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The Essential Role of Fossil Fuels in Combating Climate Change

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Fossil fuels have been essential to the living standards enjoyed by the industrialized and developed world. Since the Industrial Revolution, non-renewable sources, including coal, oil, and natural gas, have been our first choice in energy generation. Fossil fuels have also become appealing to developing nations, as they require inexpensive sources of energy to increase their standards of living. These factors contribute to fossil fuels comprising over 80 percent of the current global primary energy demand, undeniably making them a vital part of our daily lives (Foster & Elzinga, 2015). The necessity for upcoming change in energy production does not require the exclusion of fossil fuels, but rather a change in direction for their future. Abandoning our use of fossil fuels is an unrealistic expectation for our society. We are a population addicted to fossil fuels, and it is naïve to think that quitting "cold turkey" will be an option for us. Fossil fuel usage is only projected to grow, as it is estimated that world consumption of fossil fuels will increase by about 21 percent between 2018 and 2050 (Ghosh & Ghosh, 2020).

There is an irrefutable problem on the horizon. Climate change is making an impact quickly and requires a response of change to reverse its effects. Our current and projected usage of fossil fuels becomes an issue for global warming when we consider that fossil fuels are responsible for approximately two-thirds of global carbon dioxide emissions (Foster & Elzinga, 2015). If our current trends of fossil fuel usage remain steady and energy demand increases as projected, the level of emissions required by this demand would have catastrophic climate results, including a forced temperature rise over the calculated limitation of two degrees Celsius (Foster & Elzinga,

2015). The role of fossil fuels in energy generation is guaranteed to look vastly different as an incoming generation's campaign against climate change puts the topic at the forefront of politics. These daunting statistics have caused many to frame fossil fuels as the problem, and many encourage the elimination of them all together.

Many people that look at the issue of global warming from a superficial angle support the idea of renewables sources of energy, such as wind, hydro, and solar power. While renewables have provided some gleaming hope in the face of climate change, the industry still faces many challenges that prevent these alternative sources from making an impact in the energy market. Current investment rates are too low to support innovation in the renewables industry and the cost of almost all renewables is, at present, too high.

Carbon capture and storage (CCS) technology is an emerging innovation taking ahold of the power generation industry. CCS is the capture, compression, and storage of carbon dioxide byproducts from power generation or industrial sites before carbon dioxide can leave the plant and enter the atmosphere (Wilcox, 2012). Optimism surrounds this technology because it allows us to maintain fossil fuels as our primary energy source while minimizing the amount of carbon dioxide entering our atmosphere. The cost of CCS is high but there are a great deal of opportunities for advancements in cost reduction because of the various methods that are being explored, including post-combustion, pre-combustion, and oxy-combustion systems. (Figueroa, Fout, Plasynski, McIlvried, & Srivastava, 2008)

Though renewables may gain enough leverage on fossil fuels in the long-term future, the climate crisis requires a short-term solution. Renewables are currently in no shape to completely replace our consumption of fossil fuels, and current trends in innovation have yet to show promise in shifting this any time soon. Currently, our most viable solution for changing the direction of climate change is the adaptation, not elimination, of fossil fuels. We are a now-developed society habituated to our lives sustained by fossil fuels, and it is impractical to think that vacating this way of life will ever be an option for us. Fossil fuels will remain our primary energy source, but they must be modified as we continue to seek a solution to reverse global warming.

References

Foster, S., & Elzinga, D. (2015, December). The Role of Fossil Fuels in a Sustainable Energy System. Retrieved from The United Nations Chronicle: https://www.un.org/en/chronicle/article/role-fossil-fuels-sustainable-energy-system

Ghosh, S., & Ghosh, B. (2020). Fossil Fuel Consumption Trend and Global Warming Scenerio: Energy Overview. Global Journal of Engineering Sciences, 3.

Wilcox, J. (2012). Carbon Capture. Springer.

Figueroa, J. D., Fout, T., Plasynski, S., McIlvried, H., & Srivastava, R. D. (2008). Advances in CO2 capture technology—the US Department of Energy's Carbon Sequestration Program. International journal of greenhouse gas control, 2(1), 9-20.