DATA ANALYST NANODEGREE

PART 8 – DATA VISUALIZATION

PROJECT: 2016 GLOBAL ENERGY OUTLOOK

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My Tableau Public story can be found following this link:

https://public.tableau.com/profile/florence8272#!/vizhome/2016EnergyOutlookv2/2016GlobalEnergyOutlook

Original version (before feedback):
https://public.tableau.com/profile/florence8272#!/vizhome/EnergyOutlook_0/Story1

The data supporting this comes from the 2017 Statistical Review of World Energy from BP (published on June 21st, 2017):

http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html

BP constructs this review using governments' reports and published data. No license associated.

Summary:

In no more than 4 sentences, briefly introduce your data visualization and add any context that can help readers understand it

This visualization aims to get a better grasp at how energy is produced and consumed in the world today, and to highlight any historical trend that would be relevant to this understanding.

I started with a global outlook, considering the relative consumption of energy per type and per region, before focusing more closely on oil production, consumption and reserves. Plotting the historical price trend and the proved reserves as of today helped explain why most countries are now looking into a more diversified energy consumption, in turns leading to a recent, but steady, rise in renewables. Another part of that picture was highlighted by plotting the consumption and the production of certain energy types together, as part of a supply vs. demand view of the energy sector.

Design:

Explain any design choices you made including changes to the visualization after collecting feedback

Because this story's goal was mainly to draw comparison between different energy types or different geographical regions, I mostly used bar charts (stacked or plain), maps, and line graphs for historical data. I thought those were the visualization types that would allow the user to see the differences in the data the most clearly.

To ease those comparisons further, I drew the maps using both size and color as a data differentiator. For the other visualizations, I chose color palettes with varied colors in it, using the "color blind" option whenever possible.

I used reference lines in the line graphs to separate past from forecasts and highlight important events explaining price variations. The scatter plots are also made more visible using regression lines.

Changes after receiving feedback:

General: I added axis titles when missing, but ran into difficulties for the x-axis (years) of the third panel and fourth panel.

In the first panel: the three graphs use three different datasources with not exactly the same energy types, which – to my knowledge – makes it impossible to create a combined legend. I harmonized the colors used for the three visualizations as much as possible, and modified the sized of the charts and the position of the labels on the line charts to make it more visible.

Second panel: in the line graph, I moved the text of my reference lines to the top of the graph when needed.

Third panel: I added the y-axis titles on the stacked bar charts. For the x-axis, as my year variable is defined as discrete and not continuous, I was not able to add a title.

As I was editing the graphs, I realized one of my measures was defined with the wrong scale (thousands tonnes of oil equivalent vs million tonnes of oil equivalent for all the other measures), so I inserted a calculated field to divide it by 1,000; that explains why the look of the graphs changed so much.

Last panel: I moved the legends to the right side, making the color one more visible. Same problem than above for the x-axis in the line chart: I could not add a title as the variable is defined as discrete.

Feedback:

Include all feedback you received from others on your visualization from the first sketch to the final visualization

Feedback from Udacity reviewer:

- In the first story point, a line plot with different color is used. Using a legend would be clearer. Now we have to go back to the first line plot to understand the second. We could create one legend for all the categories in the story point, and use the same colors for both the line plot and the stacked bar chart. In the last story point, the same colors are used, but we can put the legend on the top or on the side, making clear it's not just meant for the bar chart.
- Nice job marking some important events in the line plot in the second story point, but the text is covered by other text. We should find a solution so that all events are visible.
- Some charts are missing labels. Even if it's obvious what 2011, 2012.. means, it's better to include a label anyway.
  The stacked bar charts in the third story point doesn't have any label for the y-axis either.

Resources:

List any sources you consulted to create your visualization

To understand the data:

The Statistical Review (June 2017) from BP, both the workbooks and the published study: http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html

To build this Tableau story:

I used extensively the posted threads on the Tableau community website (http://community.tableau.com) and its Onlinehelp (http://onlinehelp.tableau.com). A few of the links that particularly helped me:

How to link a Tableau workbook to different data sources: https://community.tableau.com/thread/147791

Build a Scatter Plot: http://onlinehelp.tableau.com/current/pro/desktop/en-us/buildexamples_scatter.html

Adding Trendlines: http://onlinehelp.tableau.com/current/pro/desktop/en-us/trendlines_add.html

Move Titles of Reference Lines: https://community.tableau.com/thread/228895

Calculated Fields: http://onlinehelp.tableau.com/current/pro/desktop/en-us/calculations_calculatedfields_create.html#Create_a_Calculated_Field

From other sources:

Stacked bar charts with multiple measure: http://kb.tableau.com/articles/howto/stacked-bar-chart-multiple-measures

Reference Lines: https://www.interworks.com/blog/rcurtis/2016/06/06/tableau-deep-dive-parameters-reference-lines

How to Create a Tableau Dashboard: http://www.dummies.com/programming/big-data/big-data-visualization/how-to-create-a-tableau-dashboard/

How to Build a Dual-Axis Map: http://www.evolytics.com/blog/tableau-201-make-dual-axis-map/

How to Add Vertical Lines to Slope Graphs: http://www.vizwiz.com/2016/07/tableau-tip-tuesday-how-to-add-vertical.html