EV Power - Lab 4 Project Report

Measuring Proportions of Nonrenewable Energy Use per State

Part 0: libraries

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.4     v readr     2.1.5
v forcats   1.0.1     v stringr   1.5.2
v ggplot2   4.0.0     v tibble    3.3.0
v lubridate 1.9.4     v tidyr     1.3.1
v purrr     1.1.0
-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to beco

Attaching package: 'maps'


The following object is masked from 'package:purrr':

    map
```

I'll be using the tidyverse, maps, dplyr, gpplot2, and stringr libraries for this project.

Part 1: Defining Research Question

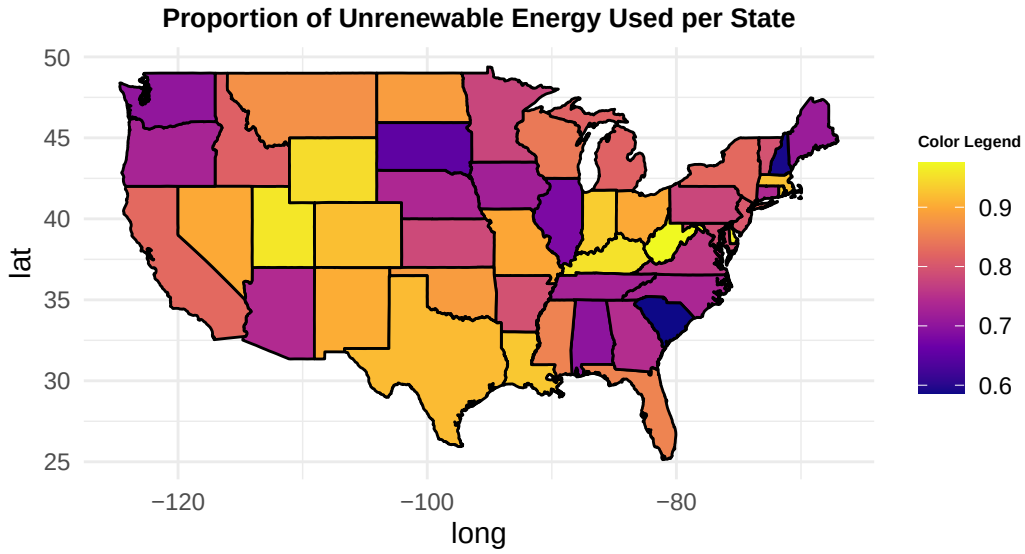
Chosen Question: How much electricity comes from fossil fuels per state (totalled across 2021-2023)? This may sound boring, but it genuinely does have special meaning to me. You see, I am in a few subreddits that often show statistics-based maps of the US similar to this one, except for things like natal fatilities or quality of education. And a common meme is that they all have the same groupings, with high concentrations of 'bad' things in the southeast and central north. So, I want to see if it holds true for my question too!

Part 2: Data Preparation and Cleaning

Part 3: Joining / Pivoting Datasets for Analysis

```
# A tibble: 6 x 9
  state_abbr   Coal `Natural Gas†` `Petroleum (BTU)` nuclear
  <chr>       <int>          <int>             <int>   <int>
1 AK          55723        1281593            794820       0
2 AL         832371        2302938           1727227 1398600
3 AR         608109        1158210            983549  447518
4 AZ         452191        1490151           1801433  993080
5 CA          87039        6458662           8973501  540848
6 CO         690524        1560306           1550375       0
# i 4 more variables: total_renewable_energy <int>, total <dbl>,
#   unRenewProp <dbl>, renewProp <dbl>
```

Part 4: Mapping Visualization



Part 5: Analysis

The graph really didn't match the meme at all. In fact, the results seemed to vary wildly from state to state without much of an immediately obvious reason why. Rural states seem to tend to use more unrenewable energy, but some are notable outliers (like South Dakota, as opposed to North Dakota). In addition, there doesn't seem to be much of a correlation with Republican or Democratic states. Ultimately, I think this is a topic that would require more research, and comparison with more graphs to find a pattern. My best guess at a pattern is, I suppose, that states on the east tend to use less than states in the west and the south.