



Holding Corporations Accountable for Environmental Destruction

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Questions

1. Which companies are doing the best and worst in each industry, and by what metrics?
2. Are there any trends for companies of certain industries?
3. Do EPA violations tend to occur in any specific part of the US?
4. Are there identifiable reasons explaining why certain locations are worse?
5. How does a company's stock price change after a huge EPA violation?
6. Are EPA violations significant enough to negatively impact these corporations?



Datasets, References, & Libraries

Datasets:

- [Just Capital Ranking](#) - Company ranking based on numerous environmental factors
- [Scope 1 & 2 Emissions](#) - Direct (Scope 1) and Electric Indirect (Scope 2) emissions from companies
- [EPA Violations](#) - EPA Violations and the penalty handed out from 2000-2019
- [US Cities Database](#): Database of all US Cities and their latitude and longitude coordinates

Viz References:

- [Plotly Bubble Map Plot](#) - used for structure, all code was written by us
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Libraries: Plotly, Geopy, Pandas, Beautiful Soup, matplotlib

Web Scraping: Yahoo Finance historical stock information



Results & Questions Answered

1. Analyzing environmental score and EPA penalty amount by [industry](#)
 - Created a bubble plot graphing Just Capital environmental score with EPA penalty fine, with size depicting market cap and color depicting scope 1 emissions.
 - Within industries, companies with large EPA violations tended to have low environmental scores
 - Oil & gas companies consistently scored lowest on both axes, with “best” companies doing worse than most other industries
2. Analyzing US corporations by [geolocation](#)
 - Created a bubble map showing the locations of EPA violations with bubble size depicting penalty amount
 - Many violations tend to cluster around the East Coast and not surprisingly, that is where most of the biggest violations occur as well
 - Lots of major violations in Texas as well, and following the first analysis (EPA penalty and environmental score), companies with large EPA violations are mostly from oil and gas industry as well as motor vehicles
3. Analyzing the long term effects of EPA fines on [stock prices](#)
 - Determined top 10 violations with highest ratio of penalty amount to market cap of company.
 - 6/10 companies analyzed had decreasing stock prices for the 30 months following violation
 - Only 2/10 companies had stocks decreasing at a higher rate after the violation than before.

Visualizations

- [Environmental Scores by EPA Penalty](#)
- [Environmental Scores by EPA Penalty: Oil & Gas](#)
- [EPA Violations by Location](#)
- [EPA Violations by Location/Industry](#)
- One of 10 stock price plots shown to the right

