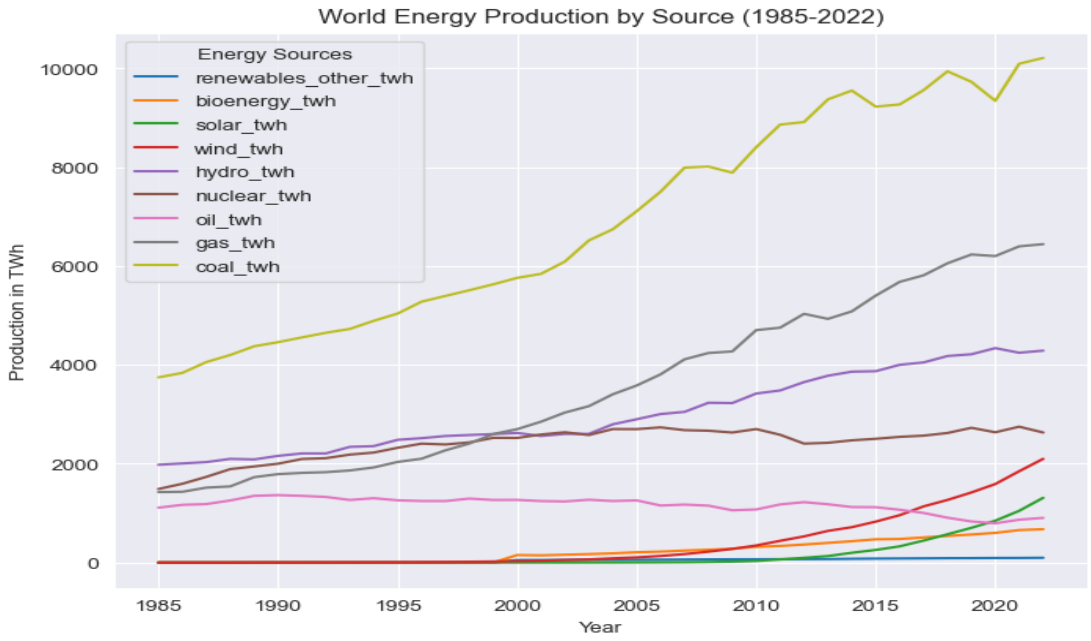
Name: Md. Nazrul Islam Khan

Dataset link: https://ourworldindata.org/

GitHub Link: https://github.com/Nazrul1568/Visualisation

Visualization 01: Comparison of world Energy Production By sources from 1985 to 2022:

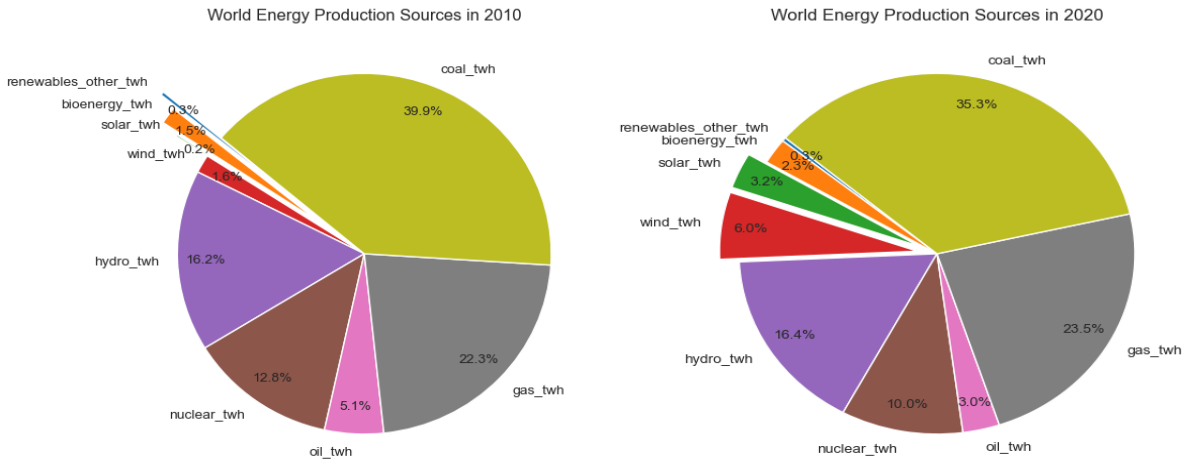


The line graph spanning from 1985 to 2022 illustrates a remarkable transformation in worldwide energy generation, emphasizing substantial changes in the sources of energy. Renewable energy, particularly solar and wind, are seeing significant growth, highlighting a worldwide shift towards sustainable resources. These sources have shown exponential expansion, especially since the early 2000s.

Hydroelectric and nuclear power are seeing consistent expansion, with hydroelectric power being a significant source of energy. Meanwhile, nuclear energy demonstrates gradual growth, indicating its steady but careful incorporation into the energy combination. Coal and gas are the primary sources of energy generation. The growth of coal reaches its highest point around 2010 and then remains stable, whereas gas production continues to climb consistently, suggesting its continuous dominance in the world energy supply.

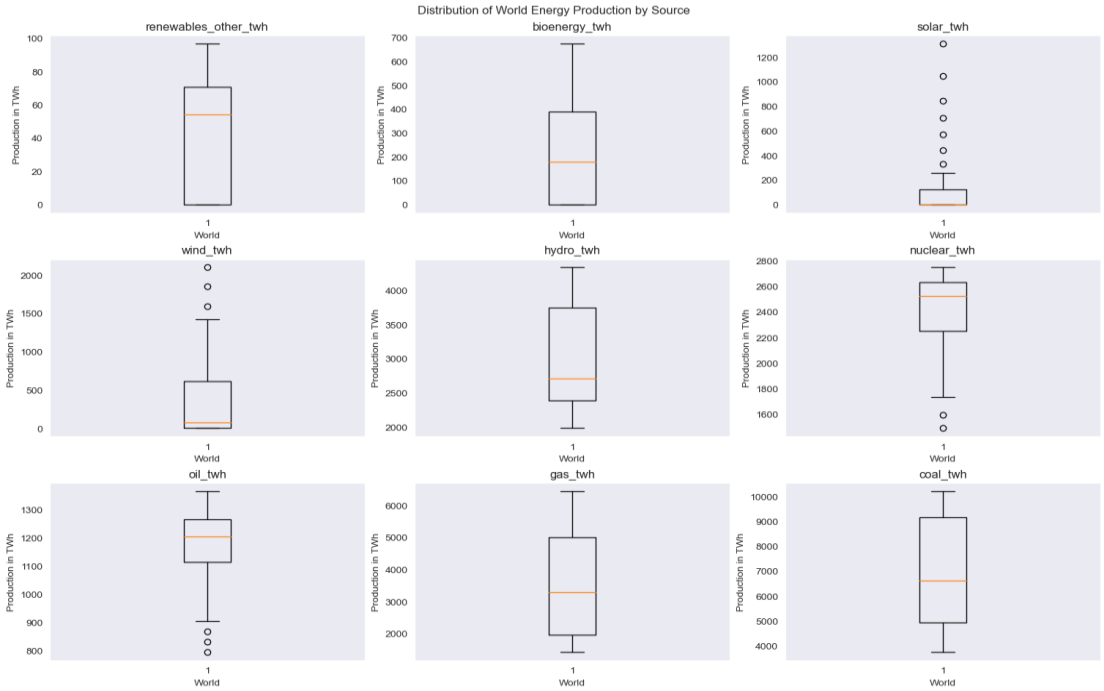
This graphic highlight the ever-changing nature of energy production, with a particular focus on the growing importance of renewable energy sources. At the same time, it acknowledges the ongoing reliance on fossil fuels. There is a clear and progressive movement towards adopting energy solutions that are both sustainable and ecologically benign.

Visualization 02: Distribution of Energy Production sources in 2010 and 2020:



The pie charts for 2010 and 2020 illustrate the changes in worldwide energy production sources over a ten-year period. Coal's dominance in 2010 was at almost 40%, however, its proportion decreased to 35.3% by 2020, indicating a progressive transition away from coal. In contrast, renewable energy sources saw substantial expansion, with solar and wind energy increasing their market shares by more than two-fold to 2.3% and 6.0% respectively, compared to far lower percentages in 2010. The proportion of natural gas increased from 22.3% to 23.5%, suggesting its increasing significance as a transitional fuel. Meanwhile, the amount of nuclear energy marginally declined, highlighting the worldwide shift towards more sustainable energy alternatives.

Visualization 03: Comparison of Averages for each Energy Production Type:



The boxplots depict the dispersion and central tendency of worldwide energy output from different sources. Solar energy has a substantial spectrum and several exceptional cases, which suggest fast expansion and fluctuation in output levels. Wind energy exhibits variability, characterized by a small number of high values. Hydro, nuclear, and gas energy sources, in contrast, have narrower distributions but significant median values, indicating consistent but sizable contributions to world energy. Coal continues to be a significant energy provider, exhibiting little variation and consistently maintaining high levels of production. The production of oil exhibits moderate variability, with a few exceptional cases that represent swings in global oil production patterns.