

# Mitochondria Design Document

## Idea

Our project focuses on illustrating the usage of energy across major US cities, as well as the overall national import and export of energy sources.

## Details

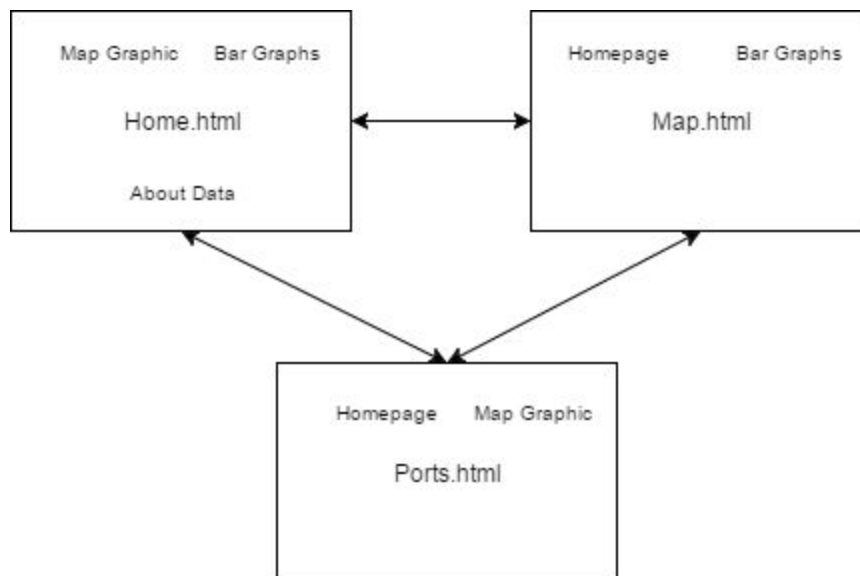
### **Part I: Major US Cities**

The first part focuses on the usage across US cities. We will have a map of the United States with major cities outlined in a circle. These circles' size depends on the level of usage, and colors on the type of energy. Scrolling over a side key allows users to see the specific form of energy on the map.

### **Part II: Import and Export**

Using a bar graph, we plan on representing the different levels of import and export for all of the pre-specific energy types. Users can scroll over a sidebar to highlight specific energy types.

### **Site Map:**



## **Component Description:**

### **HTML**

- **Home.html**
  - will have interesting energy animations, visually appealing
  - include links to the graphs
- **Map.html**
  - contains the map on an SVG element
  - javascript, d3, and css used to generate the circles, resize, and color them
  - a key on the side will be used as a filter for the various types of energy
- **Ports.html**
  - several bar graphs to show different levels of imports/exports
  - hovering over a bar will highlight it and display additional information
  - user can specify the year for the data

### **Javascript**

#### **Static**

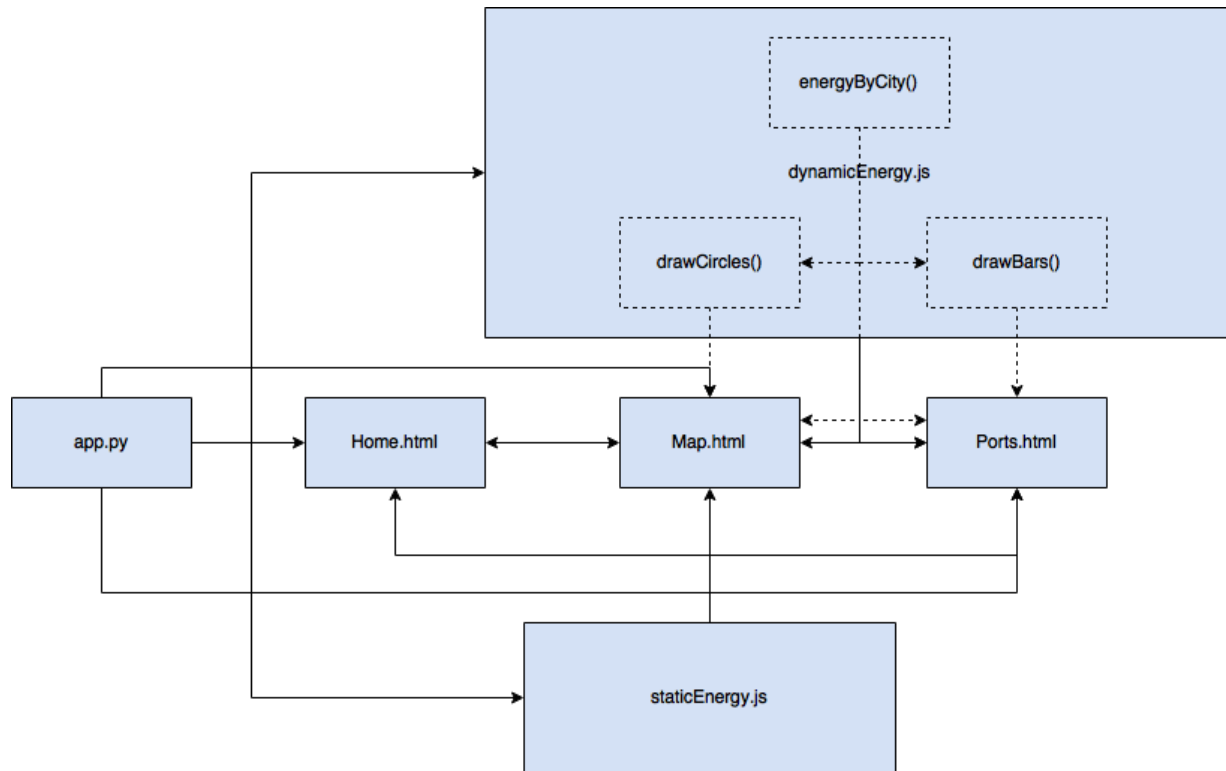
- Map
  - Height of map
  - Width of map
  - Geographic projection - Albers
    - translate - to center
    - scale - fit in map
  - Path generation
  - Legend text
  - SVG element - bind to map
- Bars
  - Height of chart
  - Width of chart
  - Legend text
  - SVG element - bind to map

#### **Functions**

- Map
  - energyByCity() - energy by city data
    - range - input data
  - drawCircles() - drawing circles on map

- size - radius directly related to amount of energy consumed
- color - refers to type of energy
- location - refers to city location
- Bars
  - drawBars()
  - height - amount imported/exported
  -

### **Component Map:**



### **Delegation:**

Anthony:

- Backend, parsing dataset information
- Helping on some visual designs for the bar graph/ map
- Adding some javascript to make the page more interactive

Nicholas:

- Finding datasets for each major city and organizing it
- Creating basic html templates
- Creating flask app and page interactions
- Displaying data

Janet:

- CSS for tooltips, etc.
- Backend for displaying graph data

Sharon:

- D3 development - static variables and functions
- Designing scale for map, components

### **Timeline:**

3/29:

- start basic page templates (very simplistic designs)
- link the three pages together

3/30:

- parse through the dataset and gather the necessary information
- figure out how to overlay the US map (maybe instead of having it as a plain jpg, we could transport it to another file format to make it easier to display the circles)

3/31:

- begin drawing circles on the map
- using the data we obtained and d3 functions, start making the circles resize dynamically
- color the map, make it less bland

4/1:

- display numeric values when user hovers over circle
- start working on the bar graphs (d3 and js)
- maybe we can use numpy and pyplot to create a generic graph

4/2:

- add some stylistic touches to the graphs
- create the sidebars that allow for the filtering functionality
- continue decorating our homepage :D