

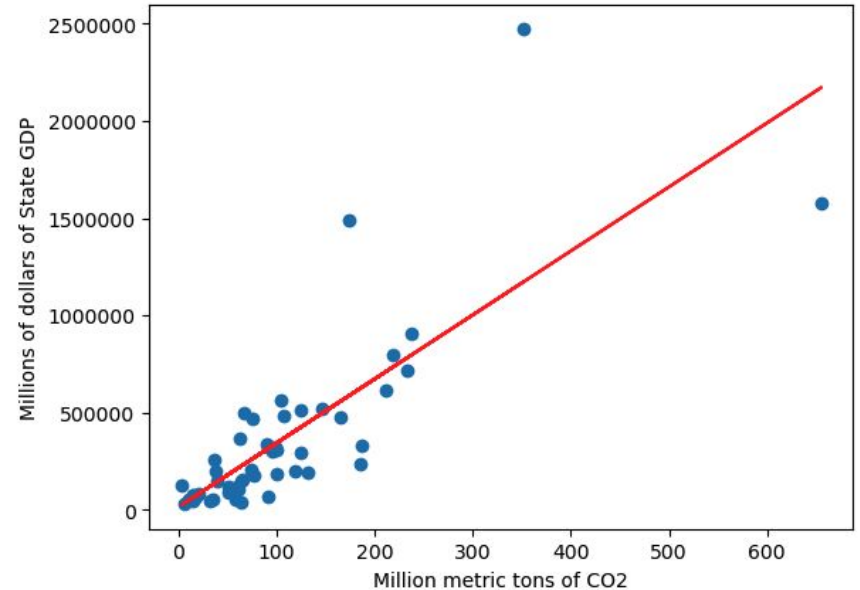
# Energy Usage in the US and its correlation with CO2 Emissions

The relationship between low emission and high GDP  
Goal is to show what factors contribute to a high GDP while keeping emissions low

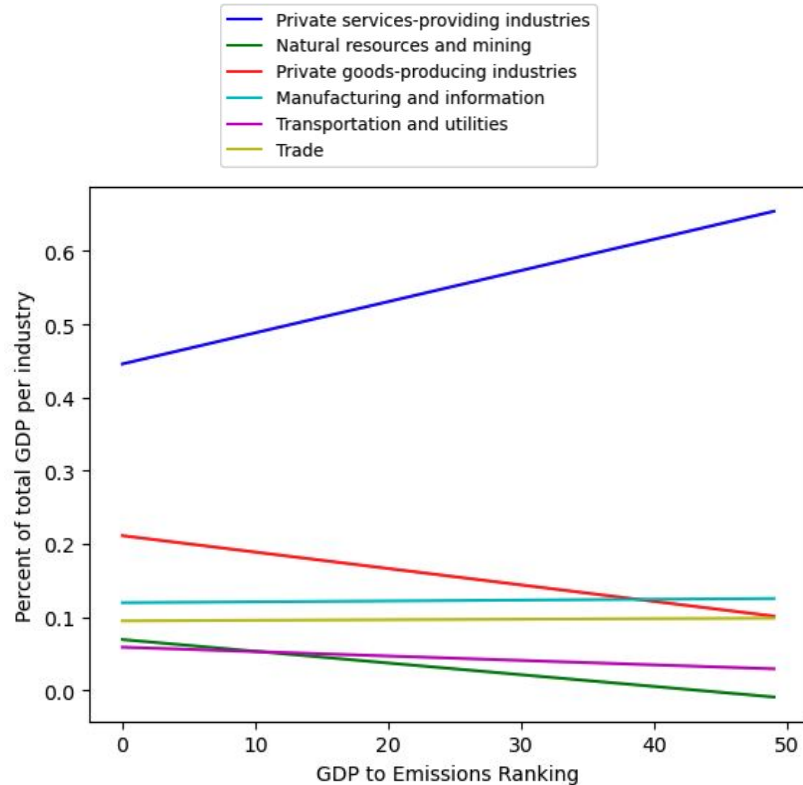
# Is there a correlation between GDP and CO2 Emissions?

- P-Value confirms trend of increased GDP leading to an increase of CO2 emission
- Visual outliers include California and Texas due to their size
- New York ends up having the highest relative GDP to emissions coefficient while Wyoming is the least efficient

pvalue: 5.172205854220462e-12

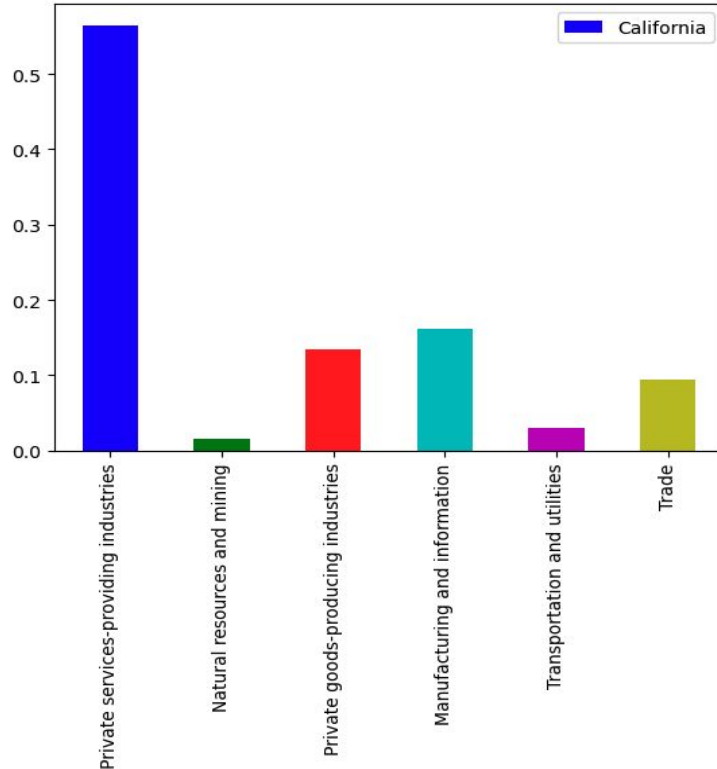


# What industries are efficient GDP producers while keeping emission low?



Industry	P-value and R-Value	Efficiency rating
Private services-providing industries:	<b>P-value:</b> 4.4219566872632635e-11 <b>R-Value:</b> 0.7738172755838847	✓ - Verry Efficient
Natural resources and mining:	<b>P-value:</b> 3.271879194522211e-07 <b>R-Value:</b> -0.6498925721974878	✓ - Not Efficient
Private goods-producing industries:	<b>P-value:</b> 2.3762862062828127e-1 <b>R-Value:</b> -0.7803293796537877	✓ - Not Efficient
Manufacturing and information:	<b>P-value:</b> 0.7613359674456819 <b>R-Value:</b> 0.044046685251369844	✗ - No Correlation
Transportation and utilities:	<b>P-value:</b> 2.1634507925990875 e-05 <b>R-Value:</b> -0.562040646995187	✓ - Not Efficient
Trade:	<b>P-value:</b> 0.5715164230513106 <b>R-Value:</b> 0.08195709106782365	✗ - No Correlation

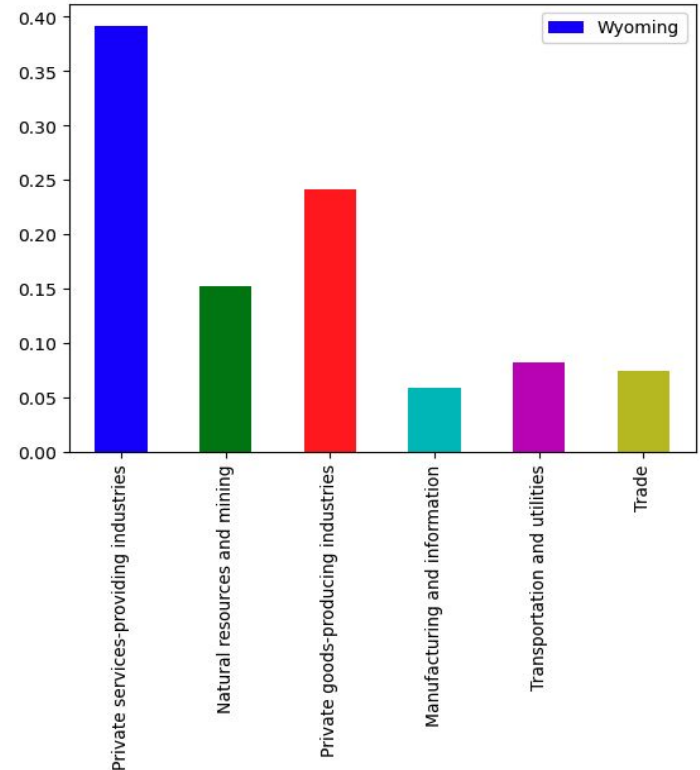
# California GDP Breakdown



- California ranks 5th in GDP/CO2 emissions
- Companies within a service industry provide specific products or services that meet a need or are otherwise useful to customers.
- BEA Def: The private services-producing industries consist of utilities, wholesale trade, retail trade, accounting, tradesmanship (like mechanic or plumber services), computer services, restaurants, tourism.

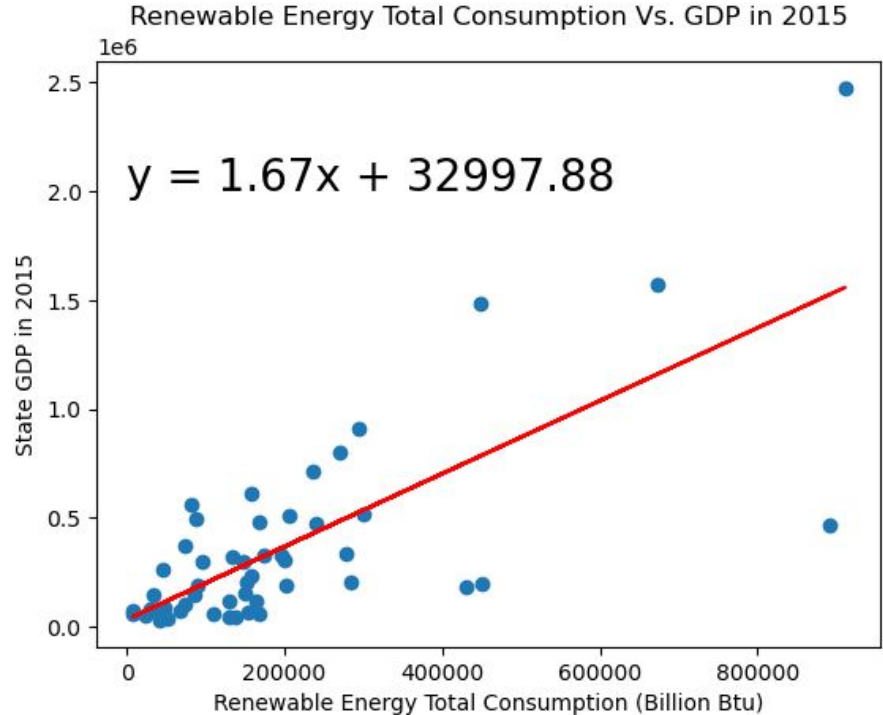
# Wyoming GDP Breakdown

- Wyoming ranks last in GDP/CO2 Emissions
- BEA Def: Natural resources and mining consists of Agriculture, forestry, fishing and hunting; and mining.
- BEA Def: The private goods-producing industries consist of Agriculture, forestry, fishing and hunting; mining; construction; and manufacturing.



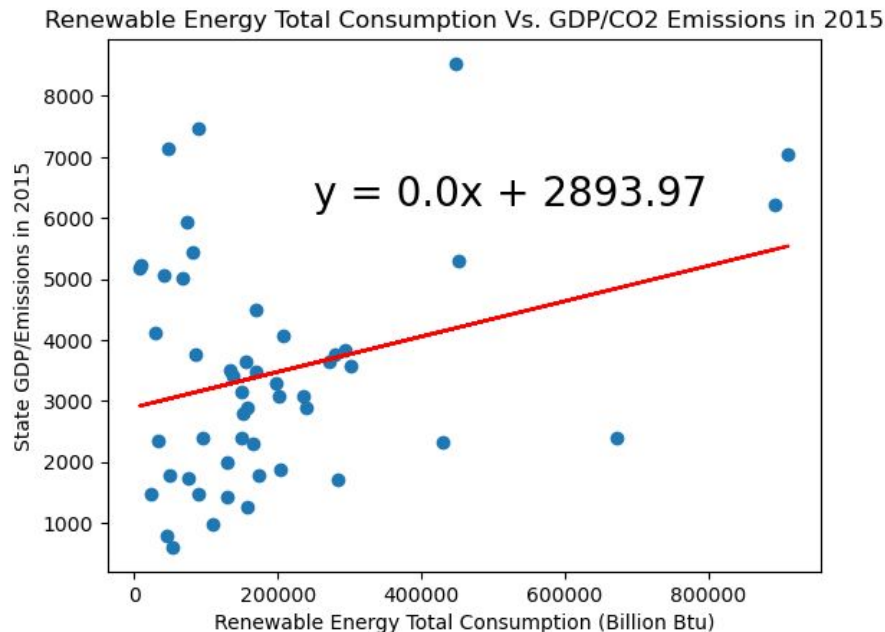
# Renewable Energy Consumption to GDP

- r value: 0.7243  
p value: 2.0344602781395633e-09
- Suggests a positive relationships between State Renewable Energy Consumption to GDP
- The r value pulls closer to +1, providing confidence in a correlation between the two variables



# Is there a correlation between the consumption of Renewable Energy to GDP/CO2 Emissions Coefficient?

- r value: 0.3069  
p value: 0.030159056872829722
- An r value closer to 0 than + or - 1 leads us to believe that there is little to no correlation between the two variables
- Although the p value is less than 0.05, our r value does not lead us to rejecting the null hypothesis

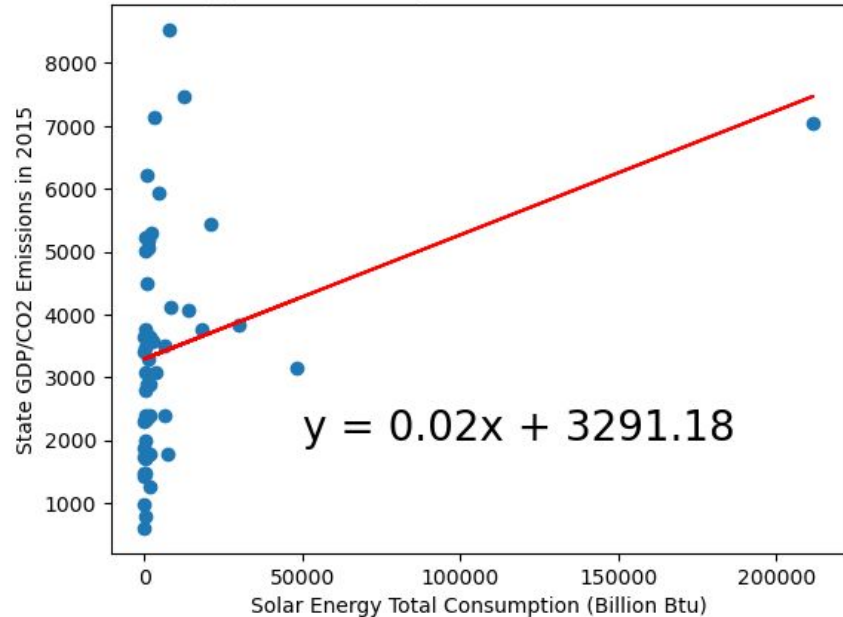


# Does Solar Power Utilization Lead to Higher GDP/CO2 Emissions over Non-Renewable Sources Such As Coal

## State Solar Consumption

- r value: 0.3282
- p value: 0.019987798947970443

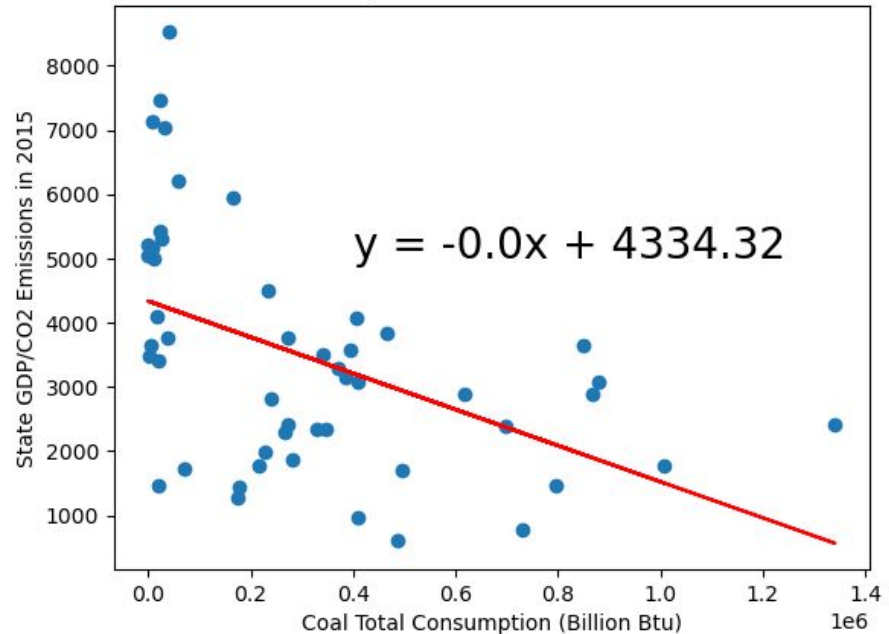
Solar Energy Total Consumption Vs. GDP/CO2 Emissions in 2015



## State Coal Consumption

- r value: -0.4810
- p value: 0.00040664207359578444

Coal Total Consumption Vs. GDP/CO2 Emissions in 2015





Questions?