The size and cost of panels make buyers hesitant, but in reality, both cost and size are decreasing with technological advancement.

Renewable energy is essential in our quest to lessen the impact of climate change. If we keep waiting, we will no longer have the choice to turn back. This issue’s priority could be jeopardized with new leadership. As Barack Obama said, “A green, renewable energy economy isn’t some pie-in-the-sky, far-off future, it is now... And it can create millions of additional jobs and entire new industries if we act now.”

Second Place, Liam Halstead That Sinking Feeling

For one of the first times in history, we are seeing a country that is being overrun by an entirely new invading force. It isn't an army or a natural disaster. It's the sea. The Island Nation of the Maldives will be mostly submerged by the end of the century due to rising sea levels that undoubtedly stem from humans¹. This is not just about the Maldives, for they are certain not to be the only victims of Global Warming, but this place goes to show that all of the other coastal cities of our world - such as Miami, Guangzhou, and Mumbai - with tens of millions of people - are vulnerable. As the world's 2nd largest producer of greenhouse gas emissions, it is America's obligation to humankind that we do everything we can to minimize our output and prevent a global disaster.

The most straightforward solution to this looming crisis is a Federal Carbon Tax - any tax or tariff that penalizes carbon emissions. This tax could take form as an extra fee per barrel of oil, an additional price to pay per ton of carbon or an emission ceiling with a penalty for exceeding it. It will be effective in the following ways:

1. incentivizing corporations to reduce their carbon emissions to avoid increased costs;
2. increasing the demand for renewable energy by pricing it lower than carbon-based energy, and
3. over time decreasing the cost of renewables due to the efficiency of scale and volume.

Implementations of carbon taxes in other countries have already yielded overwhelmingly positive results. British Columbia, Ireland, and Sweden are just a few of the places that saw a considerable drop in their CO₂ output after levying a Carbon Tax., Technically, the U.S. already has a form of emissions tax: a small tariff on gasoline and diesel, but its effect on our carbon production is negligible. We have to take the next step.

So what affect will the tax have on people? It is almost guaranteed that utility prices will rise for all Americans, which is part of the goal - to motivate average consumers to switch to green energy - but overall the economic effect will be minimal. The immense revenue generated by a Carbon Tax could mitigate the rising costs through income tax reductions or rebates, investing in renewables to further lower their cost, or by a myriad of other options that will, on the whole, significantly decrease economic impact on households.

We all know that the need for action is dire. The world is facing a catastrophe, and because our nation is such a large contributor to the problem, we have to decrease emissions. With it's proven effectiveness and numerous benefits, a national Carbon tax is the best way to slash our carbon footprint.

As the former president of the Maldives said from the waters of his sinking island, "If the Maldives cannot be saved today, we do not feel that there is much of a chance for the rest of the world."

Third Place, Alex Wick Why Cities Are Crucial To Reversing Climate Change

Cities are responsible for nearly three-quarters of the world's total greenhouse gas emissions, and the majority of the world's population lives in cities. Leading cities, like the twenty major cities in the world that are part of the Carbon Neutral Cities Alliance, have made a commitment and are moving towards more livable, sustainable cities, irrespective of national government support — or lack thereof. That is why I believe that having the major US cities make plans and take action is the best way to curb carbon emissions in the US and reverse climate change.

One city that created a plan to curb greenhouse gas emissions is Portland, Oregon. Since 1990, Portland's local carbon emissions have dropped nearly 15%, the number of jobs have increased by 20%, and the population has increased more than 30%. The city is working to increase access to public transit, sidewalks, bike lanes and other transportation options;,, reduce exposure to pollution; improve access to parks and other natural resources; and,, reduce housing's carbon footprint and cut energy costs. Portland has identified many specific goals to help substantially curb carbon emissions, including improving buildings, making energy use more efficient, optimizing transportation, and increasing recycling and composting. By 2050, Portland is predicted to produce less than a quarter of the emissions that it does today. Portland's experience suggests that cities can reduce emissions even as their economies and populations grow.

The impacts of having the cities make and carry out individual plans are mostly positive, as long as a substantial number of US cities participate. Because of the impact cities have on climate change, by creating greenhouse gas reduction plans, such as Portland's, US cities can substantially curb greenhouse gas emissions and help the world move closer to reversing climate change. The people living in the cities are also most affected by the unclean air⁴ so having their cities participate in creating greenhouse gas reduction plans is especially good for the city's inhabitants.

Some negative impacts flowing from cities' greenhouse gas reduction plans may be that creating and carrying out the plans will cost extra money and put some people out of work. The extra cost would likely be funded from increased taxes. Also, some companies' operations may not fit the new laws and guidelines, putting them out of business, or costing them money to come into compliance, which may result in job losses. Increased taxes and job losses would not be good, especially for low-income families, who can least afford it.

Balancing the positive and negative impacts of US cities creating greenhouse gas reduction plans, even considering the effects on lower-income families, I still believe each US city should create and carry out a plan to help substantially curb greenhouse gasses, and may wish to use Portland as a model. In doing so, we will be creating a better, healthier, and more economically stable environment for generations to come, and make the future something to look forward to.