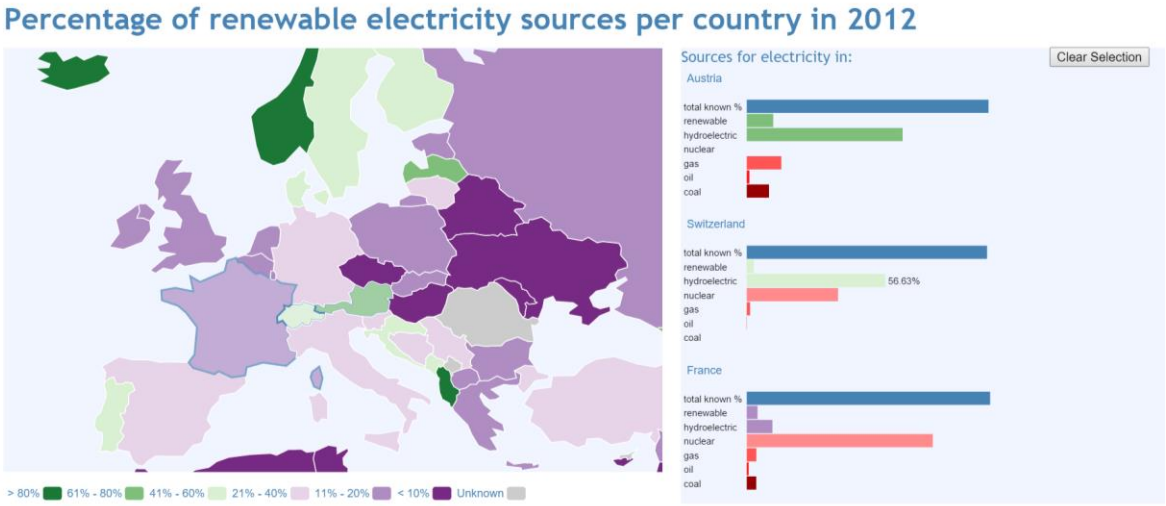
Anneke ter Schure; 6084087

Design Choices

for my Visualisation Dashboard



Accompanying text:
This visualisation shows the percentage of electricity produced per source per country. The map provides an indication of what proportion comes from renewable sources such as solar energy, wind and hydroelectric sources. The bar graph provides more detail as renewable energy is split over hydroelectric and the rest. However, this aspect of the visualisation also gives some more context as: it shows the other sources that are used in that specific country, it shows how much is unknown (by the top blue bar labelled: total % known) and it allows for comparisons across countries.

Design Process

I started out with looking for data that I'm interested in myself so I browsed around the databank of The World Bank. I decided to pick the topic of electricity sources and focus on the data they had on renewable sources. As they only split these up into two categories and this would give a one-sided view of the matter, I decided to include the data they had available on other sources for electricity production.

So, I ended up with data per country (worldwide) per year (2006 - 2012) on the percentage of electricity is produced from: a group of renewable sources, hydroelectricity (also renewable), nuclear power, gas, oil and coal. When looking at the data, I was slightly shocked on how low the percentages of electricity production is from renewable sources and how many differences there are between countries. Therefore, I made this the primary story of my dashboard and based my design decisions on a mix of this focus and the design principles discussed in class.

For this aspect to stand out, I made a choropleth map as the eye catcher of the dashboard. On the right there is already a field with the title: "Sources for electricity in:" and a "Clear Selection"-button which indicate that something can be selected from the map. Below these visualisations is a short text and a link to The World Data Bank where I obtained the data for this visualisation. More specific design choices will be discussed in the next section.

Choropleth

In general, I've kept the dashboard quite light in order to minimize distractions from the story that I try to tell. As stated before, initially there is only the choropleth map that shows the percentage of electricity produced from renewable sources in a specific country. This map is actually one of the

entire world, but I decided to zoom it in on Europe to not overwhelm the user with such a big map. Ideally I would make this map zoomable and panable so the user is able to obtain data from all countries. The colour scheme is diverging to illustrate a range between “green”, being renewable and good for the environment and, well, being bad for the environment. According to the ColorBrewer.org website these are also colour-blind safe. A tooltip provides detailed information on the specific value and a legend provides the sectioning into colours; in concurrence with Ben Scheidermans statement: “Overview first, zoom and filter, and details on demand”.

Details

To continue on this note of overview first and details on demand, when users decide to want to find out more about the electricity production resources of a country they can select one or more countries by clicking them and a bar graph appears. Simultaneously, the clicked country changes opacity and gets a thick border to visually aid the user and remember which country is selected. The colours of the bars showing data on the renewable sources are linked to the colours on the map in order to show that these make up the total percentage represented in the map and reduce chart junk (in this case using more colours than needed), as described by Tufte. The other bars are only coloured according to the labels they have to better allow visual comparison across countries. Another point on which I avoided chart junk was to hide values of the bars until the user hovers over them. The area of the bars is already unveiling a big part of the data and the specific values can be hidden until demand.

At first I sorted the bars according to their values, but I decided to keep the same order for each country as this enhances the possibility of comparison due to the repetition element and alignment of the bars. This was increased by the repetition of colours of the bars. These graphic design principles enhance the usability of this visualisation as they prevent cluttering and decrease the cognitive load of the visualisation. Also the grouping of the bars per country allows users to instantly see that these are related. By placing the bar charts for each country below the previous one allows the user some time to study the differences or similarities and can be done for as many countries as the user him/herself wants. Pressing the button “Clear Selection” allows the user to clean up the dashboard and try out some new countries whilst keeping the map in sight and minimising the amount of scrolling needed.