Power Droughtage

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Agenda

1 Data & Users

2 Layout

3 Usability Study

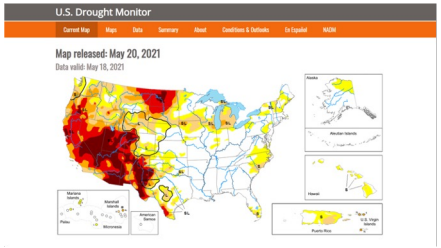
4 Further Work

Data & Users

- Open Energy Data Initiative
- 2016 Data
- County/City Level
- Energy Consumption
- Energy Costs
- CO2 Emissions

Users

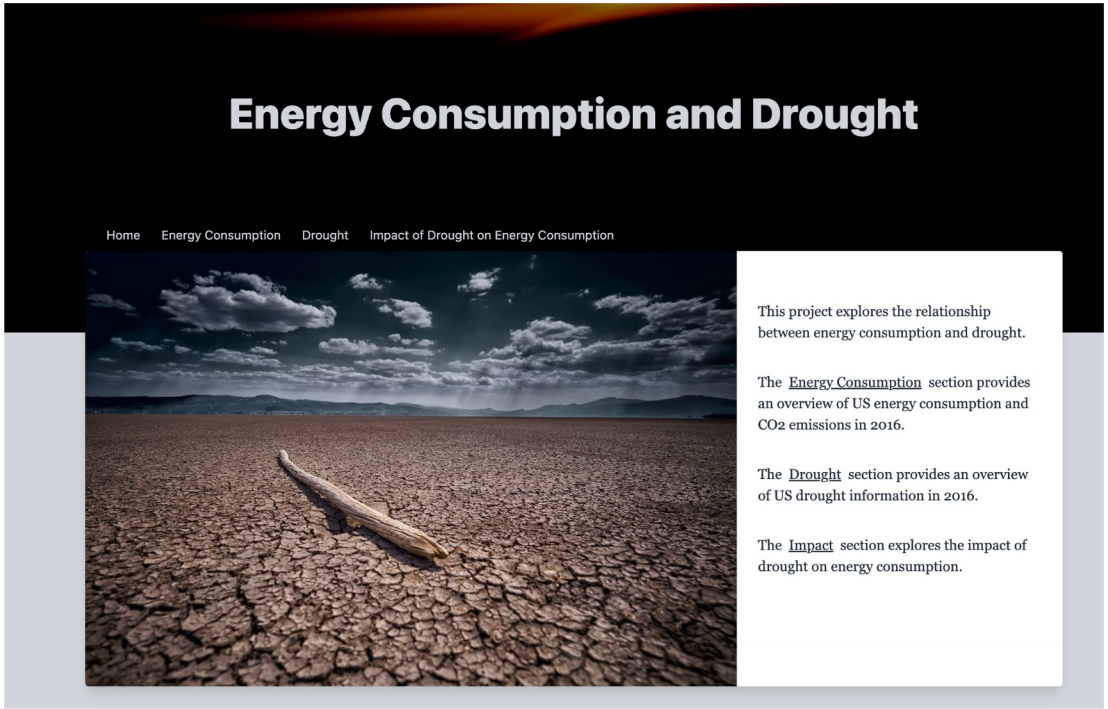
- General public
- Regulators/policymakers
- Climate change researchers



- US Drought Monitor: county-level Drought Severity Coverage Index (DSCI)

Technology & UI Layout

- Tableau
- Altair
- HTML/CSS



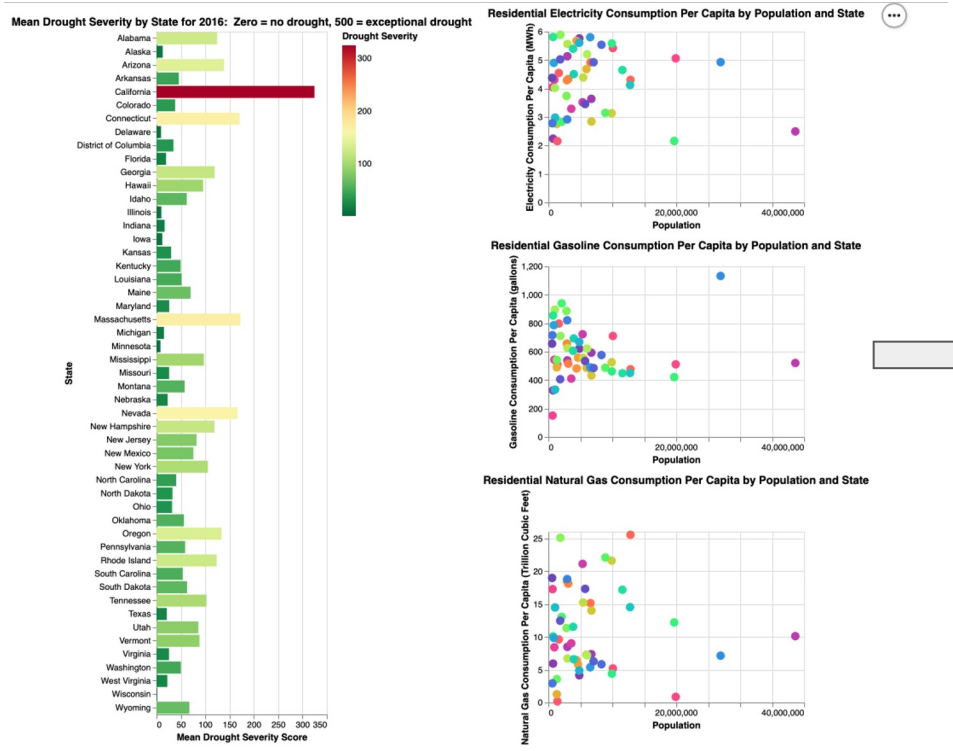
Usability Feedback

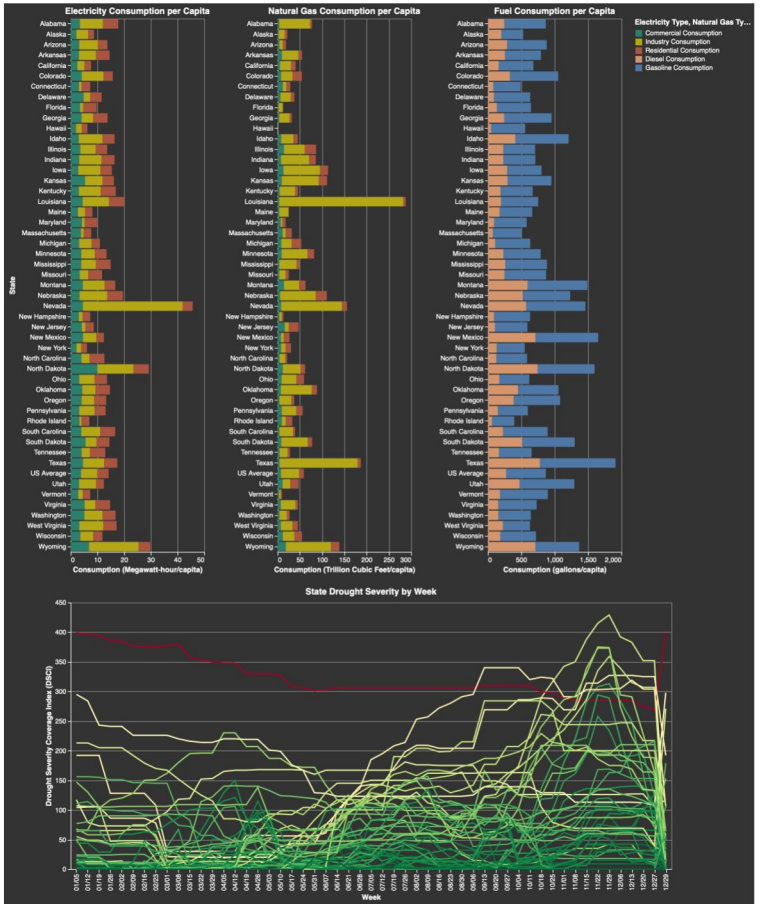
- Non-expert users from study were able to **instantly compare state metrics**
- Users understood the tasks
  - Directly compare energy usage with droughts
  - Determine which states had highest energy usage
  - Determine which states had the highest drought severity
- Users found the content **interesting and engaging**
  - Enjoyed the familiar map visualizations
- Webpage was **easy to navigate**

Iterations and Changes Implemented

- Adjusted **color scheme** to be user intuitive
- **Standardization** of legends and tooltips
- Included **instructions** for each visualization to ensure understanding of the task
- Reworked visualizations that were overwhelming for the users
- Animations converted to video
- Included **side bar** to navigate tasks

Example Usability Iteration





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Website demo

http://w209project.s3-website-us-east-1.amazonaws.com/index.html

Best Solution for Use Case

- Broad audience of users
- Meant to be an exploratory analysis to determine state and county energy usage and drought metrics
- Focused on map visualizations to geographically visualize the data
- Animations and line charts to visualize time based metrics

Limitations and Further Work

- Expand data past 2016
- Add other natural disasters to the study
- Non-expert users in usability study