

Climate Change

The Role Of The Energy Sector

A.Y. 2024/2025

Data Visualization Project

Presented By

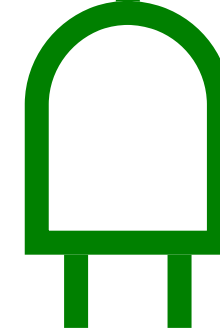
Data Alchemists

[Looker Dashboard Link](#)

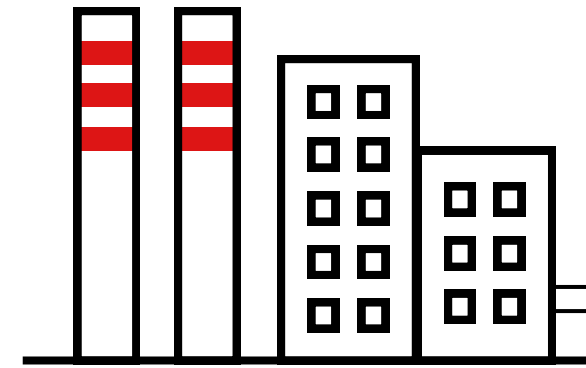




Storyboard Development, Design and Aesthetics

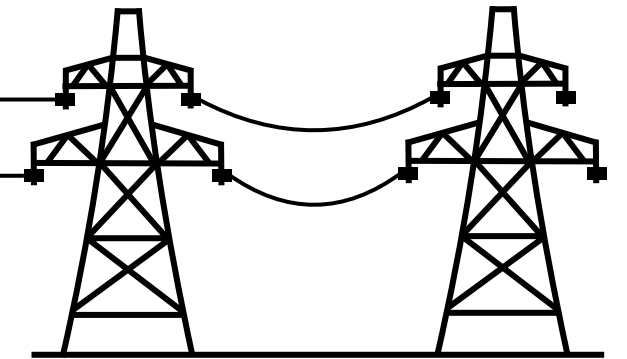


Key Narrative



The main purpose of our project is to build a **report for companies in the energy sector** that are interested in **investing in clean energy** in various countries as to verify their effectiveness in mitigating climate change while meeting the rising energy consumption.

To achieve this we are going to **analyze the data** on energy usage, alongside environmental and socioeconomic indicators, as measurement of how countries are **dealing with climate change**.



Design and Aesthetics

Typography

Aa

League Spartan

Aa

Montserrat

Color Palette



Forest Green
#008000



Deep Blue
#2e5394



Beige
#c9a050



Fire Red
#dd1515

Design and Aesthetics

Typography

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Montserrat



A **bold** font with wide lines used for titles to make the message **clear** and to **engage the audience** effectively

A very **clean** and modern sans-serif font used in the body of the presentation to **enhance readability**

Design and Aesthetics

The main color of our presentation is **green**, the color of **nature**, closely related to the topics of our project

Blue is a calm color associated with rationality but also the color of the **ocean**

Another color associated with the Earth is **beige**, the color of **mud** and **sand**, versatile and soft it conveys a sense of neutrality

The **red** color is used to draw attention as it evokes a sense of **warning**, it is also associated with **fire**

Color Palette



Forest Green
#008000



Deep Blue
#2e5394



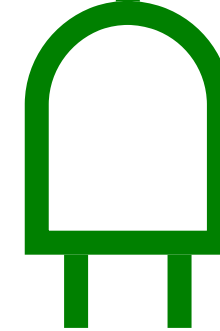
Beige
#c9a050



Fire Red
#dd1515



Data Preparation and Visualization



Dataset Development

Datasets Acquisition:

The data was collected from the following datasets:

- <https://www.kaggle.com/datasets/anshtanwar/global-data-on-sustainable-energy/data>
- <https://www.kaggle.com/datasets/jawadawan/global-warming-trends-1961-2022>
- <https://www.kaggle.com/datasets/holoong9291/gdp-of-all-countries19602020>
- <https://www.kaggle.com/datasets/ayushparwal2026/country-population-from-1960-to-2022>
- Additional data for Russia and South Korea (more informations in the GitHub repository)

Datasets Manipulation:

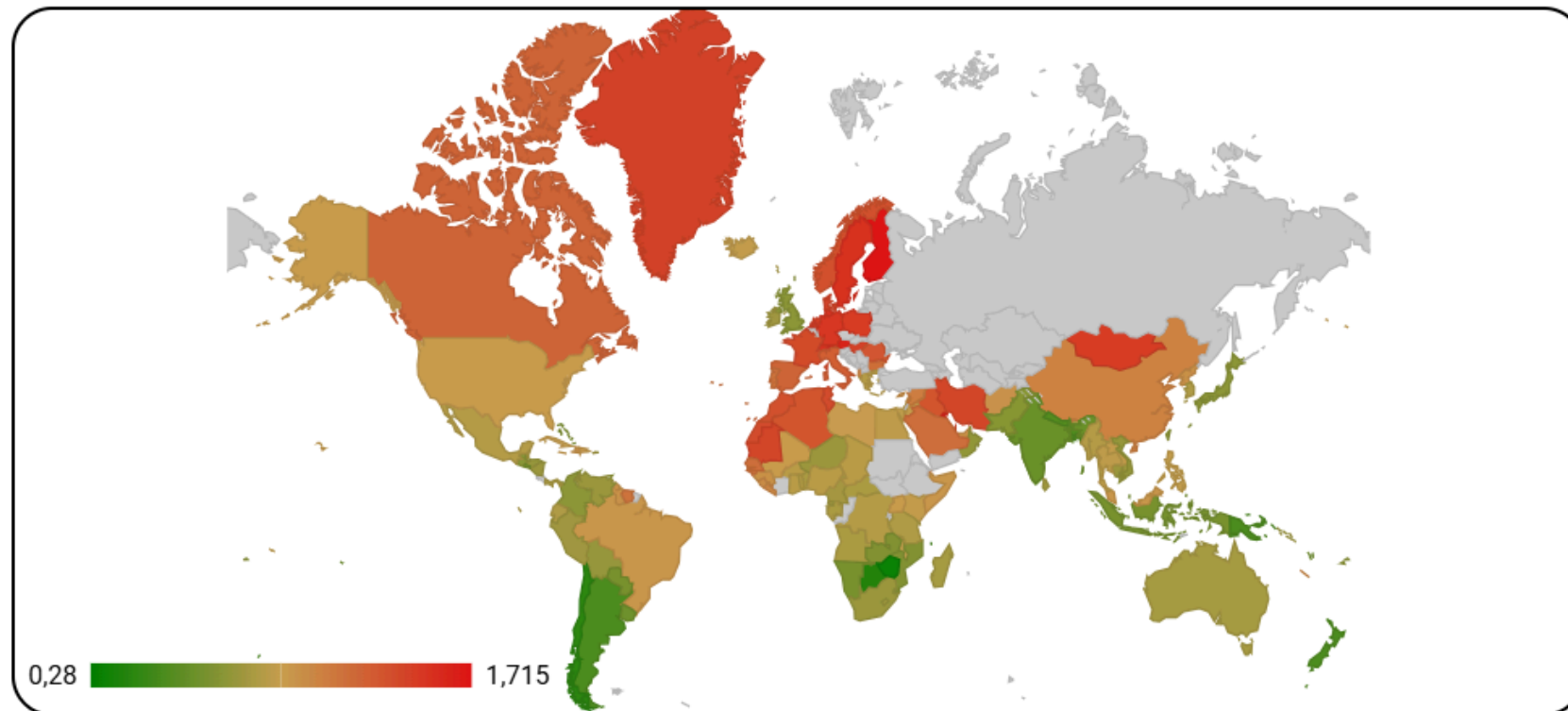
The data was grouped into regions based on both the geographical and political components that may affect the juridical and social system of the country.

Further Informations:

For more details on the development of this dataset refer to this repository:

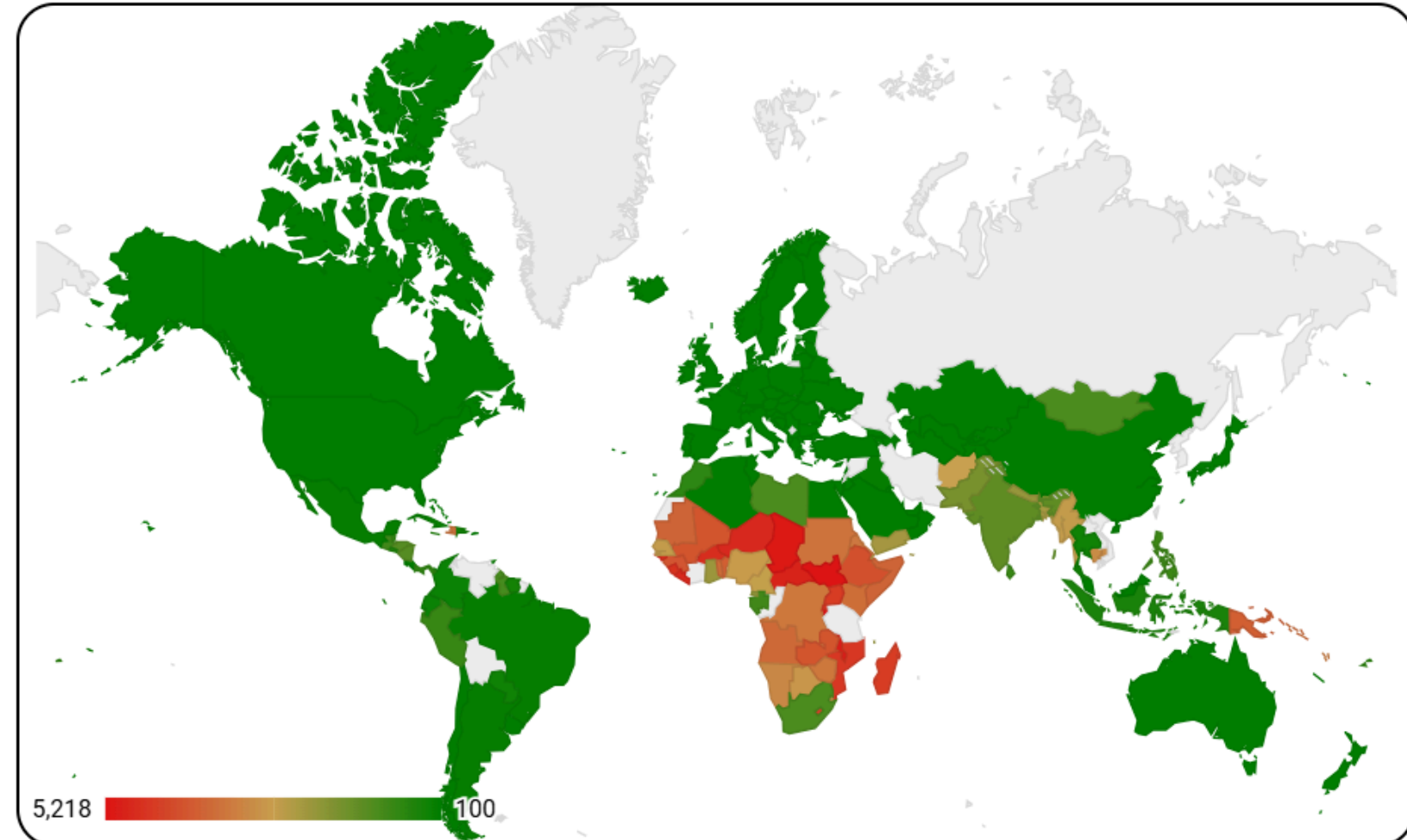
- https://github.com/GiovanniNoe02/DataViz_Dataset_Preparation

Visualizations



Temperature Increase by Year

The geographic chart displays the **average temperature increase** year by year, with a color scale from green (minimal) to red (significant)



Access to Electricity

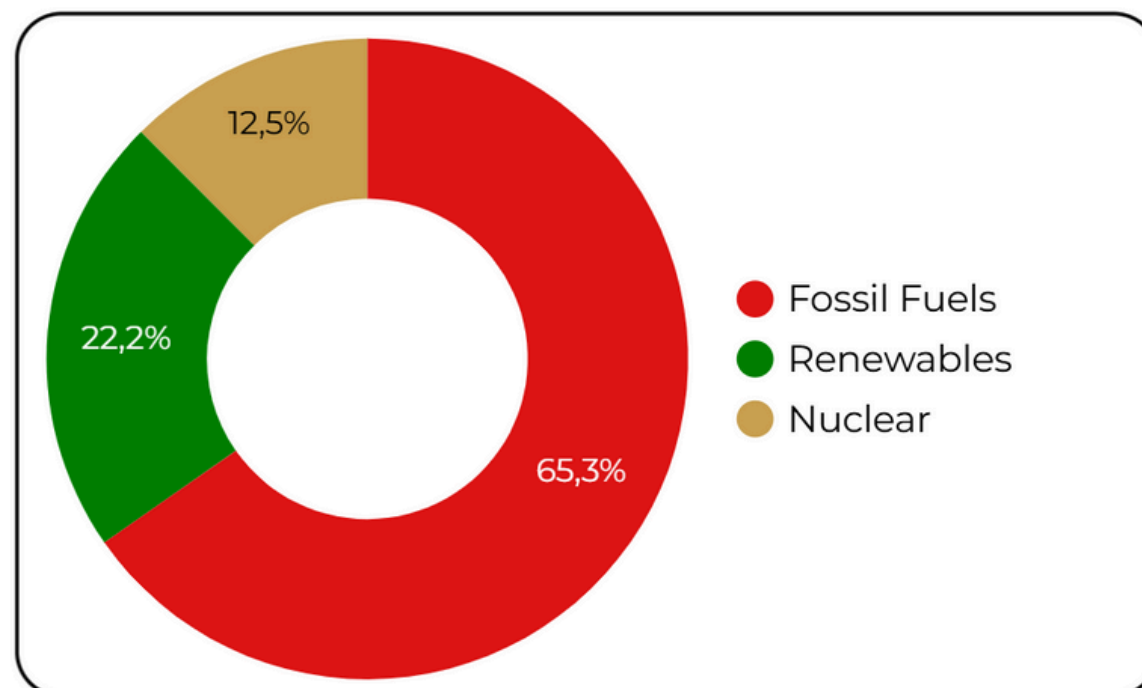
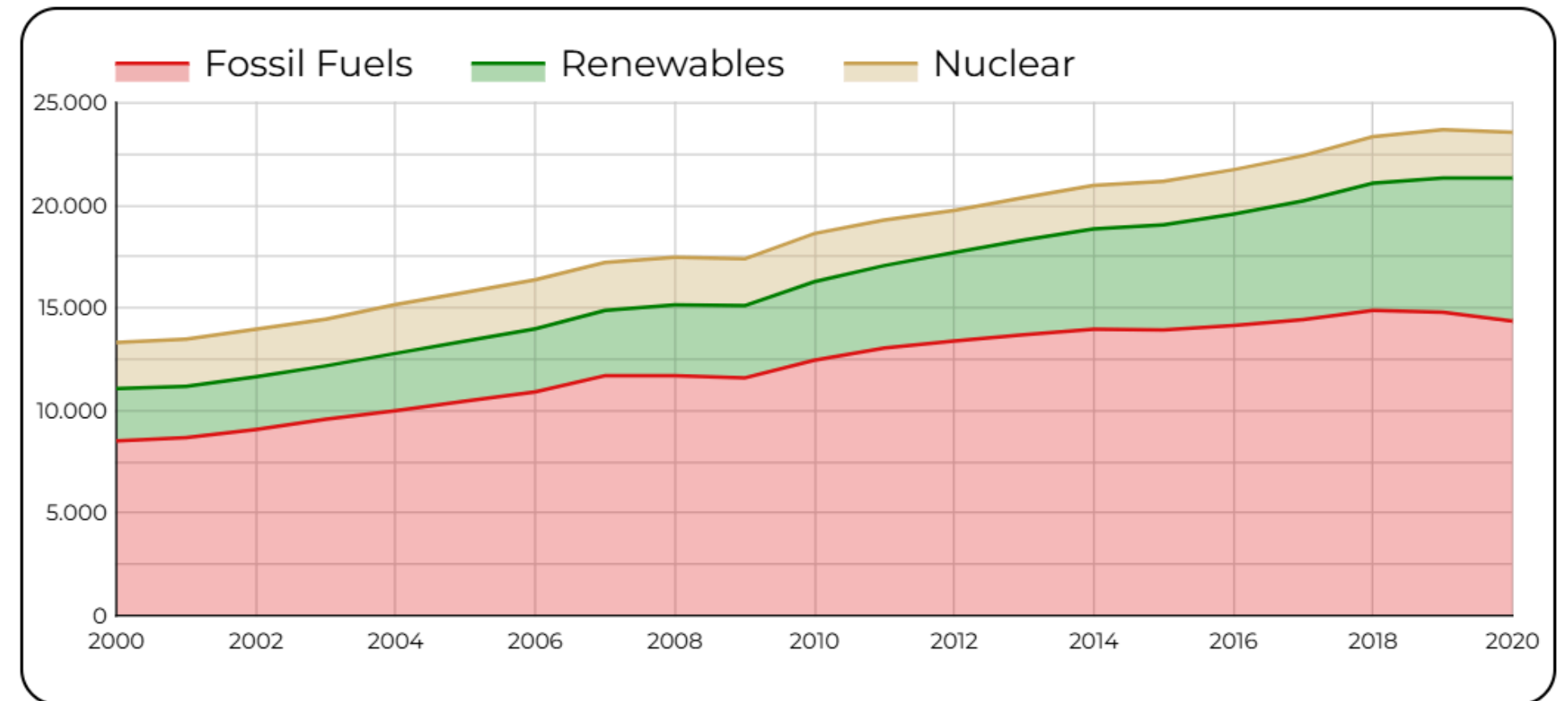
This geographic chart illustrates the **percentage of energy access** across the countries considered



Visualizations

Energy Production for Year by Source

The stacked area chart illustrates the **comulative energy production** by source and year, highlighting fossil fuels as the dominant source



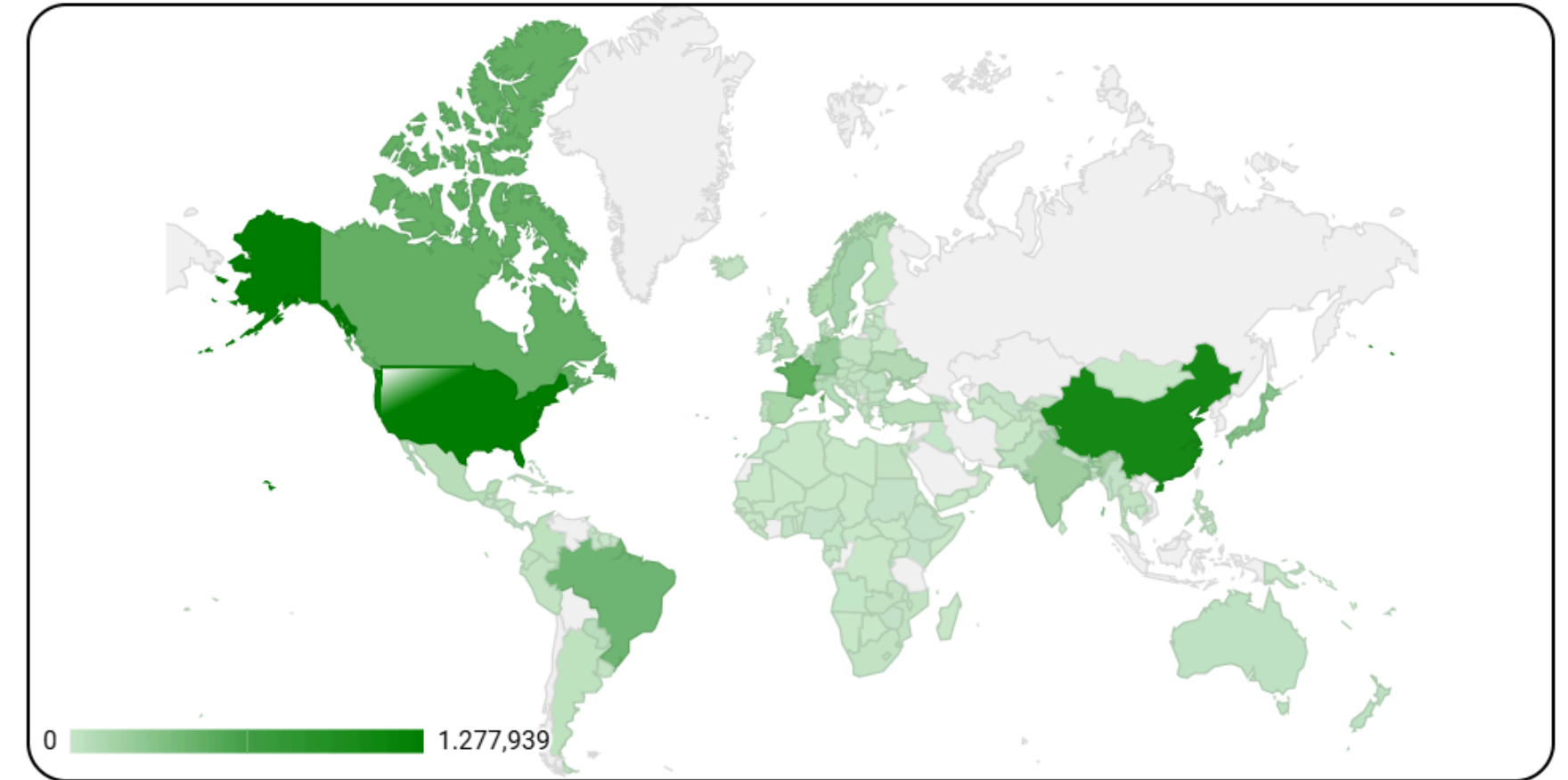
Energy Production

The pie chart illustrates the **percentage of energy production** by source

Visualizations

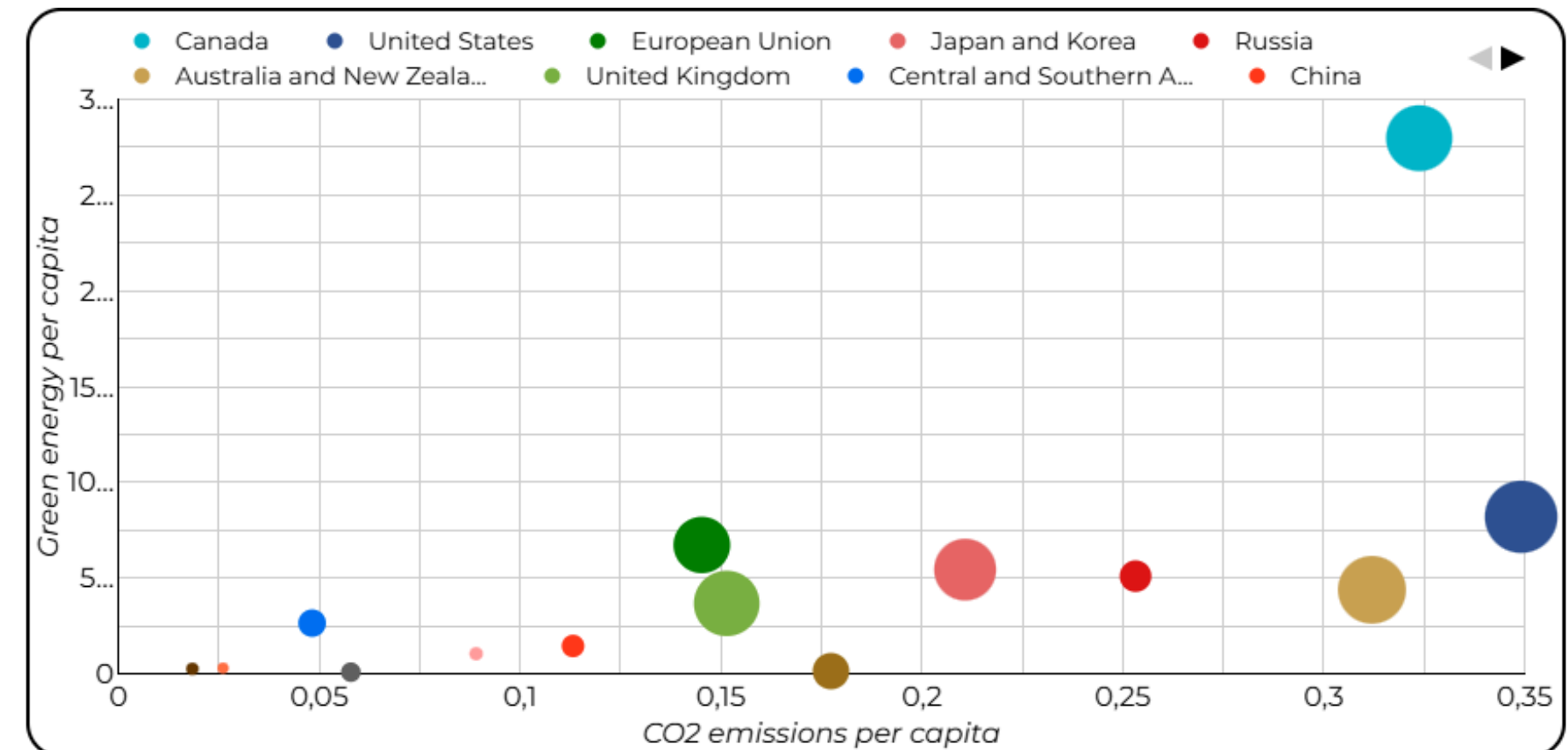
Clean Energy Production

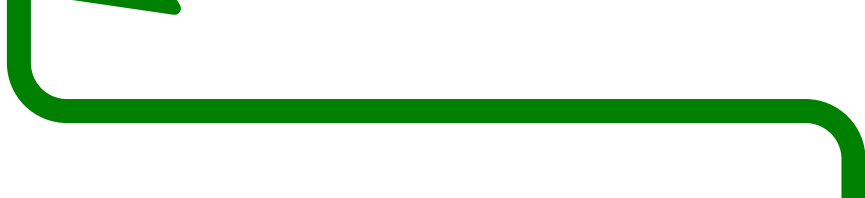
This geographic chart represents the **total amount of clean energy** (nuclear and renewables) in TWh, using a color scale from white to green, with the darker shade indicating a greater increase in production



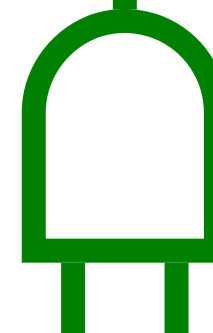
GDP, Energy Production and Clean Energy

In this chart countries are grouped in "**regions**". **CO2 emissions** and **green energy production** (per capita) are on the axis while the size of the bubble reflects the **country's GDP**





Conclusions



Conclusions

Global Analysis:

The **world** is roughly **split in two** between regions that have a higher access to electricity per capita with an equally high percentage of clean energy production and the ones that are less energy-developed.

Trend Analysis:

The economic strategy can thus follow these two trends: in the **countries with higher clean energy production** there needs to be a focus on the “**after purchase**” aspects, like maintenance and secondary systems. These projects are marginally profitable but are key in the development of relationships with clients.

The **less energy-developed countries** can be further split into two **based on the GDP**: in the ones with higher GDP there should be investments in **full power plants**, while the others are not economically profitable and should be considered only as **marginal in the market**. The first ones represent the most profitable investments short term but, given their instability, should be seen as one-off projects.

Conclusions

Regional Analysis:

There are some countries/regions with peculiarities that deserve a separate dissertation:

China: even though this country has the highest overall production of clean energy it has a rather low per capita value, meaning it is interested in the matter but hasn't implemented the infrastructure to scale yet.

Canada: being one of the coldest but less populated countries it makes sense it has a high CO2 emissions per capita value, nonetheless it's also the country with the highest clean energy production per capita, making it important to our analysis as well.

United States and **Australia & New Zealand:** these countries all have high GDPs and CO2 emissions per capita but they lack in terms of clean energy production, if they were to adopt a more climate-oriented regulation they could become really lucrative markets.

Thank You
For Your Attention

