Energy Supply and Demand in Canada

Shahriar Rahman (shr062), Jesse Ponugoti (vip670)

Project Dataset

This dataset provides information on Energy Supply and Demand information within Canada broken down by fuel type from the years 1995-2016. There is totals for all of Canada, as well as data broken down by province.

The dataset is quite large with about 131K rows and 7 columns, and we plan to use the whole dataset. The columns describe the reference date, geographic location, fuel type used, the supply location, vector, coordinates, and the amount consumed in kilotons.The majority of the work will be done use the reference date, geographic location, fuel type used, the supply location, and the consumption value of the value. The data contains rows with null values rows, which will be disregarded.

The data is straightforward with the most important unit, value or the consumed fuel, being consistent throughout the dataset. This way, we won't need to perform any external manipulations to the dataset.

Visualization Model

We will mainly be working with a map of canada to start off. There are going to be on-click properties on each province. The default view will be a heat map of the production and consumption of fuel. The provinces will be displayed based on the levels of fuel consumption for a certain time period.

When a province or node is selected, the visualisation will adapt to display the parts of the world that are suppliers of energy for that region. An OD matrix will be used to convey the relationship between the regions. The OD matrix will also be heat-coded based on the levels or supply and demand for the specified range of time in years.

Revelations

The users will, initially, be able to energy consumption of each province in Canada to better understand which parts of the country consume the most and least amount of energy. When a user wants to view the information for each province, they can select a province, and and OD matrix will appear showing the relationship of the selected

region and the supplier to that region. Information such as, location of the supplier, the amount and the type of fuel supplied. The users can control the time range to display the change in energy consumption for a specific region of the country as a whole. The uses will also be able to control which regions are displayed in the OD matrix relationship.

We want to discover and portray the type and amount of energy used per province in Canada and where the energy comes from.

Background Literature

This link has information and visualization of the demand per province in Canada for 2009 and 2010.
http://www.statcan.gc.ca/pub/11-402-x/2012000/chap/ener/ener-eng.htm

This link gives us information of the amount of energy consumed and used by Erson in conjunction with the industry
https://www.canadiangeographic.ca/article/energy-use-canada

Visualization of the domestic energy consumptions in Canada from 1926-2009. It shows the energy consumption with respect to fuel type in the time period.
https://www.desmog.ca/2013/03/27/report-canada-could-be-green-energy-goliath

We wanted to find the amount of energy produced by canada by different methods.
http://www.thecanadianencyclopedia.ca/en/article/energy/

Lastly, we wanted to compare Canada with the rest of the world in terms of renewable and non-renewable energy consumption.
https://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0ahUKEwjY3bfHoavZAhUX2mMKHaV5CjIQFgg7MAI&url=https%3A%2F%2Fwww.worldenergy.org%2Fwp-content%2Fuploads%2F2016%2F10%2FWorld-Energy-Resources-Full-report-2016.10.03.pdf&usg=AOvVaw06YyeK-LmUrQBgE2XLgGNf