



# Tomorrow's Energy Today

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U.S. Solar Energy examined...

# Our sunny team



Allyson McInnis  
Nurse by day,  
anything but a nurse  
by night



Ed Spiezio-Runyon  
Is also here



Eric Squires  
Coatings specialist



Liberty Heise  
Former Educator



Jeremy Tallant  
Here Everything  
is Better



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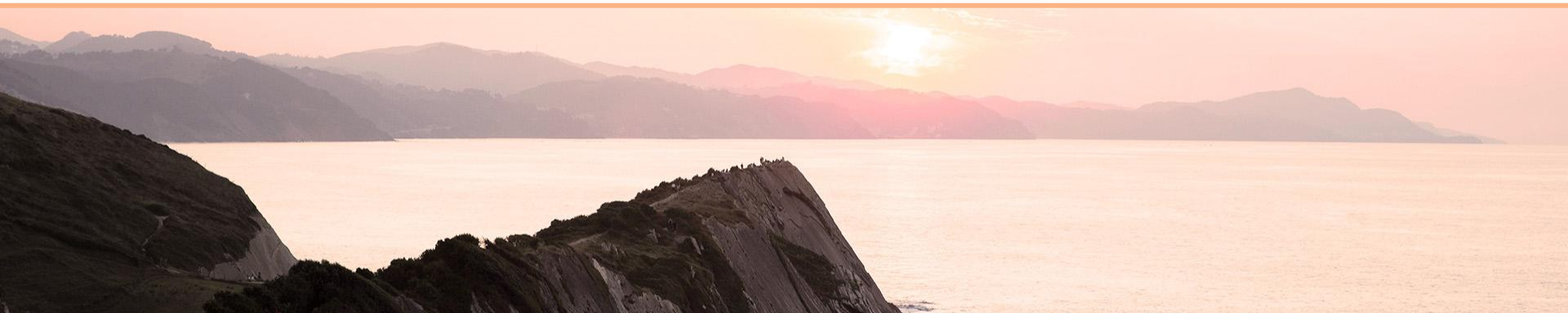
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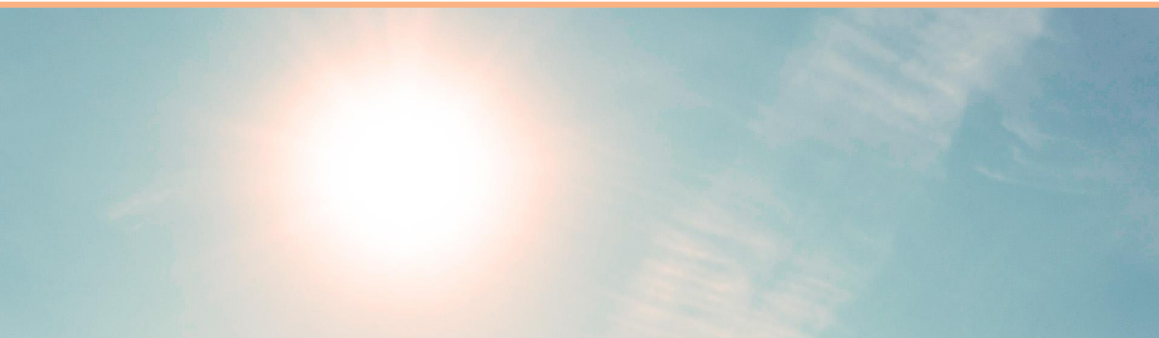
In this study, we examined the effects of different variables on solar usage in the U.S.

## Our Data

We used two different data sets during our research for this topic (the most up to date an comprehensive data available)

- Deep Solar (last updated 2016)
- Census API (last updated 2020)

\*Only the contiguous United States were used in this analysis due to lack of data given on the non-contiguous states/territories





# Data Retrieval and Cleansing Process

Census API



Deep  
Solar CSV



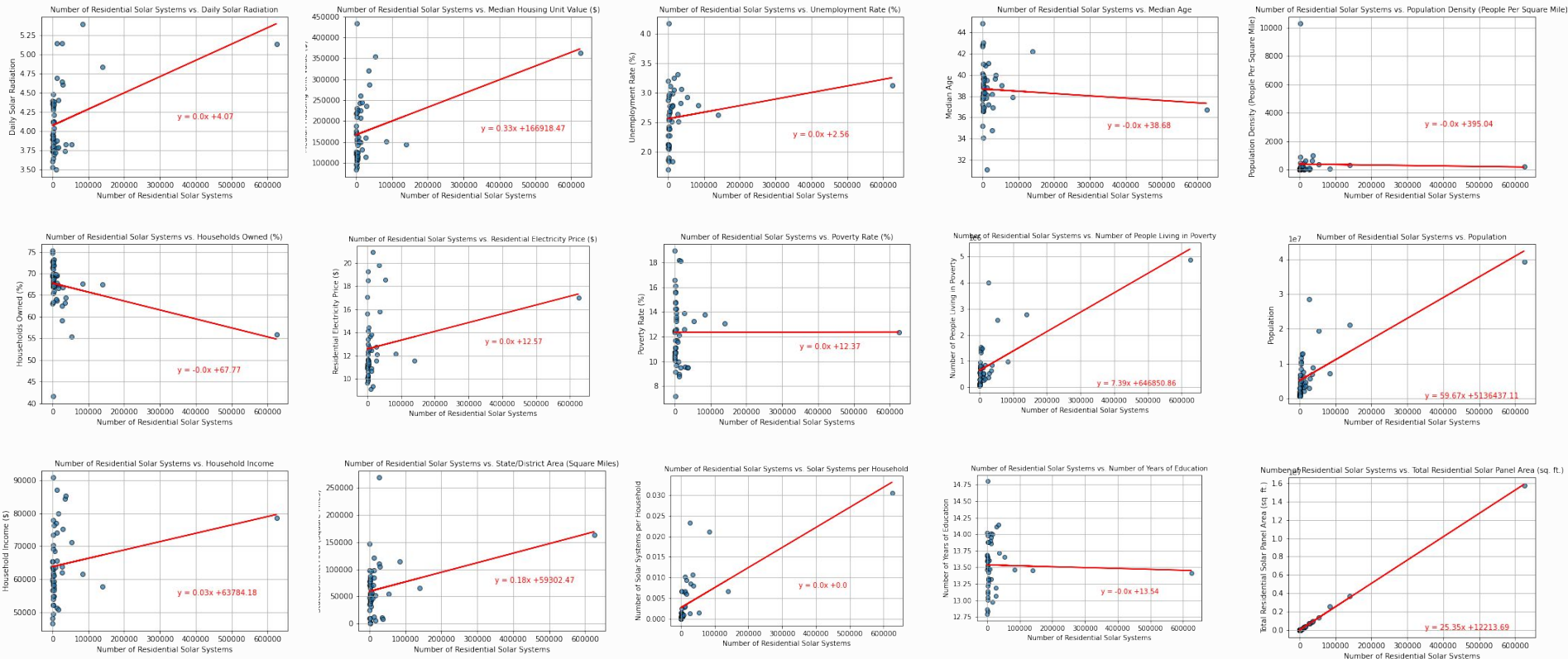
Name	Population	Median Age	Household Income	Per Capita Income	Poverty Count	Poverty Rate	Unemployment Rate	State	Years of Education	Solar System Per Household	Median Housing Unit Value	Household Count
Pennsylvania	12794885.0	40.9	63627.0	35518.0	1480430.0	11.570483	2.745222	pa	13.472963	0.001050	150700.0	4270226.0
California	39346023.0	36.7	78672.0	38576.0	4853434.0	12.335259	3.123769	ca	13.409571	0.030414	362850.0	12542060.0
West Virginia	1807426.0	42.7	48037.0	27346.0	300152.0	16.606600	2.878735	wv	12.860153	0.000000	95600.0	714719.0
Utah	3151239.0	31.1	74197.0	30986.0	283360.0	8.992019	1.835119	ut	13.952787	0.010257	208200.0	795526.0
New York	19514849.0	39.0	71117.0	40898.0	2581048.0	13.226072	2.923774	ny	13.655858	0.001493	354650.0	6925678.0
District of Columbia	701974.0	34.1	90842.0	58659.0	103391.0	14.728608	4.172519	dc	14.799600	0.006762	432800.0	240110.0
Florida	21216924.0	42.2	57703.0	32848.0	2772939.0	13.069468	2.621082	fl	13.457360	0.006778	143100.0	7269480.0
South Carolina	5091517.0	39.7	54864.0	30727.0	726470.0	14.268243	2.660975	sc	13.259044	0.001246	124900.0	1579901.0
North Dakota	760394.0	35.2	65315.0	36289.0	77491.0	10.190901	1.691360	nd	13.599465	0.000357	126100.0	252332.0
Maine	1340825.0	44.8	59489.0	33774.0	144384.0	10.768296	2.121231	me	13.692059	0.000000	167800.0	454650.0
Georgia	10516579.0	36.9	61224.0	32427.0	1461572.0	13.897789	2.771871	ga	13.311449	0.000532	123950.0	3546209.0
Alabama	4893186.0	39.2	52035.0	28934.0	762642.0	15.585796	2.561583	al	13.003808	0.000430	104550.0	1843070.0
New Hampshire	1355244.0	43.0	77923.0	41234.0	97418.0	7.188226	2.101393	nh	13.984831	0.001217	230500.0	458730.0
Oregon	4176346.0	39.5	65667.0	35393.0	506558.0	12.129215	2.784659	or	13.861088	0.006735	225900.0	1324969.0
Wyoming	581348.0	38.0	65304.0	34415.0	61006.0	10.493887	2.274369	wy	13.673011	0.001514	188200.0	217609.0

# Analysis





# If at first you don't succeed...



Remember: a negative result is still a result.

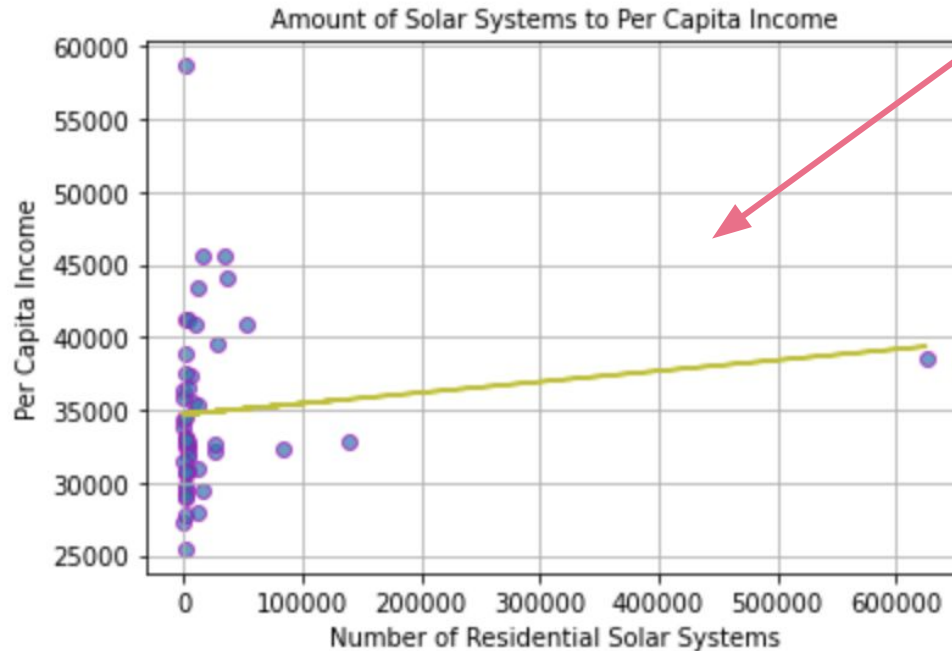
# Does Per Capita Income determine Solar Usage?

- Contributing Factors Include:
  - How much \$ you make
  - Owning versus renting your home
  - Availability of solar in your area
  - Upfront costs of solar install
  - Potential to net benefits (lower energy bill) vs. making an ecologically sound choice



# Income vs. Solar Count

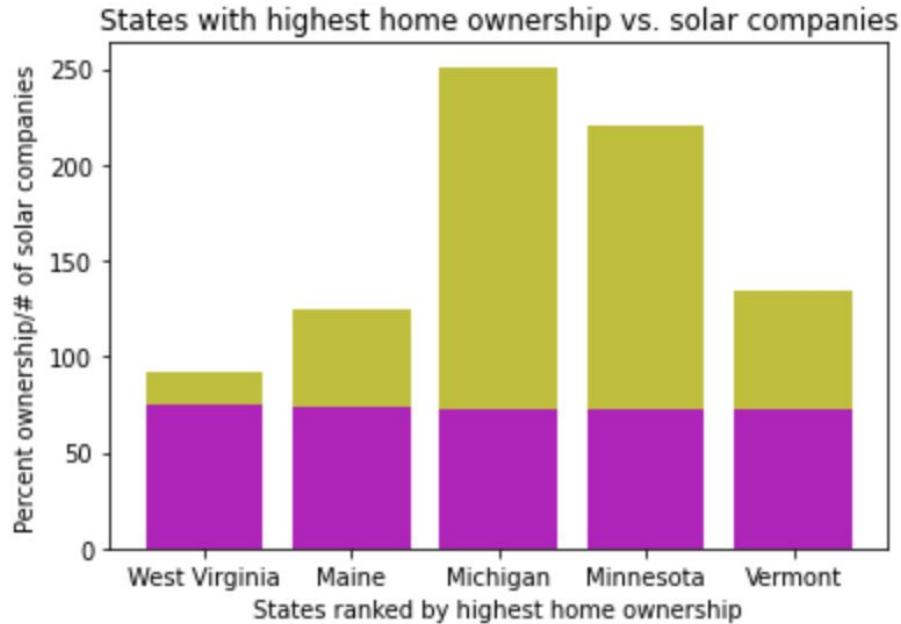
The r-value is: 0.012757423326646426



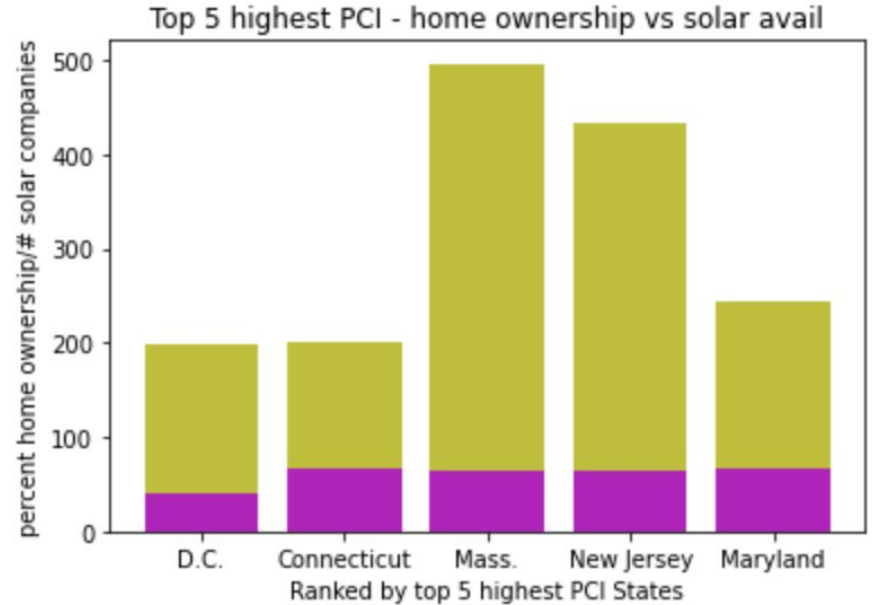
Nope.

No  
statistical  
correlation  
here.

# Availability overrides it all

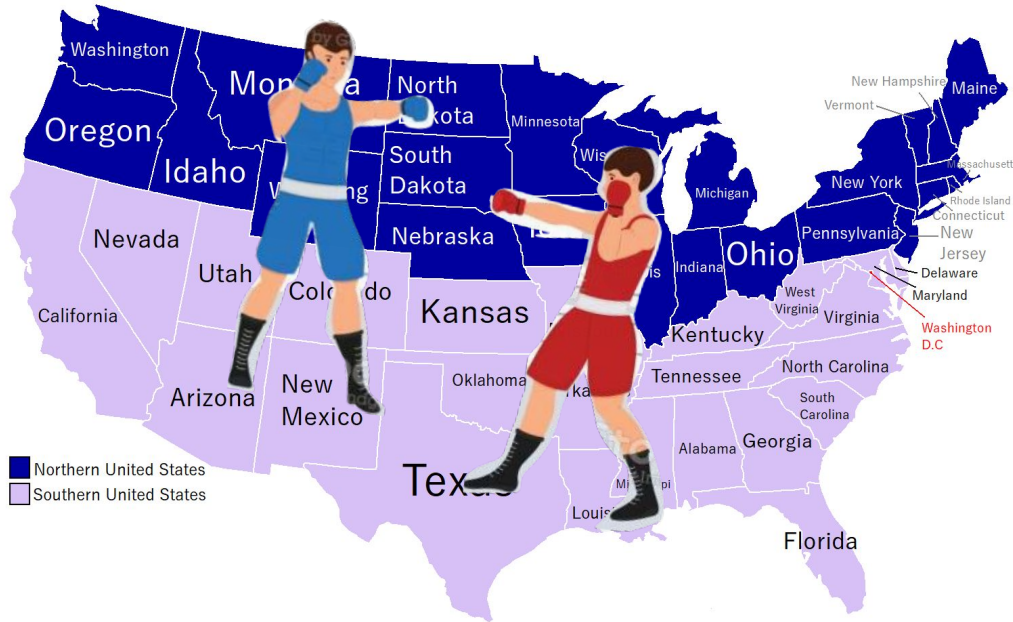


\$38,676



\$58,659

# Northern Border States VS Southern Border States



## The Question:

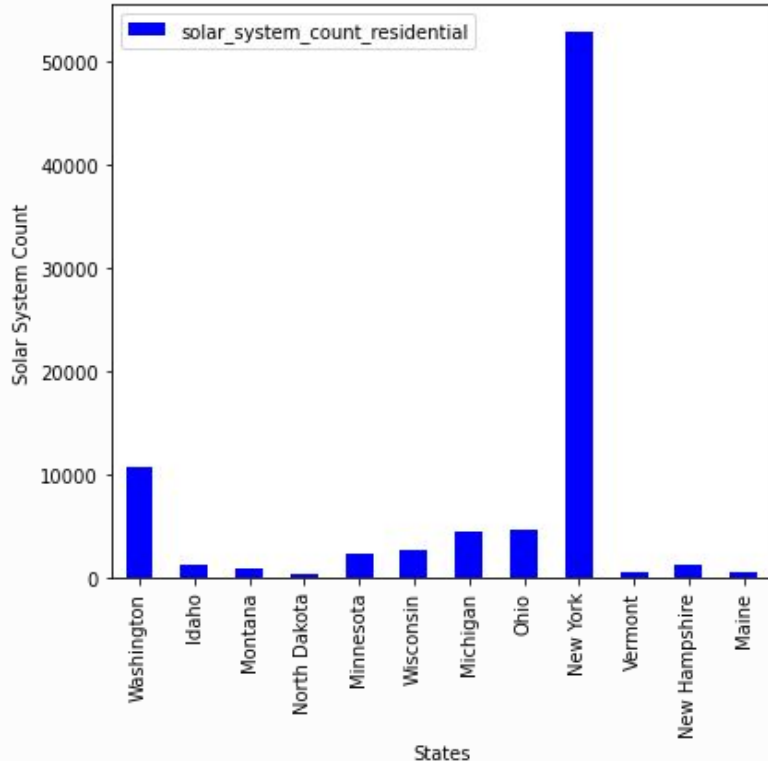
Who is the best at using the sun for their own gain?

## The Comparison:

We are only comparing the Northernmost states and the Southernmost states.

# From the North...

## The Frozen Tundra packs a hard punch!



- ❖ New York hits the hardest with 52,873 residential panels!
- ❖ Our next contender, Washington, packs a significantly smaller punch with 10,697 panels
- ❖ Our yankee friends finished with a total of **82,213**

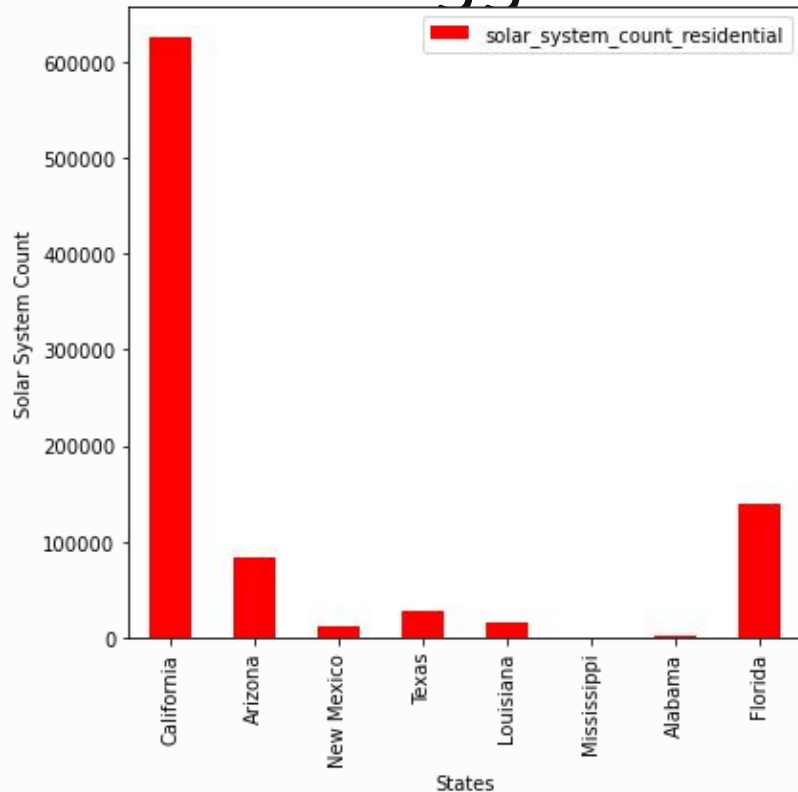


# From the South...

## The sunshine states answer with a slugger



- ❖ California has the highest number of panels in the country with 625,476
- ❖ Our beloved Texas falls to 4th with 27,187
- ❖ The south pulled through and finished with a total of ...





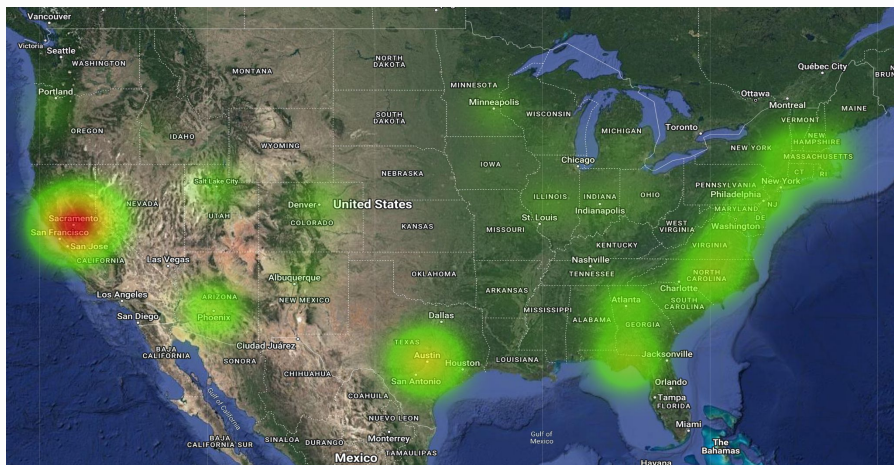
# K.O.!!!



# 905,267

(a 823,054 difference from the North!)

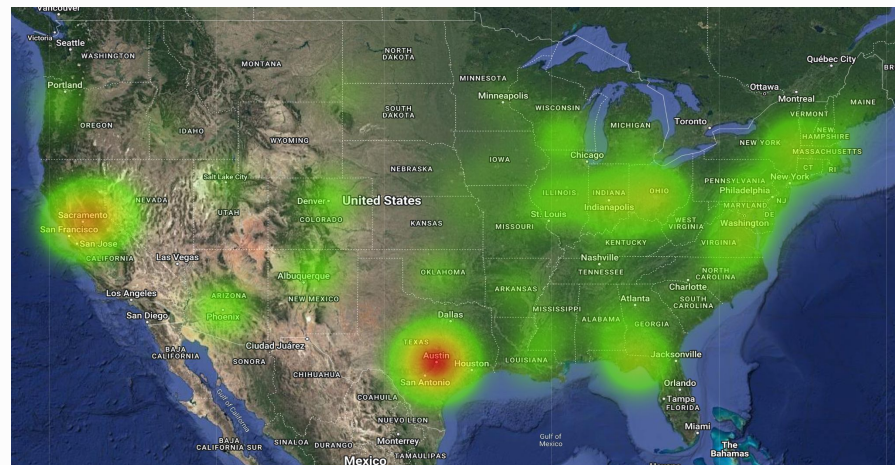
# Projections for the Future



Where we are today:

**130.9 GW**

Current national output



End of 2027:

**326.5 GW**

Projected national output

**249.4%**

Projected % increase

# Where to Next?

*Questions we considered after reviewing our data analysis...*



Q1

Does house construction/ age of home affect energy efficiency?



Q2

Is the cost of solar attainable for average Americans?



Q3

Why aren't more states with high solar radiation using solar?



Q4

Does adverse weather affect homeowners hesitancy towards buying?



Q5

Why don't we use large open land with high sun radiation for a National Solar Bank?

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Questions?

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