# CS-416 Narrative Visualization Project

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Data source for this project: https://ourworldindata.org/energy#explore-data-on-energy. I have cleaned the dataset before creating the visualizations. Cleaned data used for this project can be downloaded here: https://github.com/883km/883km.github.io/blob/main/dataset.csv.

## Message

The world lacks safe, low-carbon, cheap large-scale energy alternatives to fossil fuels. Until we scale up those alternatives the world will continue to face two energy problems: hundreds of millions of people lack access to sufficient energy; and the dominance of fossil fuels in our energy system drives climate change, and other health impacts such as air pollution.

To make sure that everyone in the world has access to clean and safe energy, we need to understand energy consumption and its impacts around the world today and how this has changed over time. In my project, I explored world's primary energy consumption and GDP data for the past few decades.

## Narrative Structure

My narrative visualization follows "interactive slideshow" structure, where user exploration is allowed at some or all of the steps of the story. The index page is referred to as slide 0, while rest of the pages are referred to as slide 1, 2 and 3.

In slide 1, user can press two buttons for two different views. In slide 2, User can select the countries they're interested in from the dropdown menu to view different line charts for each country.

## Visual Structure

All of the four slides follow an identical layout – author's text format messages are on the left of the pages, while the charts are on the right of the pages. The intention is to draw the users' attention to the chart and maintain through the transition between scenes. The positions of elements are maintained consistent across all scenes to keep the reader oriented on the chart.

Scenes can be navigated with page buttons at the footer part of the pages, which allow the reader to move to a different scene in the story.

**Scenes**

Scenes are organized in a way that reader can make sense out of it.

Slide 0: Serves as an intro, which tells the users what the project is about. This page does not contain any data visualization, but it sets up the stage about the story.

Slide 1: Explore world's primary energy consumption per capita history, it gives users the option to view the data based on two different region categorizations, and each of them provide a unique perspective.

Slide 2: The line chart is the same structure as in slide 1, but this chart further breaks down the regions into countries, which provide users even more options. Users can view different countries' energy consumption history using the dropdown menu.

Slide 3: After showing the data in time, the last slide focus on the one of the most recent year's data. the story continues to show users the latest correlations between energy consumption and GDP and asks meaningful questions for users to think.

**Annotations**

Annotations are added with the data point in the story to explain the significance of the data. It helps the reader to explain key points from the chart. Different format of annotations are added for different visualizations based on the nature of the selected chart to make the annotations more visual friendly.

For example, in slide 1, a vertical line is drawn at year 2020 with an annotation to show the fun fact of this year's data; while slide 3, user can mouse over the dots for tooltips that show details of each data point.

**Parameters**

The common parameters for all slides are:

- Chart axis and text – columns from the dataset change in different charts, and these elements are parameters that change as per the selected scene.
- Region categorization – user can choose two different region categorizations to show the data from two unique perspectives.
- Country selection – chart changes when user select a different country from the dropdown menu.
- Annotation aiming point, position and text - annotations are parameterized with an aiming point, a text offset and the content of the annotation.

**Triggers**

There are triggers when the html page is loaded, which invokes a special function to initialize the visualization for that specific scene and follows by filtering the data differently for each chart.

On reader-driven scenes, users' selections trigger the chart to be updated with relevant data.