💨☀️💧 It's getting greener 💧☀️💨

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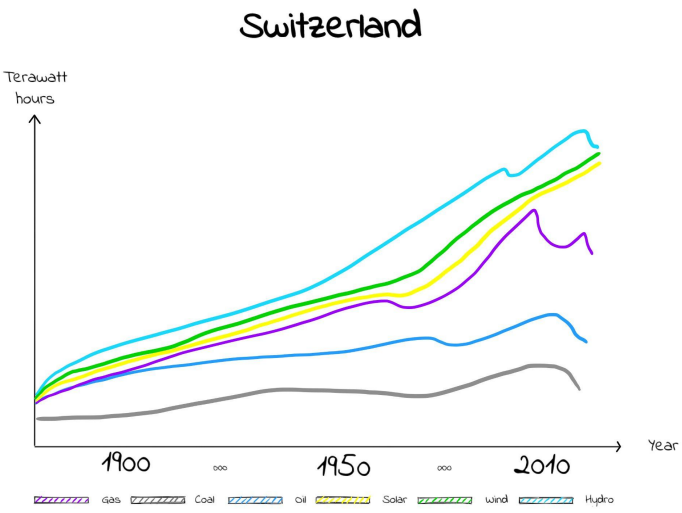
Global view of the website

Our goal is to create a one-page website, easily scrollable, clear and readable. The idea is to discuss if the energy transition is on its way to becoming clean by presenting several topics and analyzing them. We would like to give the reader some new information, but also captivate his attention by telling a story using the data as well as letting him interact with the different visualizations. The tools seen in the first lecture on HTML and CSS will come in handy for the website creation.

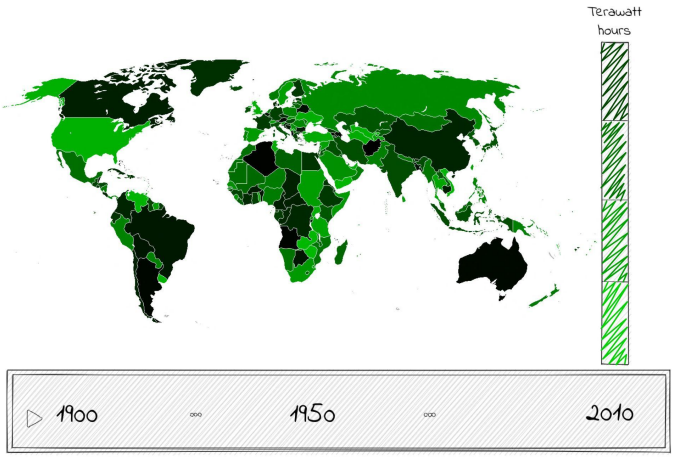
Renewables and fossils comparison



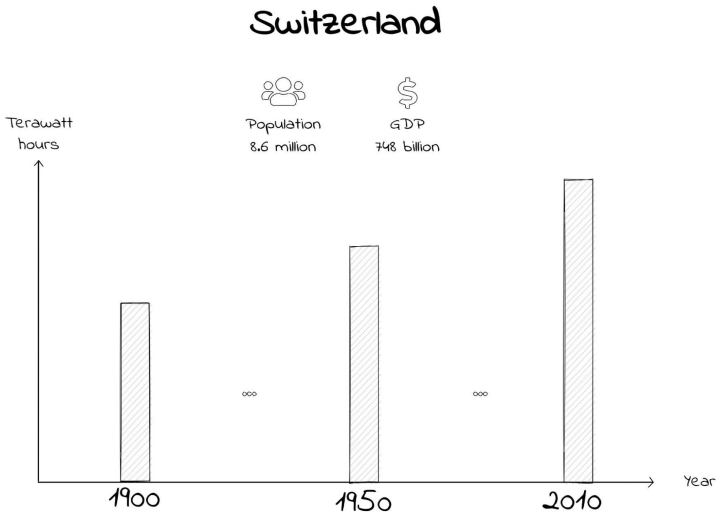
The first part will present a comparison between energy consumption that comes from renewables (hydro, solar, wind, biofuel) versus fossils (gas, coal, oil). Eventually, we will also add the nuclear and an option to look at the electricity instead of the consumption. The sketch on the left gives a general idea of the plot, but we plan on making it interactive. One example is using mouse hovering on the graph which will display information like the year and the exact quantity of the different types of energies about that specific region. Also, clicking on one of the members of the legend should only show the respective distribution and mask the others. This plot will require the *paths* tools (Lecture 4) *events* and the *enter()* function (Lecture 5) of d3.js. The visualization will also have a scroll-down menu that allows us to choose the country that we want to look at. Furthermore, it will be possible to click on a button in order to view the data aggregated.

Global renewable energy growth

This part of the website will be based on two visualizations that illustrate the growth of green energy using worldwide data on renewables, i.e. the share of renewables in the energy consumption of all the countries. First, we will show a global view using an interactive world heat map that changes over time when the play button is clicked. To achieve this, we will use the leaflet library of JavaScript and GeoJson/TopoJson (Lecture 8). The animations will be done using d3.js and the tools mentioned for the



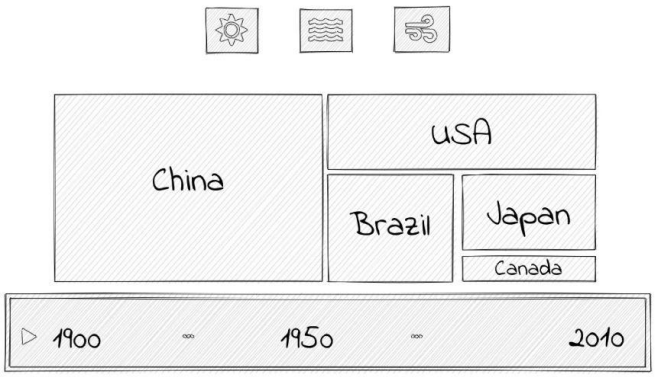
previous visualization. Furthermore, the reader can get details on demand by clicking on a given country.



A graph similar to the one on the left is supposed to pop up showing country specific information. This is useful if the reader wants to focus on a given country and have a more comprehensive view on its numbers. Some additional facts like the latest available population count and GDP are also displayed. These factors may help the reader draw conclusions about a country's involvement in getting clean energy. We will build this bar plot using d3.js (Lecture 4) and add animation at loading (Lecture 5).

Leaders in green electricity generation

As a follow-up, we focus on countries that are leaders in the renewables domain. The reader can choose the source (solar, hydro, wind) of the energy generation by clicking on the respective button and then press play. These actions will start the animation: rectangles will change their shape and place which corresponds to the evolution of the amount of green electricity produced and the rank switching of each country over the years. This animated tree map will be created using d3.js.



Future work

We give some examples of improvements that could be done:

1. **Continent based filter**: this feature would be useful for the reader in case he would like to have a zoomed in view or to focus on a specific part of the world.
2. **Animated introduction**: we could create an animated svg that introduces the subject and captivates the reader's attention from the beginning.
3. **Comparison in the first part**: in the first part of the website, we could add a slide with a comparison plot between two countries that we choose, accompanied by an analysis.