Countries Should Be Legally Bound To Reduce GHG Emissions

The beginning of the 18th century marked a significant stride in mankind’s achievements; the industrial revolution – revolutionized the world. Life became easier, living standards dramatically increased, populations started booming, and materials started flowing in and out at an ever-accelerating rate. Even though the industrial revolution greatly increased the quality of human life, it brought many problems. One of the biggest problems of the Industrial Revolution is pollution. Since the start of the 18th century, and leading to the 21st century, fossil fuels have been extensively farmed and burned to create energy, increase transportability, power large factories and residential homes. About 200 years ago, the concentration of carbon dioxide in the atmosphere was about 250 parts per million. That number has almost doubled to nearly 400 parts per million (Bianco et al., 2014). Climatologists and environmentalists from all around the world have collectively agreed that the Industrial Revolution has caused a massive uptake in carbon dioxide emissions. Refer to Figure 2. According to a study conducted by the EPA, the top 5 countries that release the most greenhouse gases, release more greenhouse gases than all of the other countries combined. China, United States, Russia, India, & Japan, these 5 countries, release more greenhouse gases than the next 195 countries combined (Amann et al., 2011). This begs the question: should countries that emit large amounts of greenhouse gases, be legally bound to reduce their emissions by mid-century. This essay supports the notion that countries that emit large amounts of greenhouse gases should be legally required to reduce their emissions by mid-century. Forcing countries to limit their emissions pushes them to make technological strides. This results in reduced emissions, resulting in an improved and cleaner environment, which leads to an improvement in the quality of life, in the form of better health. Reduced emissions will prevent further damage to the environment and will assist a speedy recovery of the damaged areas. And if implemented correctly, the economy isn’t impacted in any negative way; the search for a green-cure creates jobs and opportunities.

With the rise of solar technology and electric cars, tapering off of non-renewable sources of energy – such as coal, oil, and natural gas – is easier than ever. In the past decade, solar panels have gotten more and more efficient. Today, solar panels operate at a 26.6% efficiency rate, breaking the previous record 22.5%, set in 2015 (Beukel et al., 2016). With more funding and research, these records can continually be shattered, year after year. Relative to 2005, solar panels have gotten more efficient, last much longer, and are more reliable, making them primary sources of power for many cities around the world. Since 2015, Costa Rica has been running off of renewable energy. Similarly, 50% of Germany’s electricity comes from renewables (Beukel et al., 2016). This is a huge milestone, considering Germany is home to more than 80 million people, more than double the population of Canada! Since solar panels produce zero emissions, and can be installed virtually anywhere, they’re extremely useful in reducing greenhouse gases. This power can be harnessed for decades to come and stored in batteries. And batteries are getting smaller and more efficient, year after year. This has led to a widespread use of batteries. Tesla has started producing electric cars – Model S and Model X – which run entirely off of batteries. Other conglomerates such as Ford and Porsche have adopted Tesla’s renewable future. Furthermore, advances in technology can help biology, which can dramatically help reduce greenhouse gas emissions. The American Chestnut tree intakes more carbon dioxide than any other tree. Planting these trees in bulk can act as a long term carbon sequestrate, similar to the Amazon Rainforest and wetland soil. However, due to an invasive species, the American Chestnut population was decimated at the start of the 20th century by Cryphonectria parasitica, due to the importation of the Asiatic chestnut tree (Jacob et al., 2009). Luckily, gene editing technologies such as CRISPR can help solve this problem, by making the tree more resistant to strains of fungi & bacteria. Although this is a long term solution, if coupled with a renewable energy pact, the synergistic effect will be incalculable. Solar panels and batteries will reduce emissions to zero, while the American Chestnut tree will remove carbon dioxide that is already in the air. This is why countries should be legally bound to reduce their emissions. The technology is out there, and with a little more funding and research, it can reduce the dangers of climate change. With superpowers like United States and China working at large to improve solar technology, batteries, and CRISPR, climate change can be negated and reversed.

Correspondingly, reducing greenhouse gases yields positive health outcomes. Less greenhouse gas pollution results in an increase in air quality, and decreases health related problems. For instance, in Beijing, China, the leading cause of mortality is air pollution. The air is so polluted that the government does not recommend stepping outside without a mask. It is estimated that close to 4000 people a day die due to health-related problems caused by air (Zhang, Mu, Lu, Mellouki, 2012). And this is just one city; one city with a population of around 22 million, in a country of 1.4 billion. Another country with a serious air pollution problem is Athens. A short-term time analysis study concluded that air pollution is responsible for substantial number of premature deaths (Touloumi, 1994). Researchers found elevated levels of greenhouse gases such as carbon dioxide and monoxide, sulfur dioxide, methane, and fluorocarbon compounds in the lungs and respiratory tracts of participants. In addition, numerous studies have linked particulate matter to respiratory diseases such as emphysema, bronchitis, and asthma, and heart diseases such as cardiovascular disease, heart failure, and coronary artery disease (Balbus et al., 2014). Particulate matter also affects vegetation, impacting the food we eat, and elevating levels of particulate matter in our body, leading to numerous diseases. One study conducted in Utah Valley, from 1985 to 1989, documented the effects of particulate matter and mortality. The relative risk of death increased monotonically with elevated levels of particulate matter, causing an estimated increase in deaths per day equal to 16% (Pope, Schwartz, Ransom, 1997). Today, about 166 million Americans are at risk due to pollution and particulate matter. The health benefits of clean air, alone, are enough to save the government millions of dollars. Reducing one tonne of carbon dioxide can avoid mortality costs ranging from $50 – 380 (West et al., 2013). A more recent study conducted by scientists at Berkeley Labs have quantified this figure to be between $40 – 93 per metric ton of carbon dioxide reduced. The U.S. government can save anywhere between $6 and $14 billion annually in 2020, depending on how the reductions are attained (Balbus et al., 2014). This money can be invested elsewhere such as research and development, improving infrastructure, etc. Reducing greenhouse gas emissions helps improve the entire world by improving air quality, resulting in less medical issues. Thus, countries should be legally bound to reduce their emissions for the greater good of mankind’s survival and thrive-al.

As a matter of fact, clean air doesn’t just benefit humans, it also benefits the environment. Effects of greenhouse gases include, but not limited to, rising temperatures, heat waves, droughts, rising sea levels, unpredictable weather patterns, stronger natural disasters, and acid rain. Since the start of the 19th century, global average temperature has gone up by a full degree. As a result, every year, droughts destroy millions of acres of land home to many different forms of life. Trees, plants, and animals are affected as their food and water supplies are diminished. In addition, natural disasters are increasing in destructive capabilities and occurrence. Hurricanes and tsunamis cause massive floods, effectively, destroying all life forms. Ecosystems are wiped out, without a trace. Furthermore, reducing and eliminating greenhouse gases assists in preventing acid rain. Acid rain mainly affects aquatic environments such as lakes, streams, and wetlands, causing an uptake in the absorption of aluminum and other toxic chemicals. In turn, this makes the water toxic to aquatic wildlife such as fishes, turtles, clams, etc. Also, at higher elevations, acid rain robs soils of essential nutrients, and makes it harder for trees to absorb water; an essential ingredient for survival (JGJ, 1996). Hence, countries should be legally required to reduce their greenhouse gas emissions. Emissions cause acid rain which lead to the degradation of ecosystems. Ecosystems play a key role in earth’s survival, and if it can’t fill its niche, then the entire system topples over mankind’s head.

Finally, green policies do not cripple the economy as politicians assume. In fact, reducing emissions benefits the economy by helping businesses and citizens save money, increasing purchasing power. For instance, renewable energy is cheaper than non – renewable energy. The cost for fossil fuel energy is $0.05/kWh, and $0.03/kWh for solar energy (Wüstenhagen et al., 2004); helping the taxpayer save $0.02/kWh. The average American house uses approximately 10,812 kWh per month, totalling 129,744 kWh per annum. This helps the average house save nearly $3000 a year, or $250 a month. More money in the hands of taxpayers enables more spending, which in turn boosts the economy. In retrospect, businesses benefit much more than the average citizen. Increased savings will allow them to employ, research, and spend more, ultimately boosting the economy. In addition, the push for technological advancements creates jobs and incentivises companies to invest in clean energy. In fact, renewable industries employ more people over a longer period of time than non – renewable industries. Renewable sources of energy require research to improve, and on-site maintenance. Both of these create lots of jobs. Non – renewable industries are temporary as fossil fuels are bound to run out from location to location. A solar or wind farm will last much longer than a coal mine site. With this in mind, and coupled with the fact that, reducing emissions will lower medical bills, improve life, and lessen environmental damage, it is clear that reducing emissions is best for the economy. Taxpayers save a lot of money in the form of utility and medical bills, governments don’t need to spend money on repairing the environment, and can focus on improving infrastructure, and companies can employ and explore more.

Everyone wants to fight climate change, but almost nobody wants to give up their ostentatious lifestyle. Humans rely on consumption to survive and thrive, and in order to continue this trend, countries that emit large amounts of greenhouse gases should be legally bound to reduce their emissions by mid-century. Forcing countries to limit their emissions pushes them to make technological strides. Better technology in the form of efficient solar panels and batteries, coupled with a clean environment, and clean air leads to an improvement in the quality of life. Reduced emissions will prevent further damage to the environment and will assist a speedy recovery of the damaged areas. And if implemented correctly, then the economy isn’t impacted in any negative way. The savings can be used to improve lives and infrastructure, make more technological strides which in turn will create greener, and cleaner methods of harnessing energy. To summarize, we only have one earth, and in order to protect it, we need to, and should, hold people accountable for their actions against it.

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