CITY OF EL PASO, TEXAS
AGENDA ITEM DEPARTMENT HEAD'S SUMMARY FORM

DEPARTMENT: **Community and Human Development**

AGENDA DATE: **December 10, 2018**

CONTACT PERSON/PHONE: **Nicole Ferrini, Director (915) 212-0138**

DISTRICT(S) AFFECTED: **All**

SUBJECT:
Semi Annual update presented by the Regional Renewable Energy Advisory Council regarding recommendations for inclusion of specific renewable energy and energy demand goals into city sustainability initiatives.

BACKGROUND / DISCUSSION:
The Regional Renewable Energy Advisory Council was established to advise the City Council as an Ad Hoc Committee on all matters related to renewable energy strategy and industry development as follows:

The Advisory Council is made up of at least 5 board members that demonstrate a knowledge of, or experience in at least one of the following areas: engineering, architecture, energy management, utility infrastructure and /or sustainable building practices. At least two of these persons shall demonstrate experience in industry, innovation and economic development. Such persons shall submit a written statement to the City Manager or her/his designee detailing the requisite interest, knowledge or experience.

The advisory council will also include a single technical advisor from the local electric utility as a non-voting member. The technical advisor will be selected by assigned city staff for approval by city council.

The Regional Renewable Energy Advisory Council shall advise City Council on the following as initiated and requested by City staff:

A. Review and make recommendations regarding the City's renewable energy strategy and industry development;

B. Review and make recommendations on the City's Economic Development Incentives, Municipal Facility Design and Construction and Community Outreach Programs directly related to energy efficiency and renewable energy industry development;

C. Evaluate and make recommendations regarding services to the development and construction community directly related to energy efficiency and renewable energy via the Planning and Inspections Department;

D. Advise the City Council on funding priorities and mechanisms related to renewable energy infrastructure;

E. Advise the City Council on the promotion of renewable energy education and public outreach.

PRIOR COUNCIL ACTION:
City Council formally established the Regional Renewable Energy Advisory Council on January 26, 2016.

AMOUNT AND SOURCE OF FUNDING:
N/A

BOARD / COMMISSION ACTION:
Over the course of the last year, the RREAC has collectively worked on a series of recommendations to be presented to City Council in support of the terms and duties under which the advisory committee was established.

*********************REQUIRED AUTHORIZATION**********************

LEGAL: (if required)_____ **FINANCE:** (if required)
_____

DEPARTMENT HEAD: _____
_

(Example: If RCA is initiated by Purchasing, client department should sign also) Information copy to appropriate Deputy City Manager

APPROVED FOR AGENDA:

CITY MANAGER: _____ DATE:
_____

What's Really Warming the World?

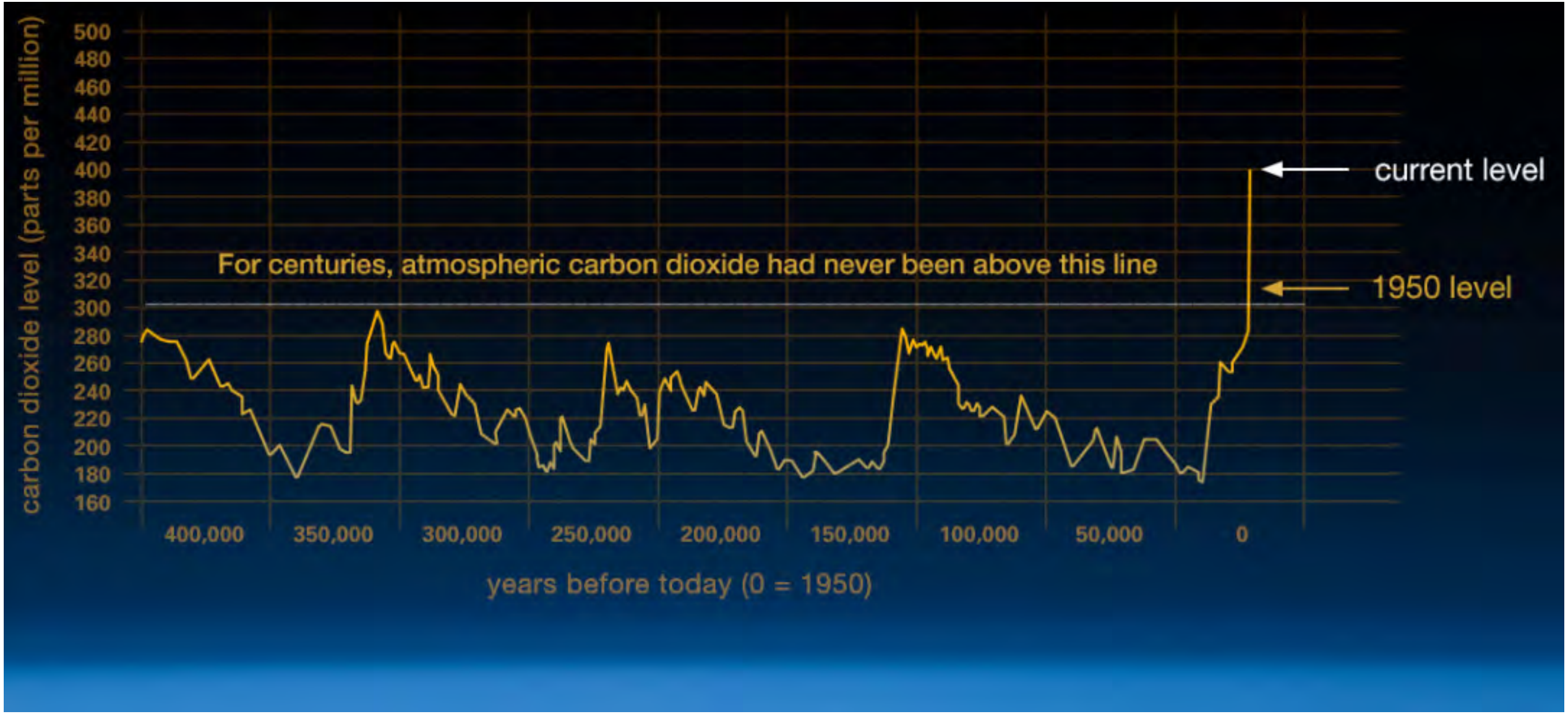
- The Future of El Paso & Climate Change –

RREAC – Regional Renewable Energy Advisory Council

What is Climate Change?

- Climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time.
- Certain human activities have been identified as primary causes of ongoing climate change, often referred to as global warming.
- There is no general agreement in scientific, media or policy documents as to the precise term to be used to refer to anthropogenic forced change; either "global warming" or "climate change" may be used.

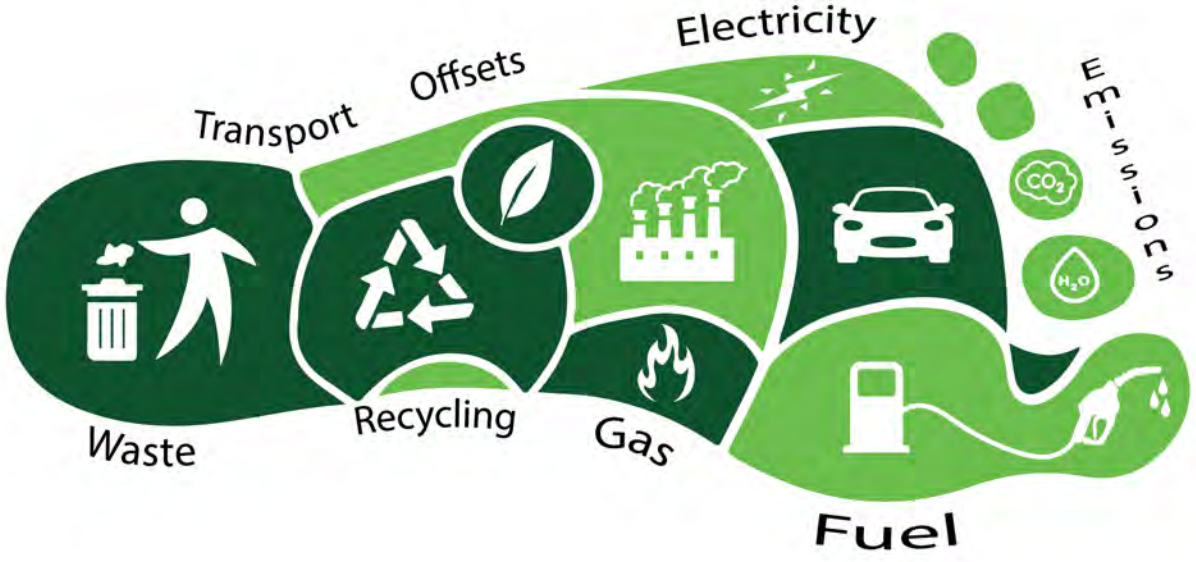
Climate Change: How do we know?



Elephant Butte Reservoir – 1994 & 2013

What is Carbon Footprint?

- The amount of greenhouse gases and specifically carbon dioxide emitted by something during a given period.
- The total set of greenhouse gas emissions we individually cause.
- It is a means of determining someone's environmental impact.
- Definition - https://tinyurl.com/ya2km2kf
- Additional Info - https://tinyurl.com/y73n4arh



The Camp Fire in California - Noah Berger/AP

What is Sustainability?

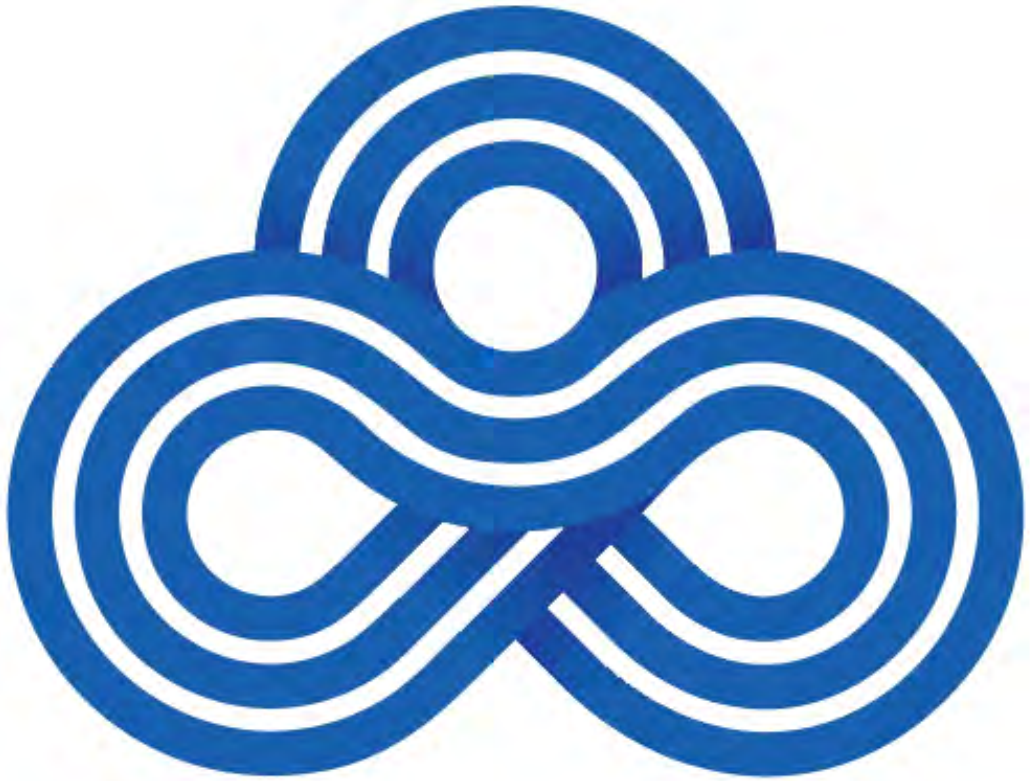
- *"Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment."*
  - Quote from EPA Website - https://tinyurl.com/ju3rks4

What is Sustainability?

- “To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations.”
- In other words;
  - Sustainability is the ability of a system to keep itself viable, “alive”, functioning and in balance with other systems.
  - https://tinyurl.com/ju3rks4

What is Resilience?

- “Resilience reflects the ability of people, communities, societies, and cultures to live and develop with change and with ever-changing environments.”
- In other words;
  - Resiliency is the ability of a system to recover from environmental changes that cause severe disruption, i.e. fires, floods, drought, environmental/economical refugees, etc. https://tinyurl.com/y8ttb97u




HOLLISTER
CALIFORNIA

Think of sustainability as staying alive!

Think of resiliency as ability to bounce back from a disaster.

Autumn California Wildfire - Noah Berger/AP Photo

Paris Climate Accord Agreement & El Paso

- The City of El Paso decided to join more than 300 Mayors across the USA in upholding the Paris Climate Agreement goals.

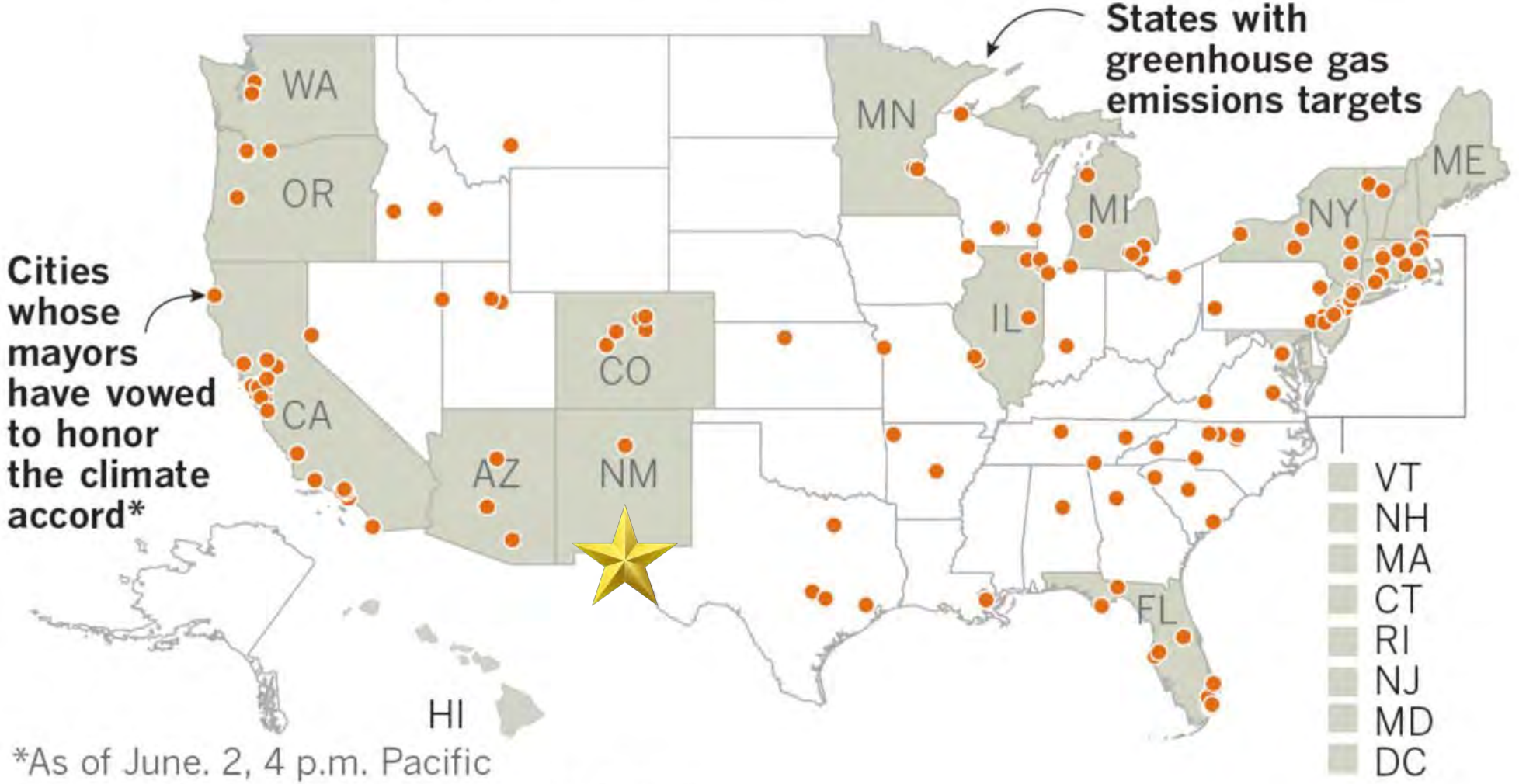
- "It's something that our city has been on the forefront in terms of conservation. And it's something that quite frankly, it's within our responsibility and necessity to do so," said Representative Svarzbein.

Climate Mayors

- Climate Mayors, founded in 2014, is a bipartisan, peer-to-peer network of U.S. Mayors working together to demonstrate leadership on climate change through meaningful actions in their communities, and to express and build political will for effective federal and global policy action.
- The Climate Mayors coalition has emerged as a key voice and demonstration of the ongoing commitment of U.S. cities to accelerate climate progress.
  - http://climatemayors.org/

Fighting climate change

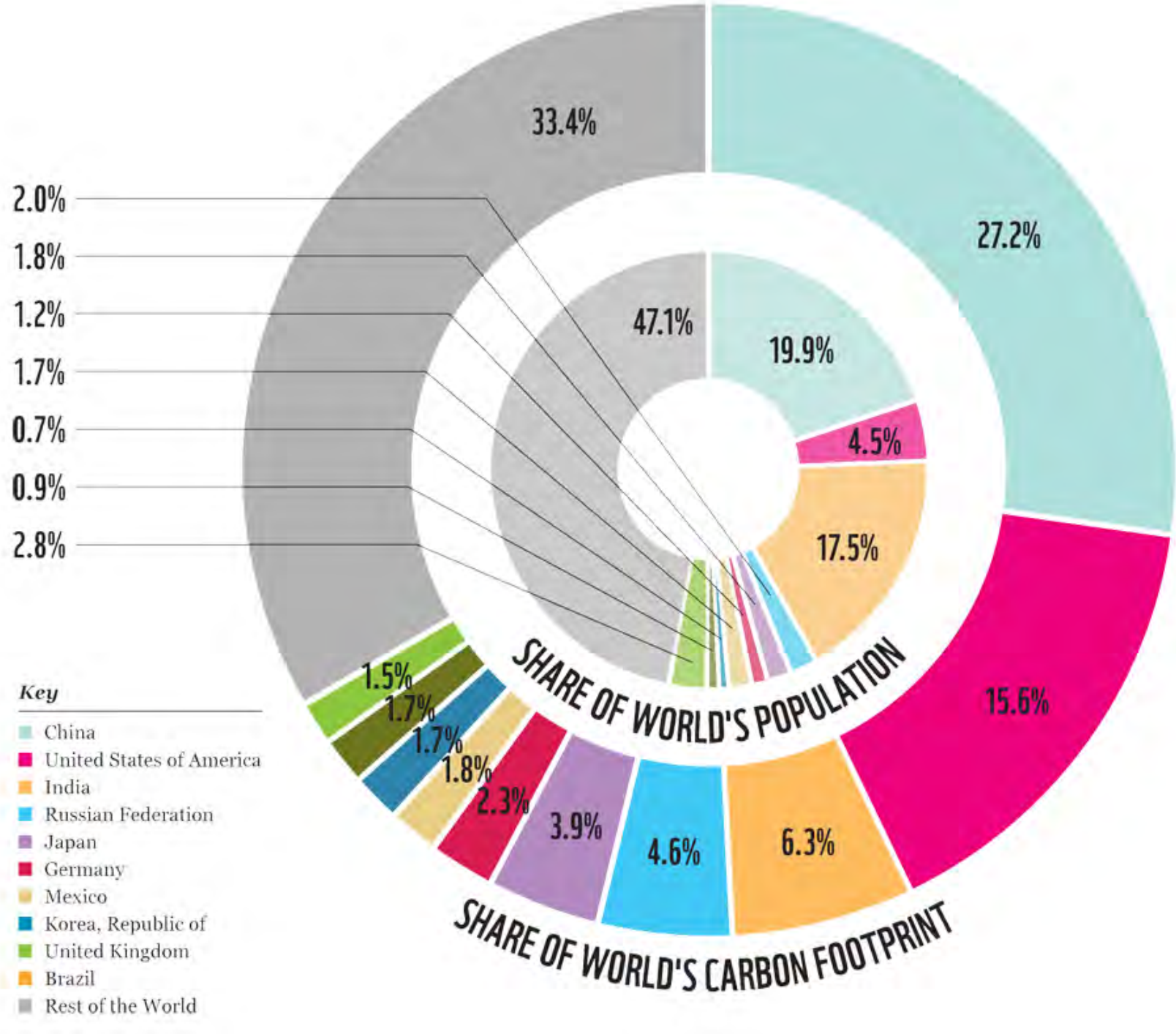
More than 160 U.S. mayors have promised to honor the Paris climate agreement despite President Trump's decision to withdraw. Several states have done the same or have emissions laws that move them in that direction.



*As of June. 2, 4 p.m. Pacific

Sources: Mayors' National Climate Action Agenda, Center for Climate and Energy Solutions

@latimesgraphics


33.4%
27.2%
47.1%
19.9%
4.5%
17.5%
2.0%
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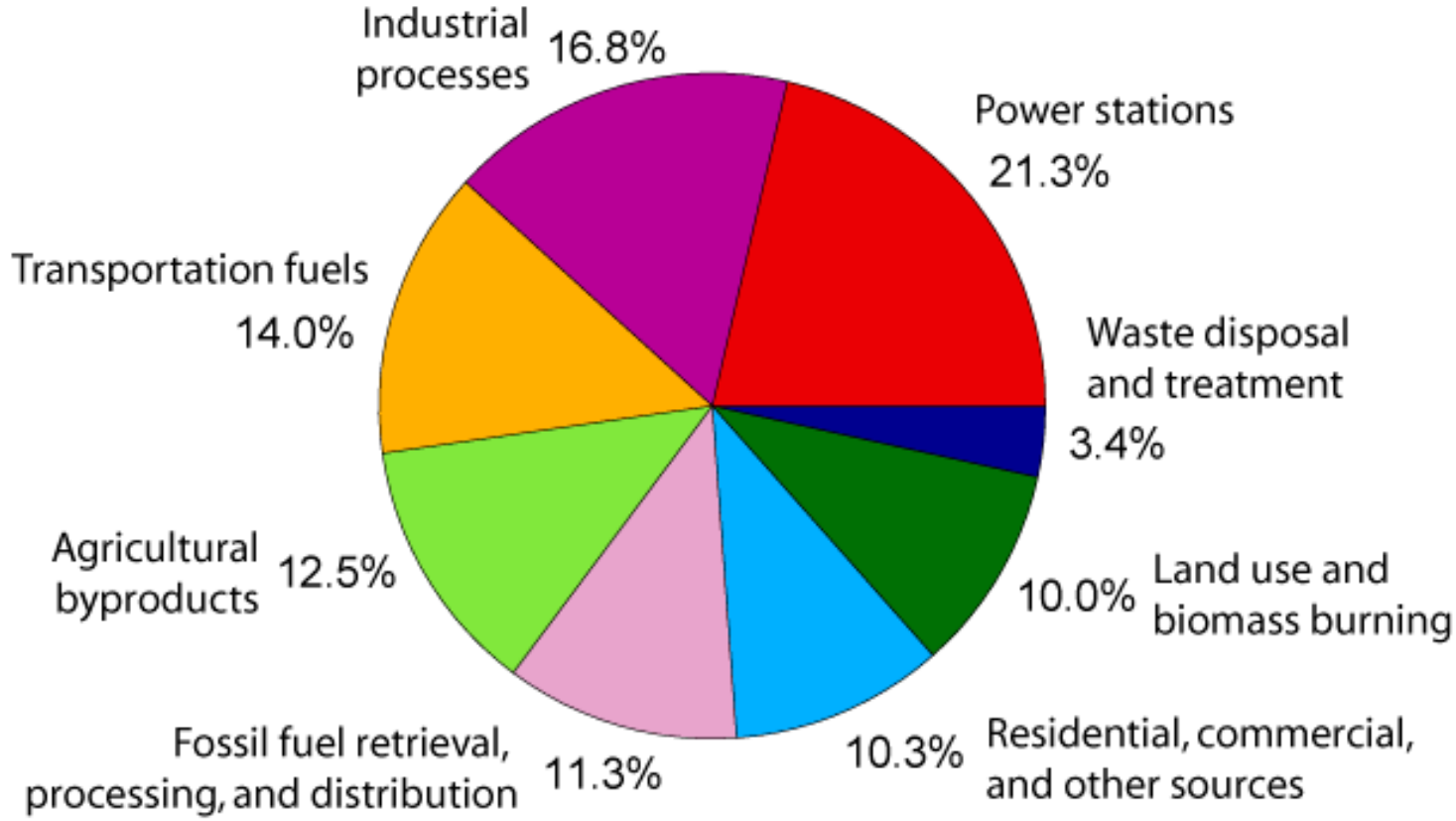
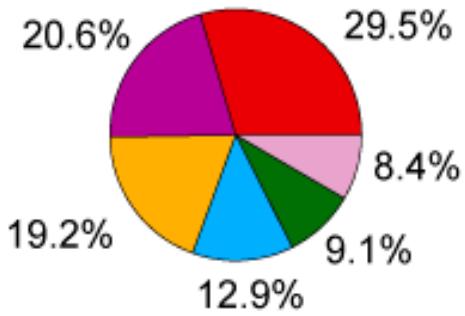
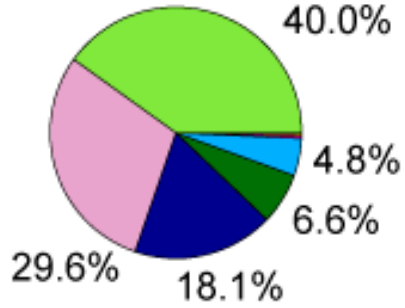
6.3%
15.6%
SHARE OF WORLD'S POPULATION
SHARE OF WORLD'S CARBON FOOTPRINT
Key
China
United States of America
India
Russian Federation
Japan
Germany
Mexico
Korea, Republic of
United Kingdom
Brazil
Rest of the World

Annual Greenhouse Gas Emissions by Sector

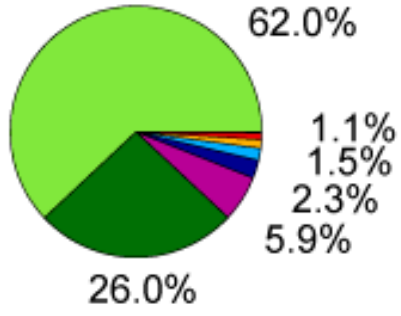




Carbon Dioxide
(72% of total)



Methane
(18% of total)



Nitrous Oxide
(9% of total)

Why does it matter?

We know the earth is a closed eco system. This means that it can only absorb so much damage before it breaks down the system to a point of no return to the original.

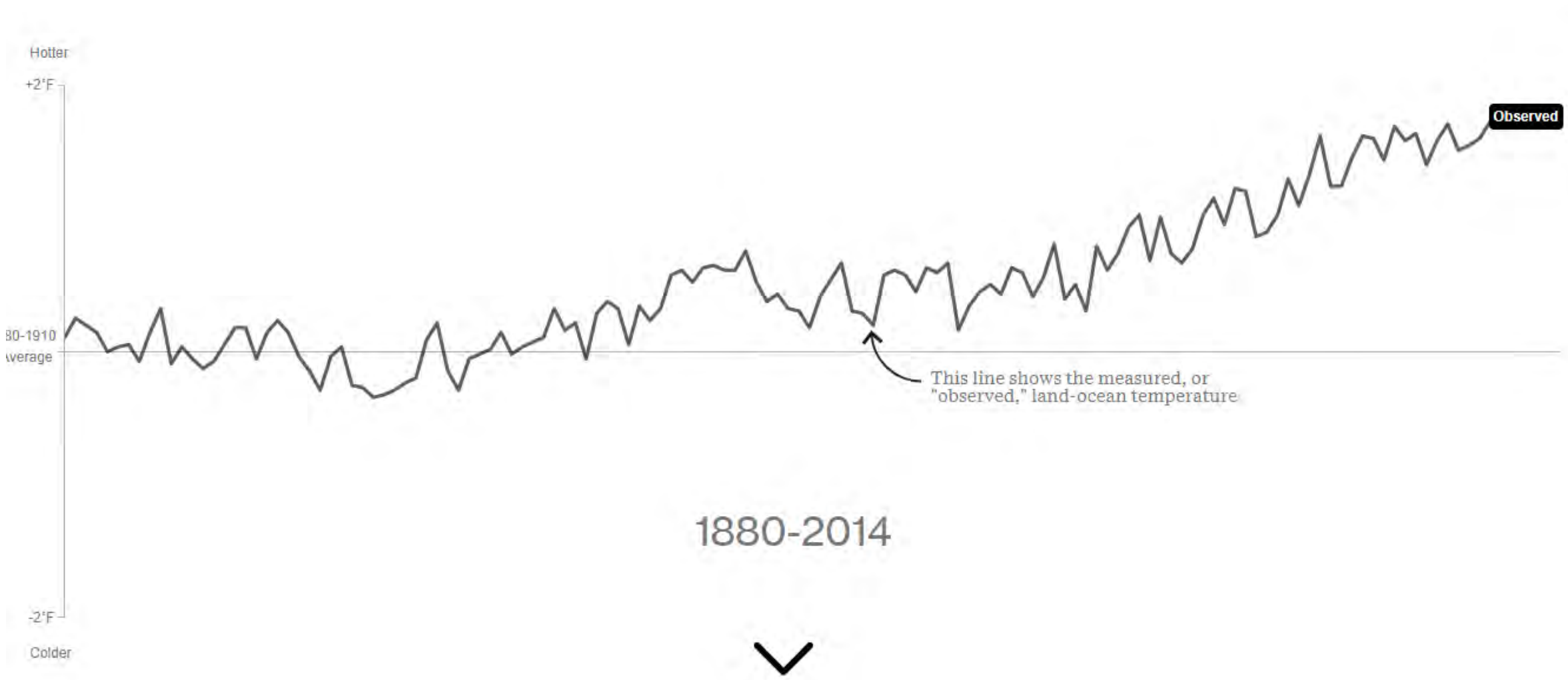
We need to build systems that are both sustainable and resilient.

The goal is to reduce carbon footprint as quickly as possible, to decrease the destructive impact of climate change.

A shortwave infrared (SWIR) satellite image of the Camp Fire in Magalia, Paradise California - Satellite image ©2018 Digital Globe, a Maxar company/Handout/Reuters

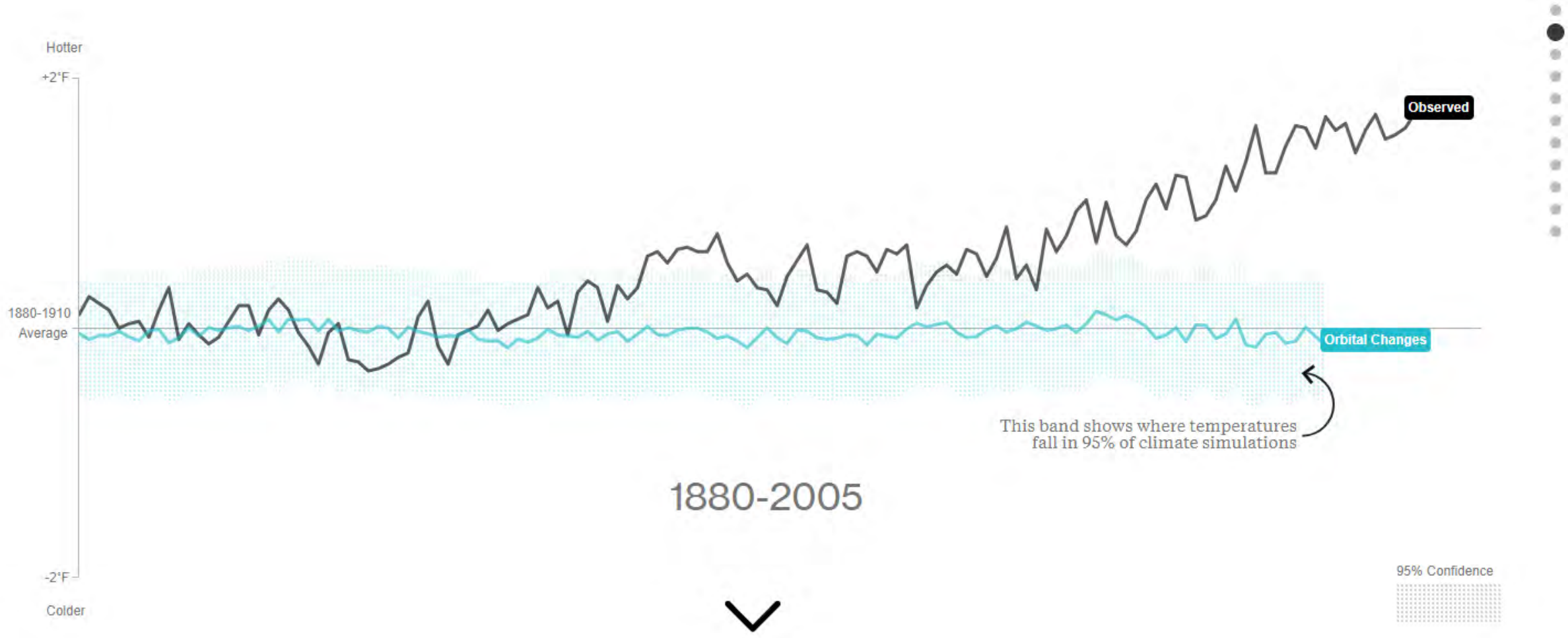
What's Really Warming the World?

- Skeptics of manmade climate change offer various natural causes to explain why the Earth has warmed 1.4 degrees Fahernheit since 1880.



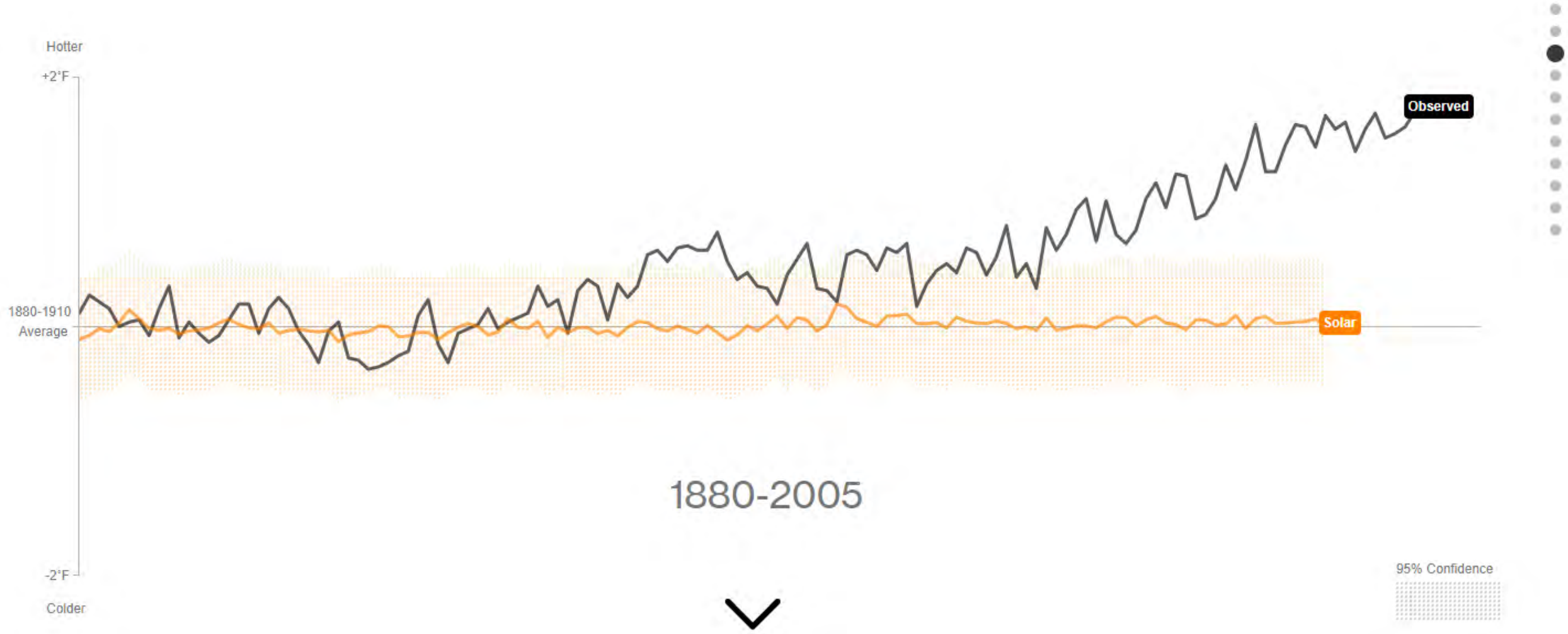
Is It the Earth's Orbit?

- The Earth Wobbles on it's axis, and its tilt and orbit change over many thousands of years, pushing the climate into and out of ice ages. Yet the influence of orgital change on the planet's temperature over 125 years has been negligible.



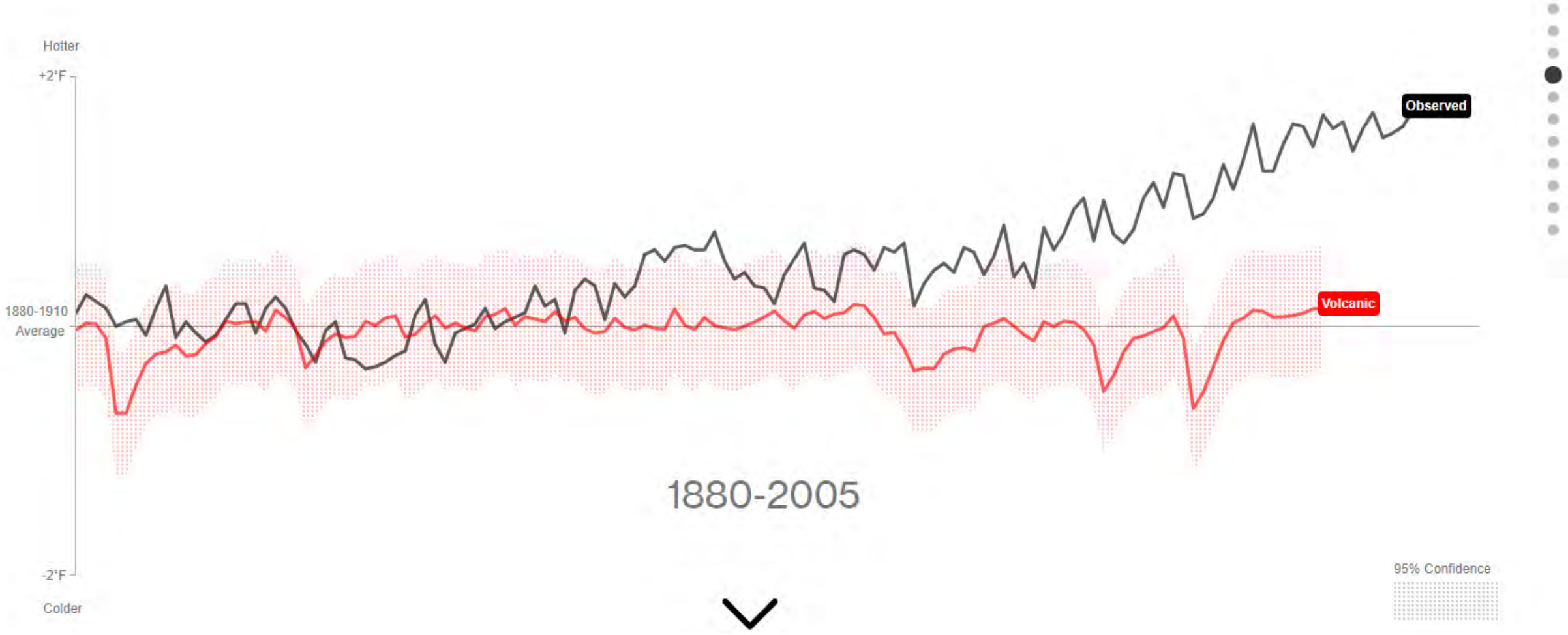
Is It the Sun?

- The sun's temperature varies over decades and centuries. These changes have had little effect on Earth's overall climate.



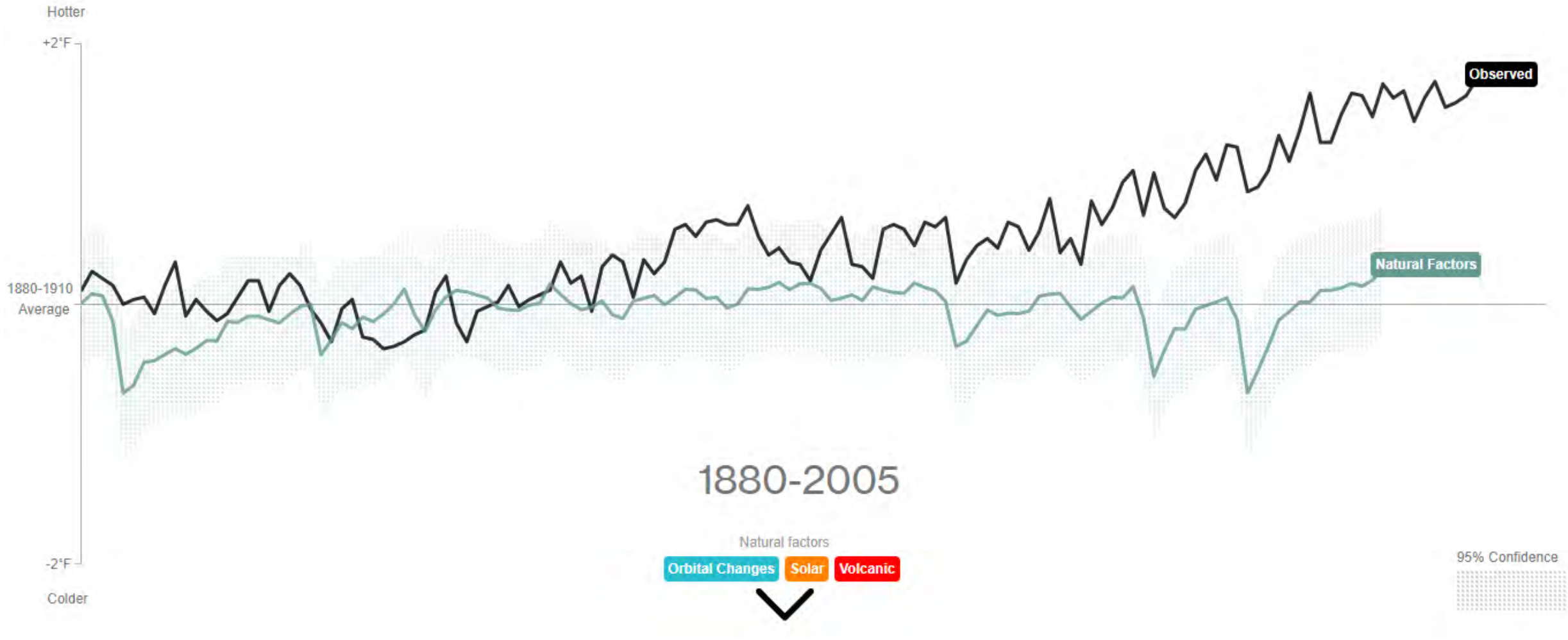
Is It Volcanoes?

- The data says NO. Human industry emits about 100 time smore C02 than volcanic activity, and eruptions release sulfate chemicals that can actually cool the atmosphere for a year or two.



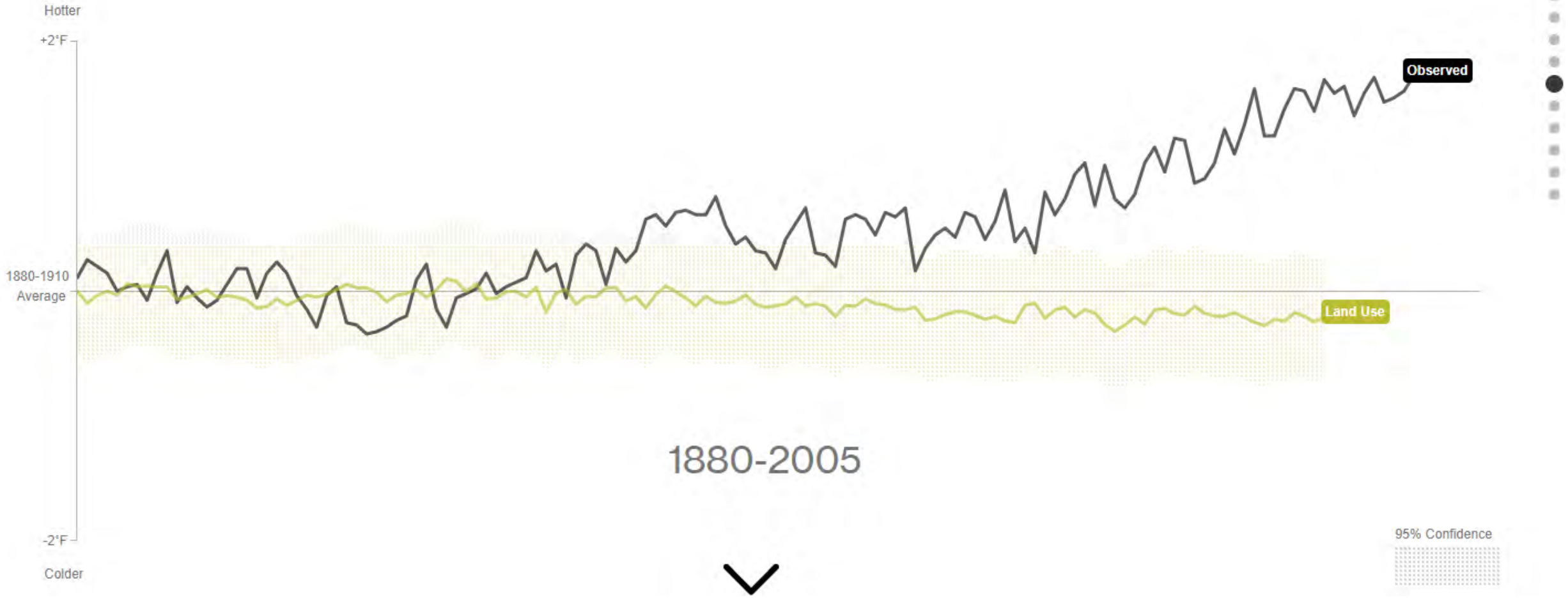
Is It All 3 of These Things Combined?

- If it were, then the response to natural factors should match the observed temperature. Adding the natural factors together just doesn't add up.



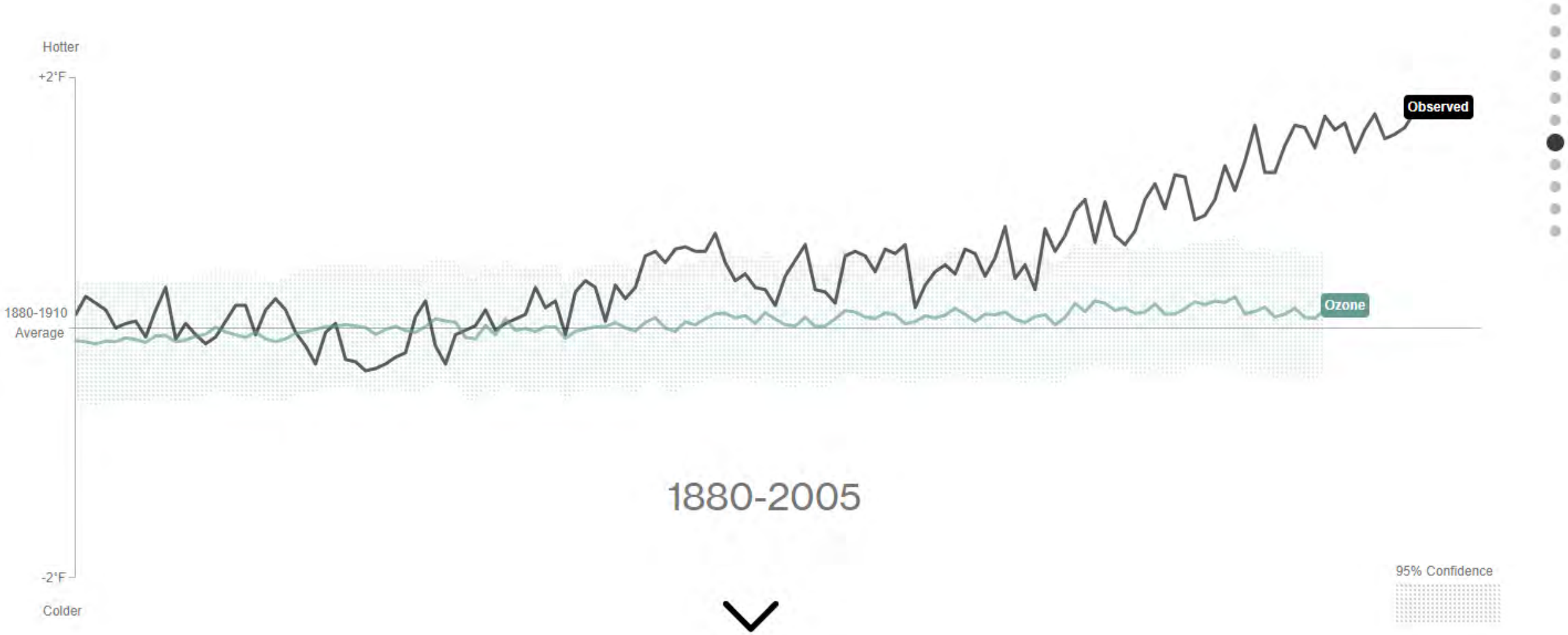
So If It's Not Nature, Is it Deforestation

- Humans have cut, plowed, and paved more than half the earth's land surface. Dark forests are yielding to lighter patches, which reflect more sunlight – and have a slight cooling effect.



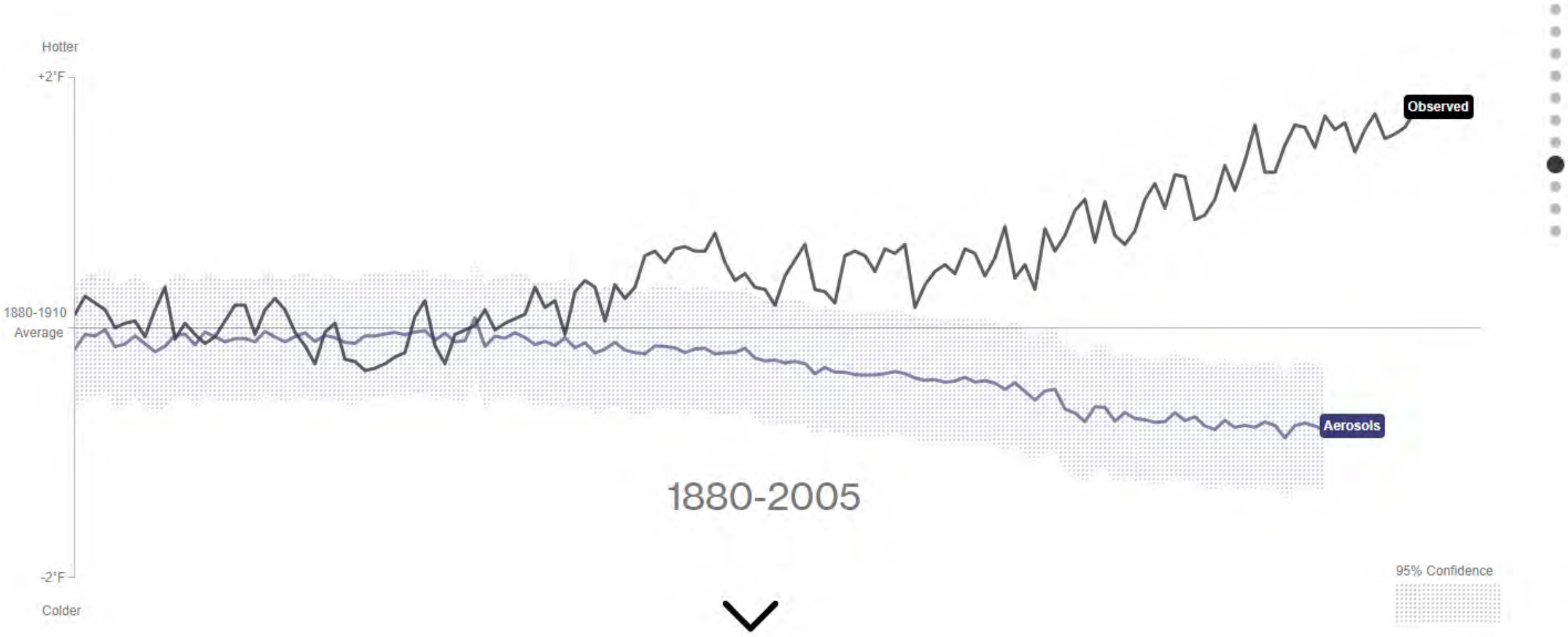
Or Ozone Pollution?

- Natural ozone high in the atmosphere blocks harmful sunlight and cools things slightly. Close to Earth, ozone is created by pollution and traps heat, making the climate a little bit hotter. What's the overall effect? Not much!



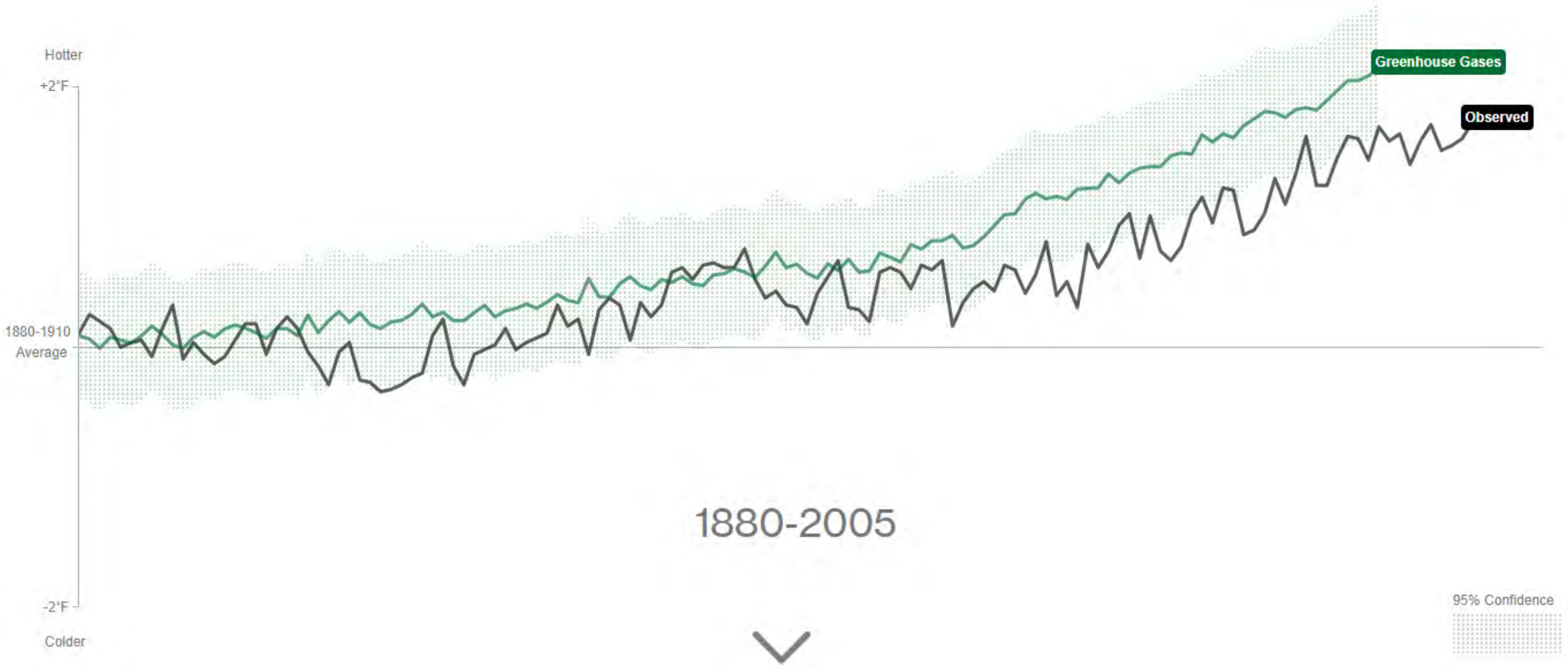
Or Aerosol Pollution

- Some pollutants cool the atmosphere, like sulfate aerosols from coal-burning. These aerosols offset some of the warming. Unfortunately, they also cause acid rain.



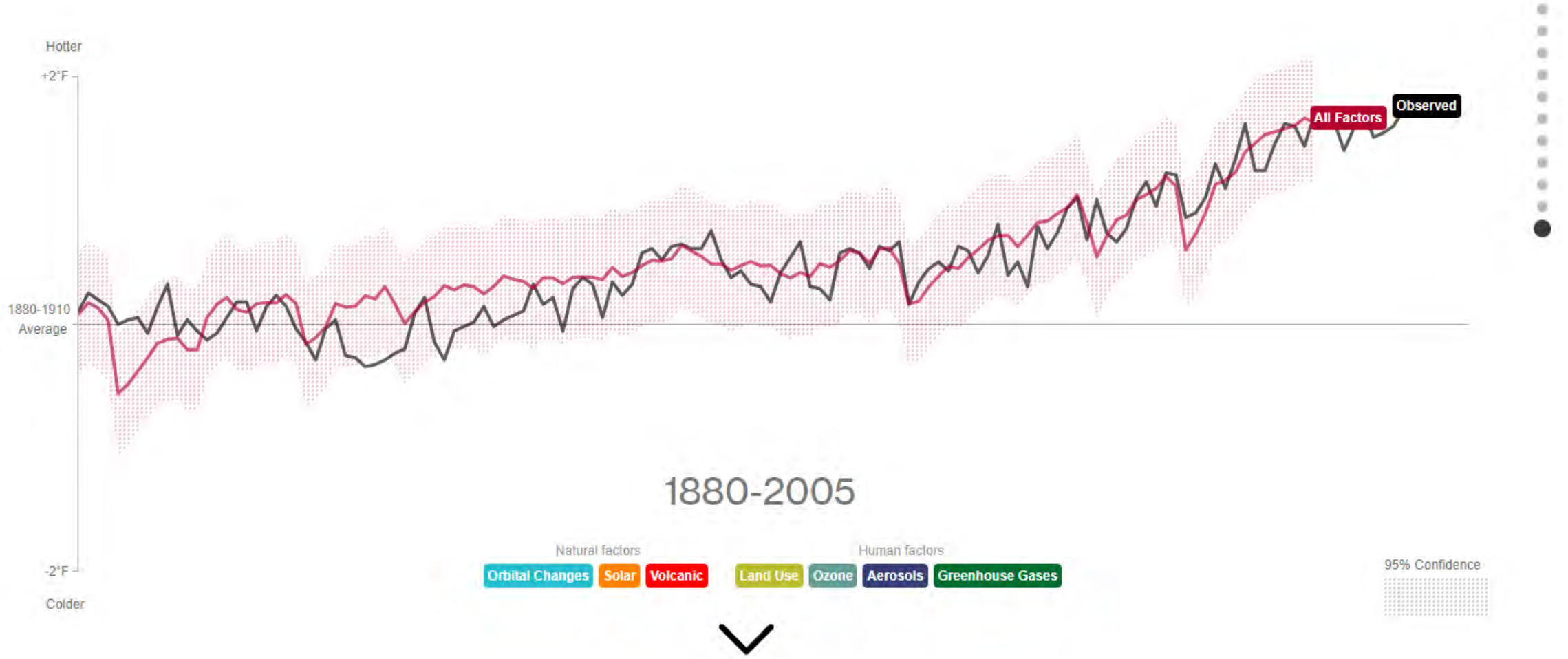
No, It Really Is Greenhouse Gases

- Atmospheric CO2 levels are 40% higher than they were in 1750. The green line shows the influence of greenhouse gas emissions. It's no contest!

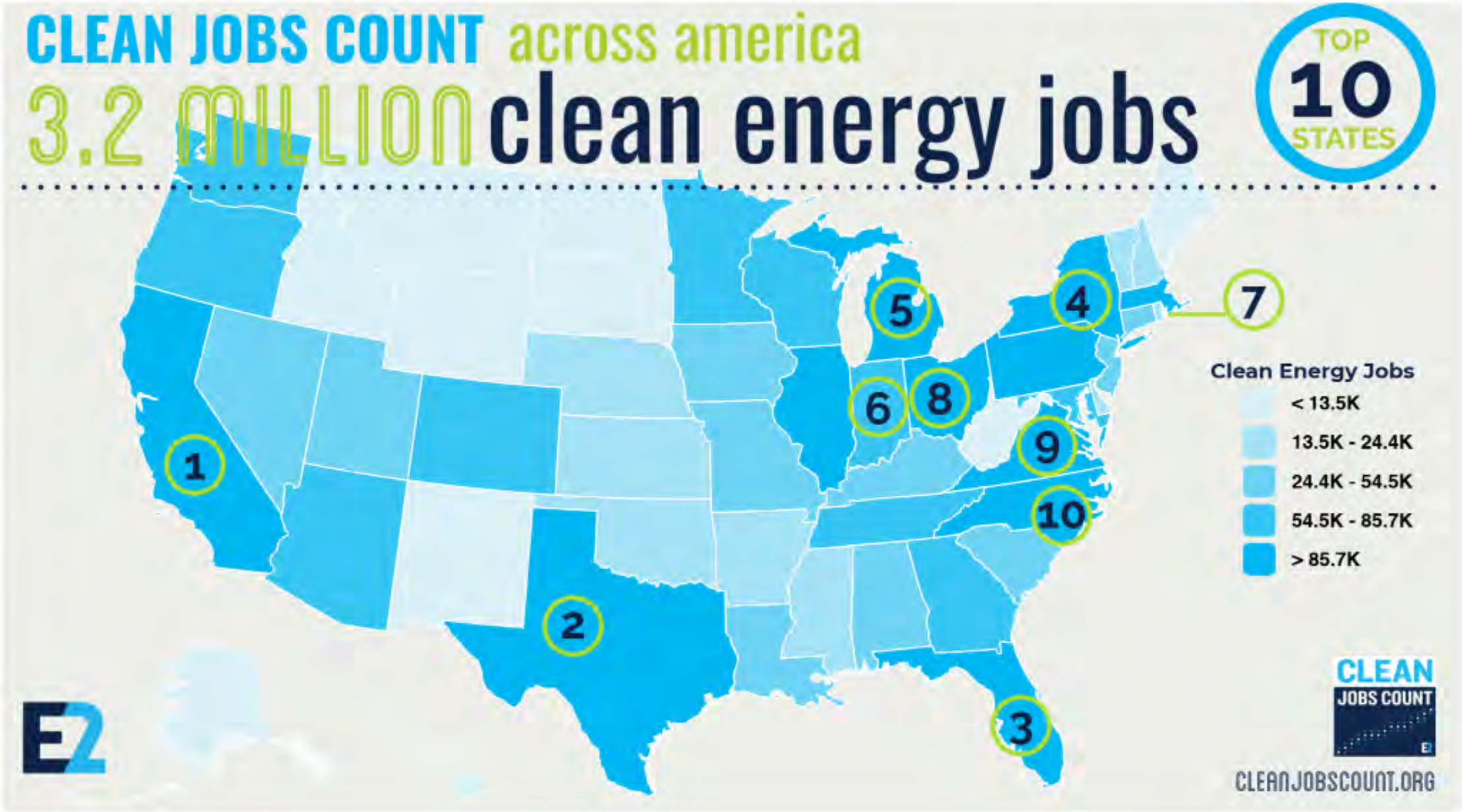


Compare & Contrast

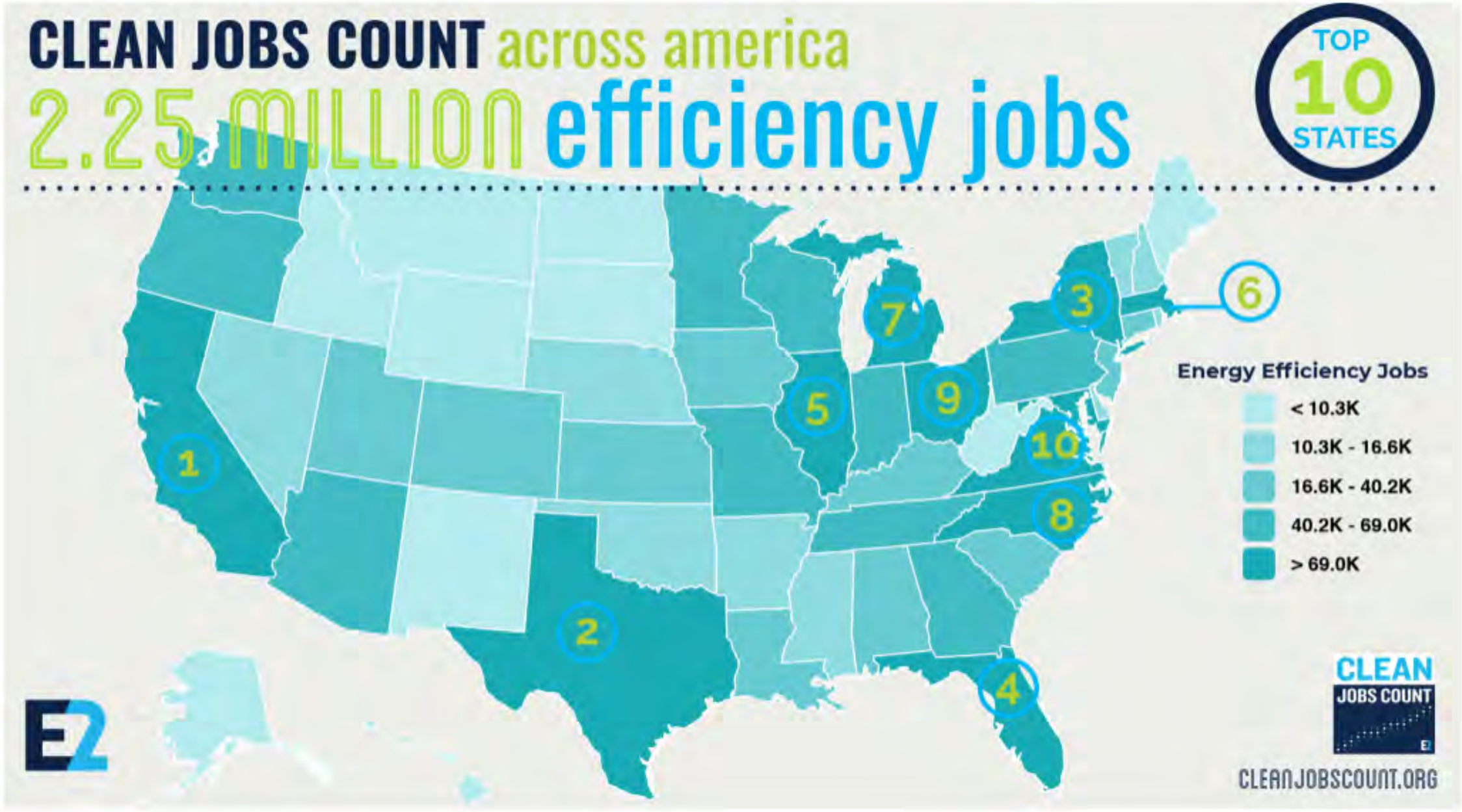
- Putting the possible natural and human causes of climate change alongside one another makes the dominant role of greenhouse gases even more plainly visible. The only real questions is: What are we going to do about it?



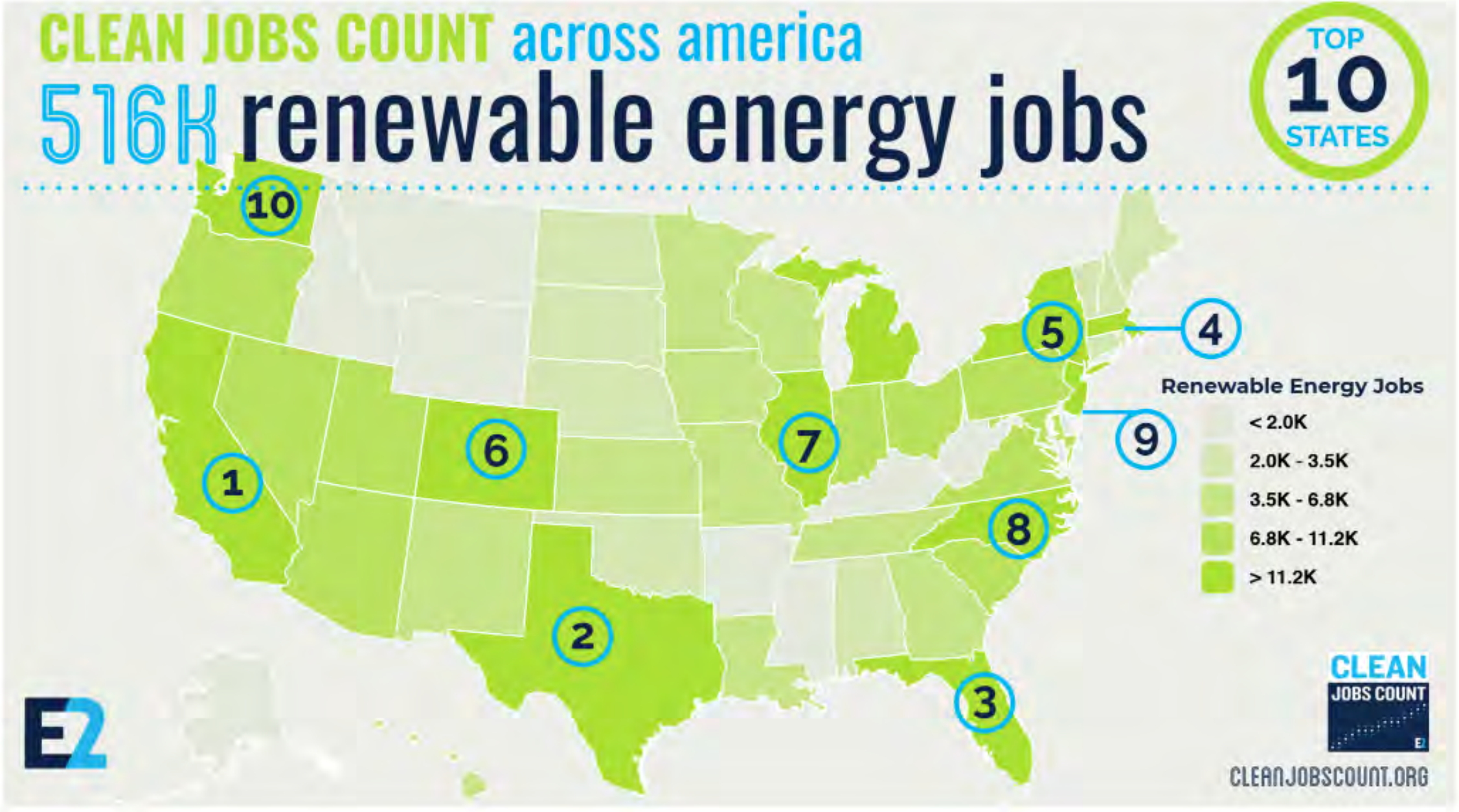
Clean Energy Industry = Jobs



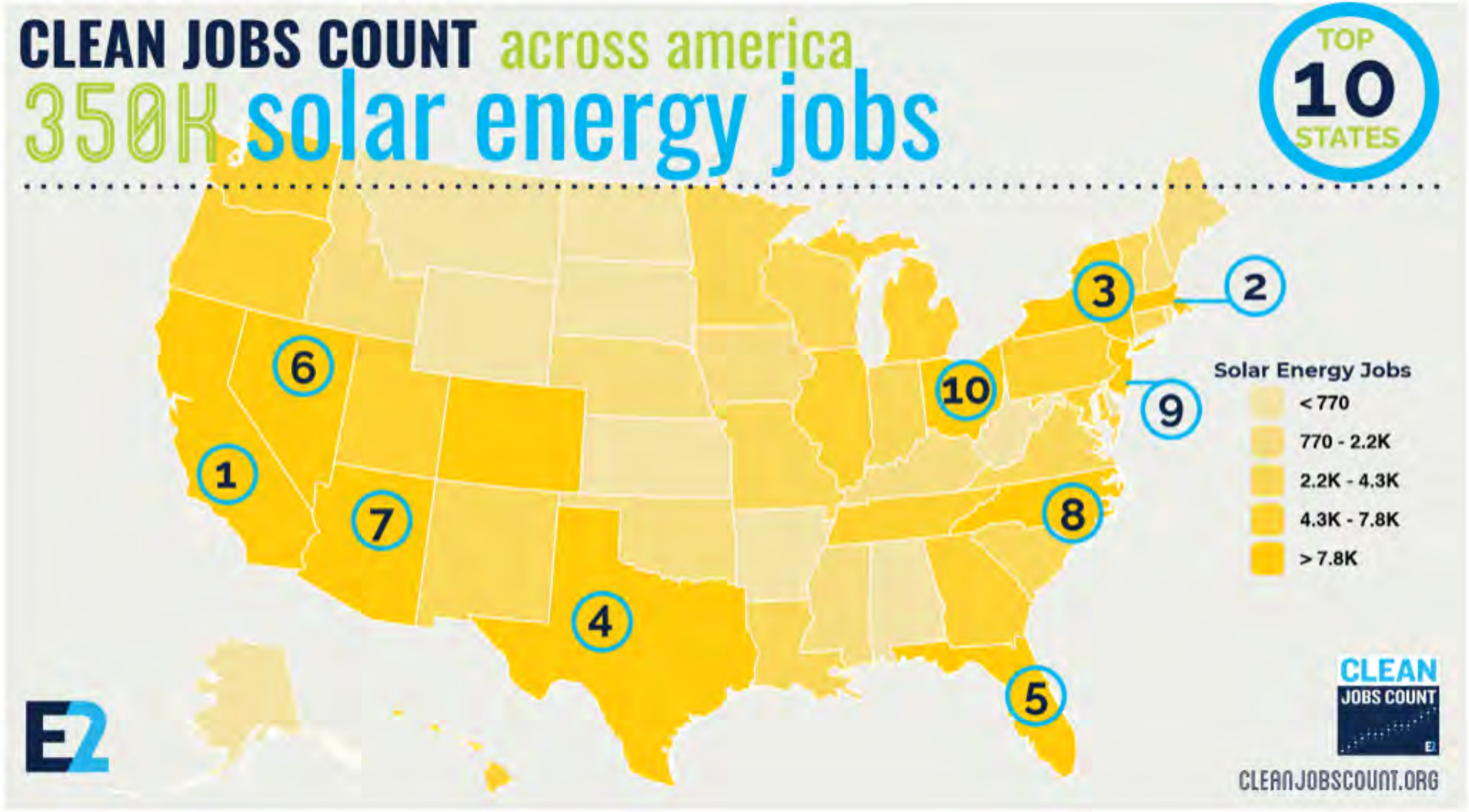
Clean Energy Industry = Jobs



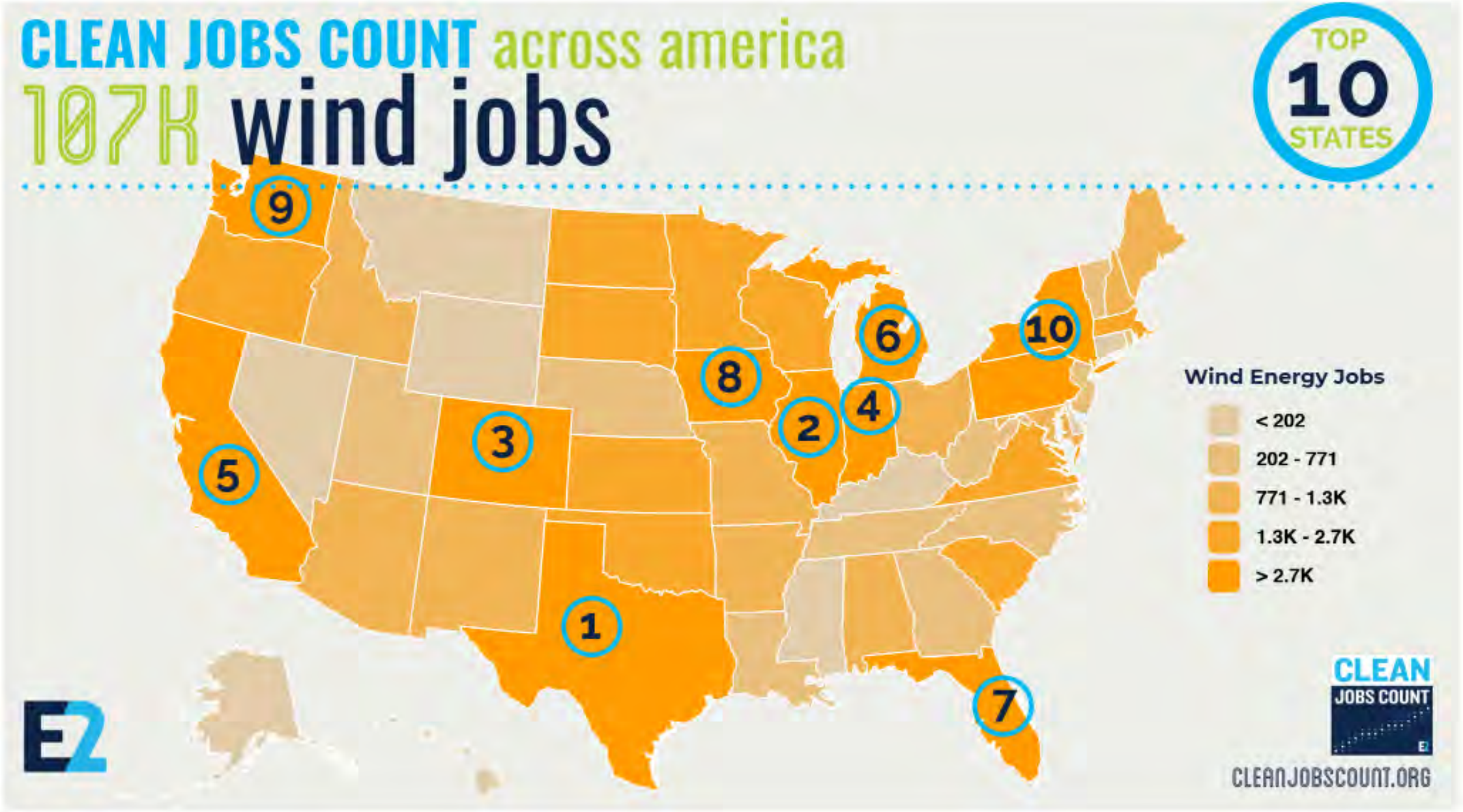
Clean Energy Industry = Jobs



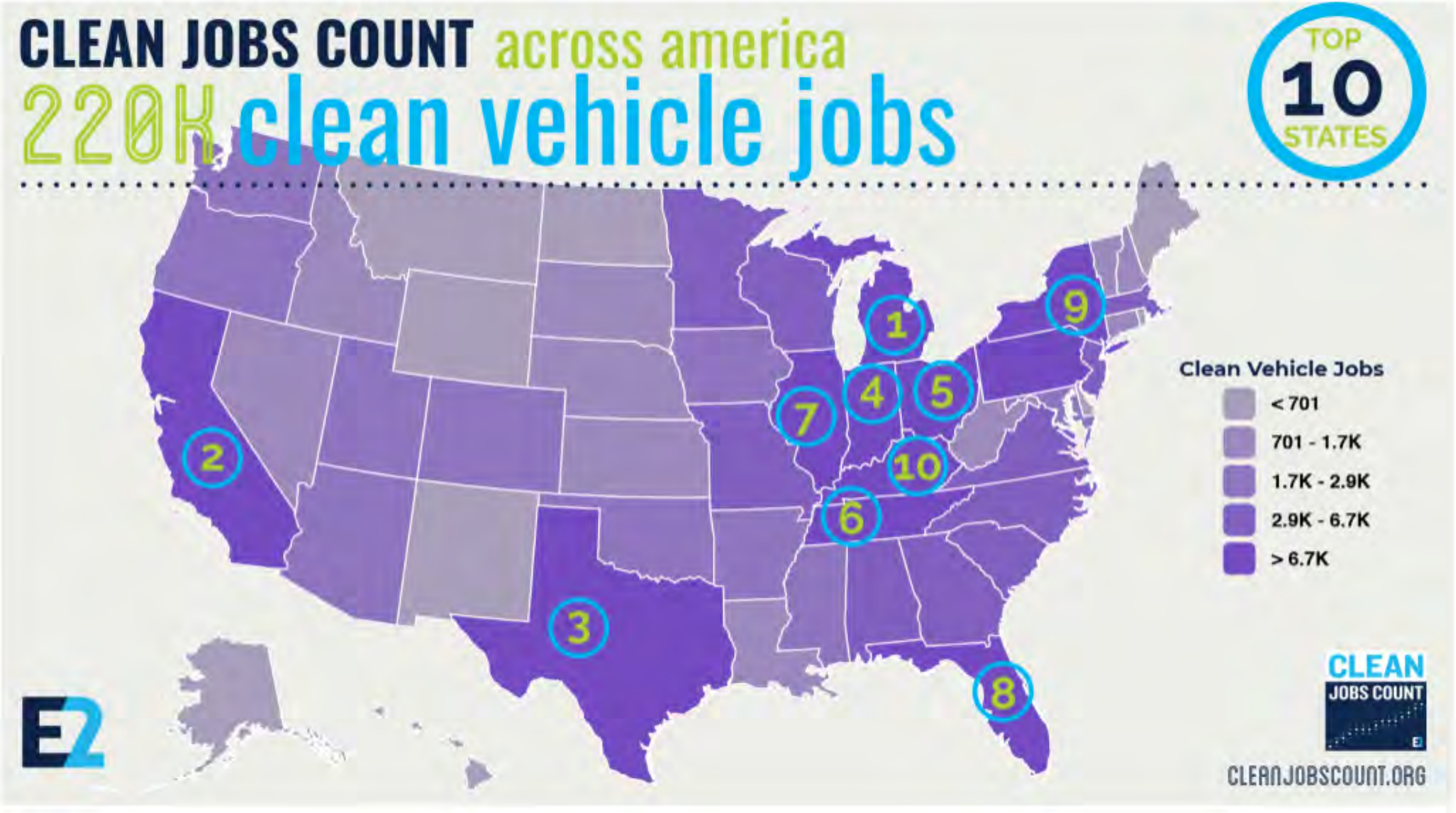
Clean Energy Industry = Jobs



Clean Energy Industry = Jobs



Clean Energy Industry = Jobs



Methodology

- **NASA's Model:**
  - Around the world there are 28 or so research groups in more than a dozen countries who have written 61 climate models.
  - The computer model that generated the results for this graphic is called "ModelE2," and was created by NASA's Goddard Institute for Space Studies (GISS), which has been a leader in climate projections for a generation. ModelE2 contains something on the order of 500,000 lines of code, and is run on a supercomputer at the NASA Center for Climate Simulation in Greenbelt, Maryland.

Methodology

- **A Global Research Project:**
  - GISS produced the results shown here in 2012, as part of a research initiative called the Coupled Model Intercomparison Project Phase Five. Let's just call it "Phase-5."
  - Initial results from Phase-5 were used in the 2013 scientific tome published by the Intergovernmental Panel on Climate Change.
  - There are more than 30 different kinds of experiments included in Phase-5 research. These tests address questions like, what would happen to the Earth's temperature if atmospheric carbon dioxide suddenly quadrupled? Or, what would the world's climate be like through 2300 if we keep burning fossil fuels at the current rate?
  - Research groups were asked to see how well they could reproduce what's known about the climate from 1850-2005. They were also asked to estimate how the various climate factors—or "forcings"—contribute to those temperatures. That's why this graphic stops in 2005, even though the GISS observed temperature data is up-to-date. The years 2005-2012 were not a part of the Phase-5 "historical" experiment.

Methodology

- **A Word About Temperatures:**
  - Climate scientists tend not to report climate results in whole temperatures. Instead, they talk about how the annual temperature departs from an average, or baseline. They call these departures "anomalies."
  - But the differences from their own averages are likely to be about the same. It means that scientists can get a better idea about temperature with fewer monitoring stations. That's particularly useful in places where measurement is very difficult (ie, deserts).
  - The simulation results are aligned to the observations using the 1880-1910 average.
  - What's most important about these temperatures are the trends—the shape and trajectory of the line, and not any single year's temperature.

Methodology

- **What the Lines Show:**
  - The black "observed" line is the GISS global land and ocean temperature record, which can be found here. It starts in 1880.
  - The colored temperature lines are the modeled estimates that each climate factor contributes to the overall temperature.
  - Each factor was simulated five times, with different initial conditions; each slide here shows the average of five runs.
  - GISS researchers laid out their historical simulations in detail last year in this article.
  - The modeled years 1850-1879 from the Phase-5 "historical" experiment are not shown because the observed data begins in 1880.

Methodology

- **Confidence Ranges:**
  - Researchers do not expect their models to reproduce weather events or El Niño phases exactly when they happened in real life. They do expect the models to capture how the whole system behaves over long periods of time. For example, in 1998 there was a powerful El Niño, when the equatorial Pacific Ocean warms (we're in another one of that scale now). A simulation wouldn't necessarily reproduce an El Niño in 1998, but it should produce a realistic number of them over the course of many years.
  - The temperature lines represent the average of the model's estimates. The uncertainty bands illustrate the outer range of reasonable estimates.
  - In short, the temperature lines in the modeled results might not line up exactly with observations. For any year, 95% of the simulations with that forcing will lie inside the band.

Methodology

- **Data:**
  - The raw observational and model data can be downloaded here:
    - Observed land-ocean temperature
    - Responses to climate forcings
    - 850 year Preindustrial control experiment

  - Many thanks to Kate Marvel and Gavin Schmidt of NASA-GISS.

Have the Vision to grow the Sun City into the Solar Economic Powerhouse it deserves to be!

RREAC – Regional Renewable Energy Advisory Council

Growing our Economy by Utilizing Our Natural Resources; the Sun and our Hardworking People

- **Jobs in Texas' solar industry grew 34 percent last year and the state ranks third in the country, according to a new report from the nonprofit Solar Foundation**.
- Nationally, solar-industry employment in 2016 grew at the fastest pace in at least seven years, with growth in all sectors including manufacturing, sales and installations, as demand for clean power swelled.
- One out of every 50 new American jobs last year was in the solar industry, which now employs more than 260,000 workers, according to the report. That's up 25 percent from 2015, and the biggest gain since the group first compiled the data in 2010.

https://www.dallasnews.com/business/energy/2017/02/07/texas-solar-industry-shines-bright-34-percent-increase-jobs

Growing our Economy by Utilizing Our Natural Resources; the Sun and our hardworking people

- **In Texas, more than 2,300 jobs were added in 2016 to bring the state's total to 9,396. The foundation expects to release more detailed data on Texas next month.**
- Texas also ranked third in the nation for most solar capacity installed in the third quarter, more than it installed in all of 2015, according to GTM Research and the Solar Energy Industries Association's Q4 2016 U.S. Solar Market Insight report.
- Across the country, companies including SunPower Corp., Sunrun Inc. and Canadian Solar Inc. are all hiring as they gear up for an expected 29 percent increase in installed capacity this year. U.S. solar installation continues to climb as costs fall, making panels more cost-competitive with fossil fuels. That's expected to continue despite President Donald Trump's pledge to boost the coal industry, and will make clean energy a reliable source of employment, said Andrea Luecke, executive director of The Solar Foundation.
- "These are well-paying, family sustaining jobs with low barriers to entry," Luecke said in an interview.
- *Christopher Martin, Bloomberg* -- https://tinyurl.com/ychhfavl

Growing our Economy by Utilizing Our Natural Resources; the Sun and our hardworking people

- **Still, installation growth in the U.S. is slowing. Some utilities are scaling back after meeting state mandates, and consumer rooftop demand has been threatened by changes in local policies. Total photovoltaic installations this year are expected to be 10.8 gigawatts, after surging 72 percent to 12.4 gigawatts in 2016, according to Bloomberg New Energy Finance. The number of solar jobs will increase by 10 percent in 2017, Luecke said.**

- The median wage for a solar installation job was $26 an hour last year, according to the report. The jobs census defines solar workers as those who spend at least half their time on solar-related work.

- Solar workers will be busy over the next four years. According to New Energy Finance, the installed base of solar capacity will climb to 105 gigawatts by 2021, up from about 38 gigawatts today.

- "It's about energy security, national security and it's a hedge against higher fuel costs," Luecke said.

Christopher Martin, Bloomberg

https://www.dallasnews.com/business/energy/2017/02/07/texas-solar-industry-shines-bright-34-percent-increase-jobs

Texas, Colorado Among States With Most Solar Jobs

By JONATHAN BAKER • FEB 22, 2018

The Texas solar energy industry boasts the fourth highest number of workers nationwide, according to a new CNBC report. The Lone Star State employs almost 9,000 solar workers, just behind New York State and Massachusetts.

California employs by far the most solar workers nationwide, with a staggering 87,000 jobs devoted to solar power. In the Golden State, more than five million homes are run on solar energy.

It may come as a surprise to many that Texas isn't closer to California in solar energy output, given that the Lone Star State is second nationwide in population and Texas receives more sunshine than any other state.

However, solar jobs in Texas actually decreased in 2017, according to the Solar Foundation. Much of the renewable energy jobs in Texas are going to wind power, of which Texas is by far the largest producer in the nation.

Colorado also ranks among the top ten states for solar employment, with a total of almost 7,000 jobs going to the industry.

https://www.hppr.org/post/texas-colorado-among-states-most-solar-jobs

Solar Spotlight – Texas

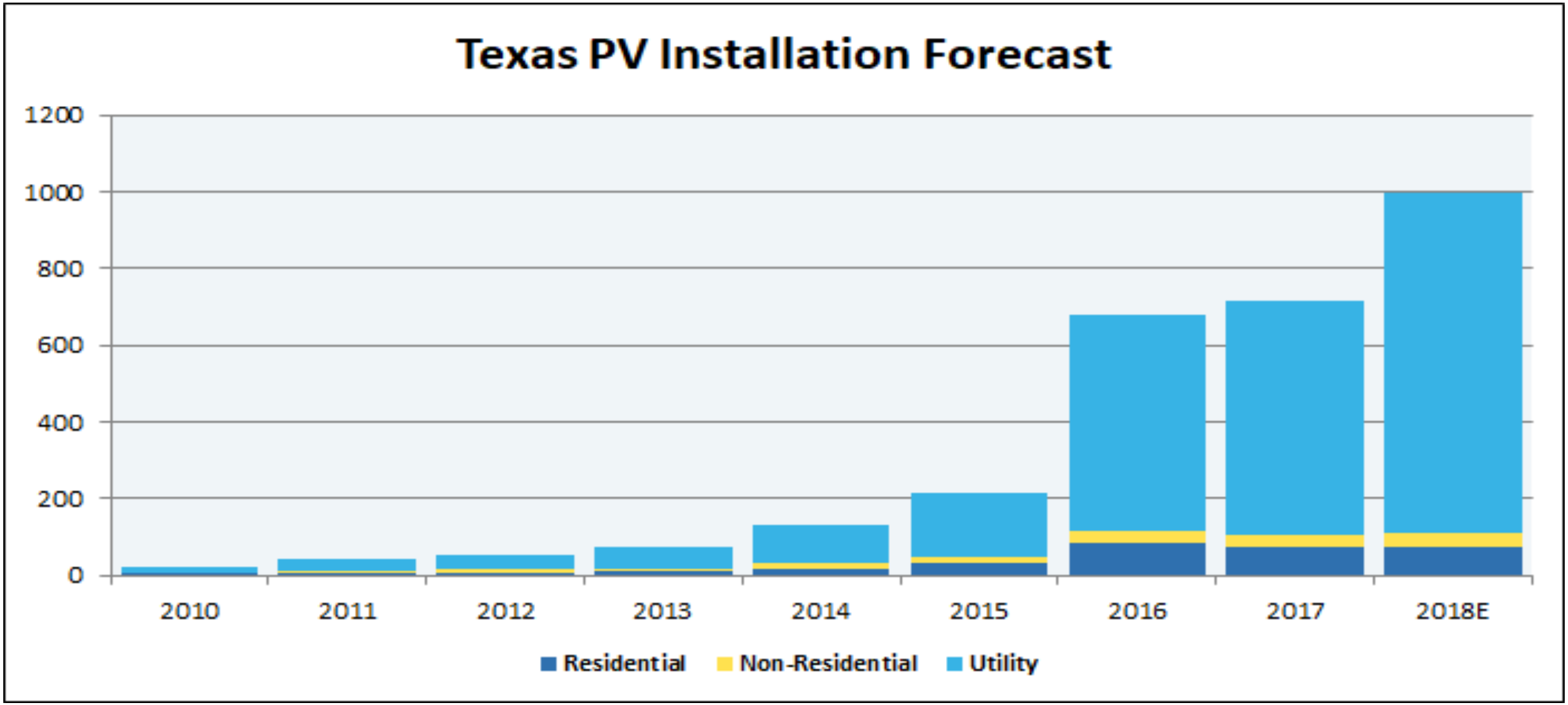
www.seia.org/states

- **Solar Installed:** 2,623.51 MW (715.43 MW in 2017)[i]
- **National Ranking:** 5th (4th in 2017)
- **State Homes Powered by Solar:** 300,078
- **Percentage of State's Electricity from Solar:** 0.69%[ii]
- **Solar Jobs and Ranking:** 8,873 (4th in 2017)[iii]
- **Solar Companies in State:** 492 companies total; 69 Manufacturers, 215 Installers/Developers, 208 Others[iv]
- **Total Solar Investment in State:** $3,242.90 M ($913.46 M in 2017)
- **Price Declines:** 47% over last 5 years
- **Growth Projections and Ranking:** 4,366 MW over next 5 years (ranks 3rd)

https://www.seia.org/state-solar-policy/texas-solar

Solar Spotlight – Texas

www.seia.org/states



https://www.seia.org/state-solar-policy/texas-solar

Solar Spotlight – Texas

www.seia.org/states

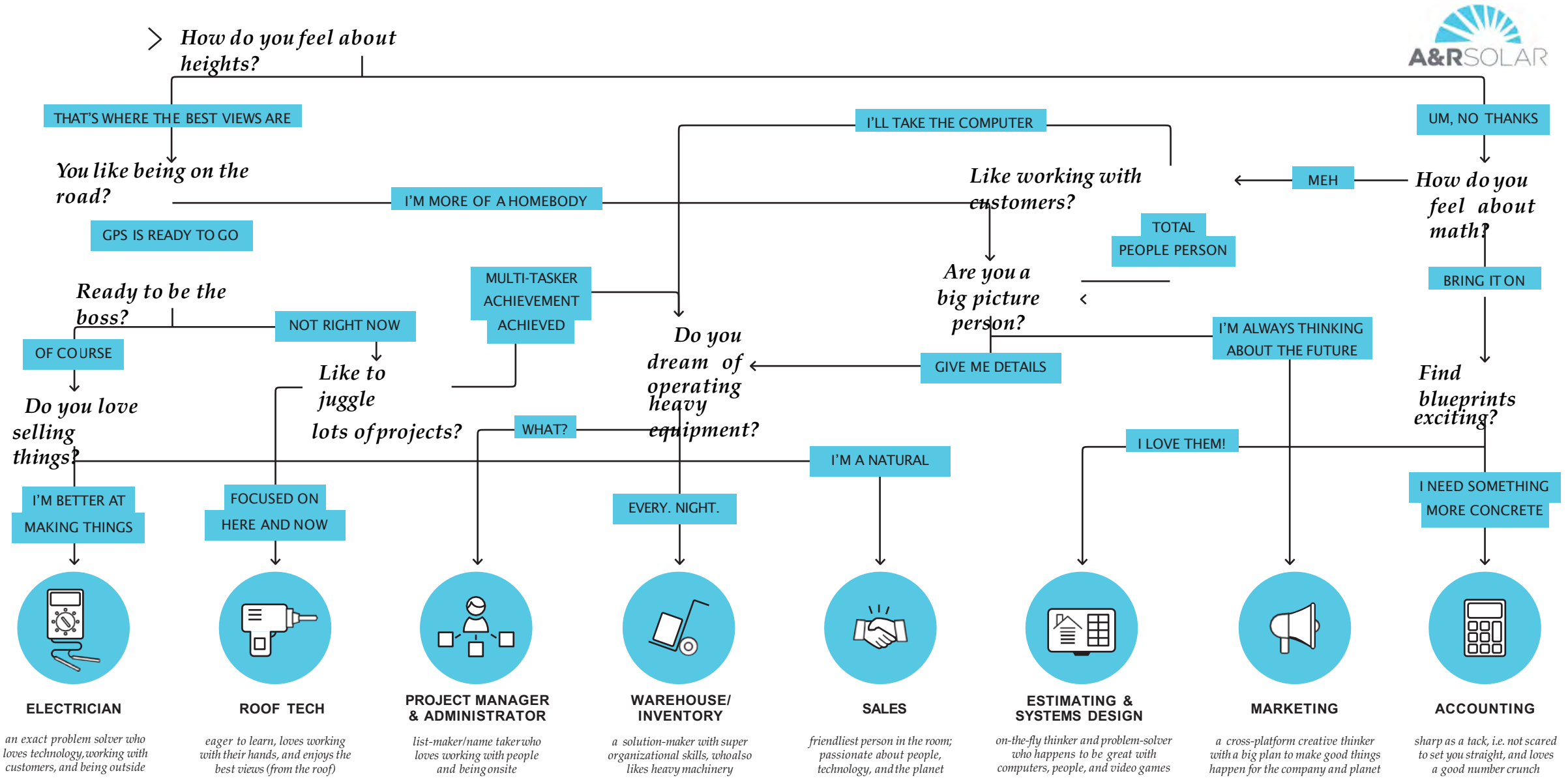
Notable Projects

- Upton County Solar has the capacity to generate 150.0 MW of electricity -- enough to power over 17,157 Texas homes.[v]

- FedEx is one of the first major corporations to get involved in Texas with their 2 MW project in Hutchins.[vi]

- At 106 MW, OCI Alamo 7 LLC in Haskell is among the largest solar installations in Texas. Completed in 2016 by Consolidated Edison Development, this photovoltaic project has enough electric capacity to power more than 12,170 homes.[vii]

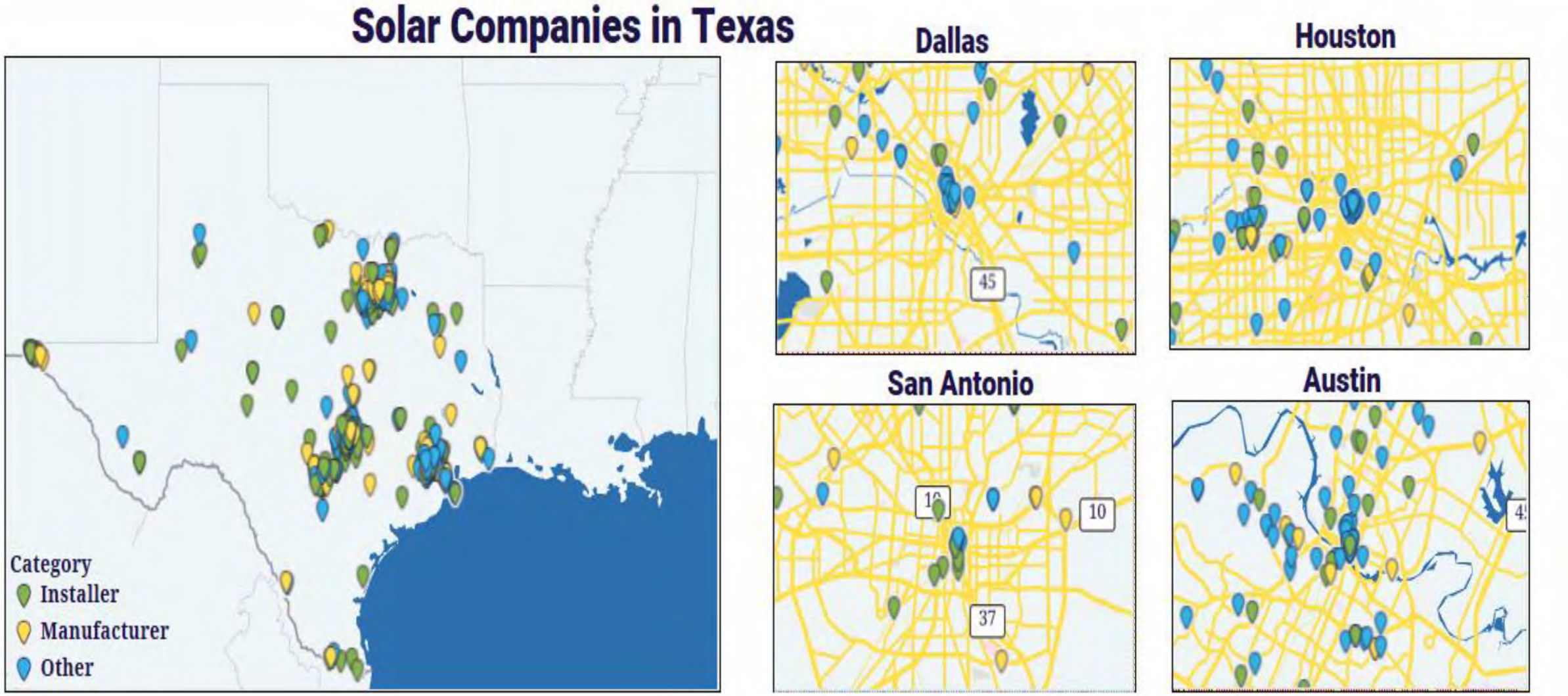
https://www.seia.org/state-solar-policy/texas-solar



https://www.seia.org/sites/default/files/inline-files/A%26R_JobsInSolar-Digital.pdf

Solar Spotlight – Texas

www.seia.org/states



https://www.seia.org/state-solar-policy/texas-solar

References:

[i] All data from SEIA/GTM Research *U.S. Solar Market Insight* unless otherwise noted: http://www.seia.org/research-resources/us- solar-market-insight

[ii] Energy Information Administration, Electric Power Monthly: http://www.eia.gov/electricity/monthly/#generation [iii] The Solar Foundation, State Solar Jobs Census: http://www.thesolarfoundation.org/solar-jobs-census/states/ [iv] SEIA, National Solar Database: http://www.seia.org/research-resources/national-solar-database

[v] SEIA, Major Solar Projects List: http://www.seia.org/research-resources/major-solar-projects-list

[vi] Ibid

[vii] SEIA, *Solar Means Business*: http://www.seia.org/campaign/solar-means-business-2016

Georgetown wins $1 million in Bloomberg Philanthropies U.S. Mayors Challenge

https://georgetown.org/2018/10/29/georgetown-wins-1-million-in-bloomberg-philanthropies-u-s-mayors-challenge/

El Paso Deserves an Economic Future that will sustain our environment and provide viable jobs in our community. The facts demonstrate, that future is renewable energy!

Renewable Energy Policy & Strategy Recommendations for the City of El Paso, Texas

Sustainability Plan for the City of El Paso, Texas

RREAC – Regional Renewable Energy Advisory Council

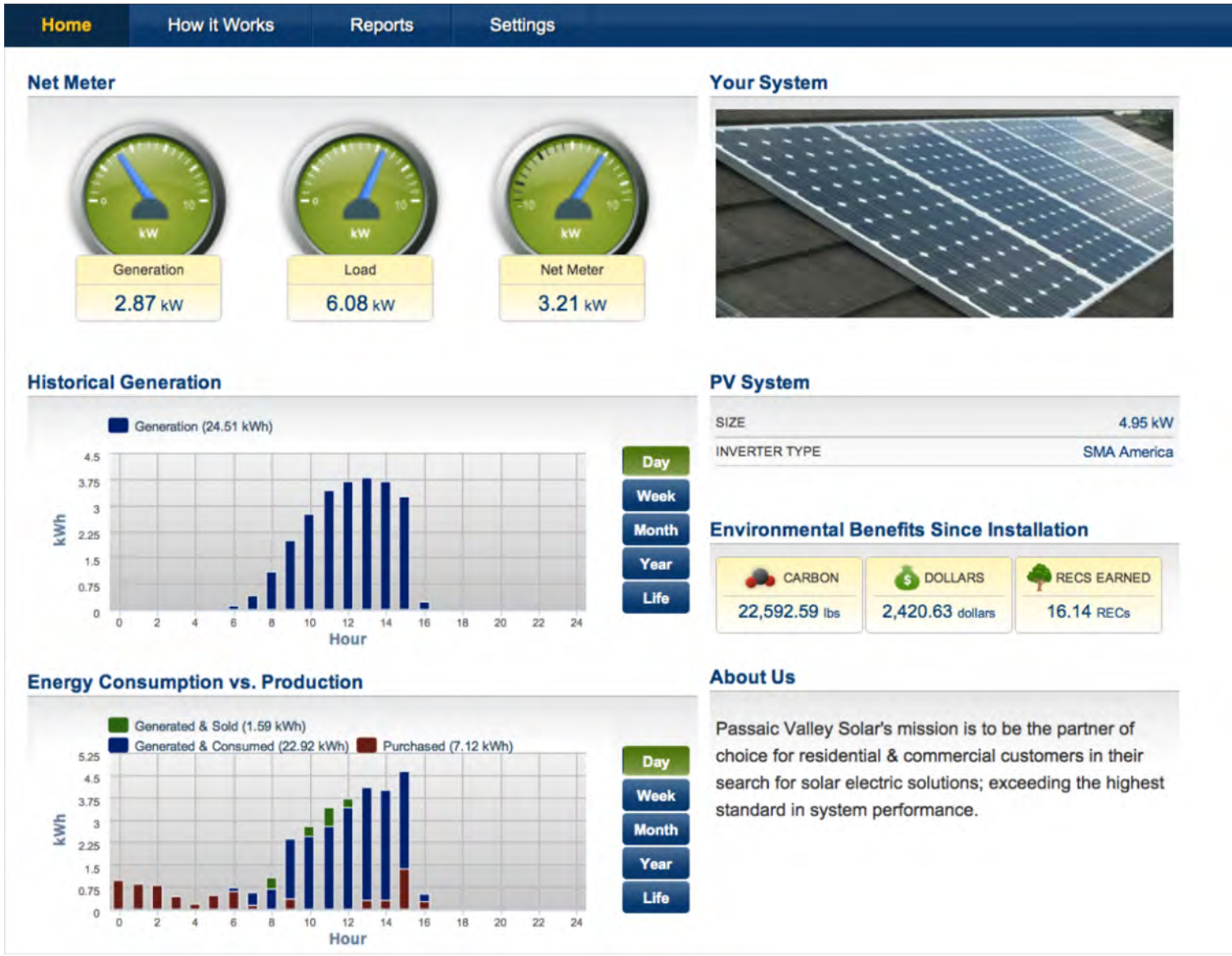
November 2018

RREAC Topics

- **Goals:**
  1. Data & Metrics for the City and Community
  2. Municipal Goals
  3. Community Goals
  4. Public Education & Career Paths
  5. Actions – Short & Long Term
- **Actions Needed to Reach These Goals:**
  - Short Term Actions by City Council
  - Long Term Actions by City Council

Goal #1 - Data & Metrics

- The City Council should request a monthly report for all electricity data from El Paso Electric Utility for all of the municipally owned facilities throughout the city.
  - Energy Usage
  - Solar Energy production



Goal #2 - Municipal Goals

- Require all new construction meet at least 50% of the buildings energy usage by renewable energy resources such as solar, wind, geothermal, green building, and battery storage systems.

Goal #2 - Municipal Goals

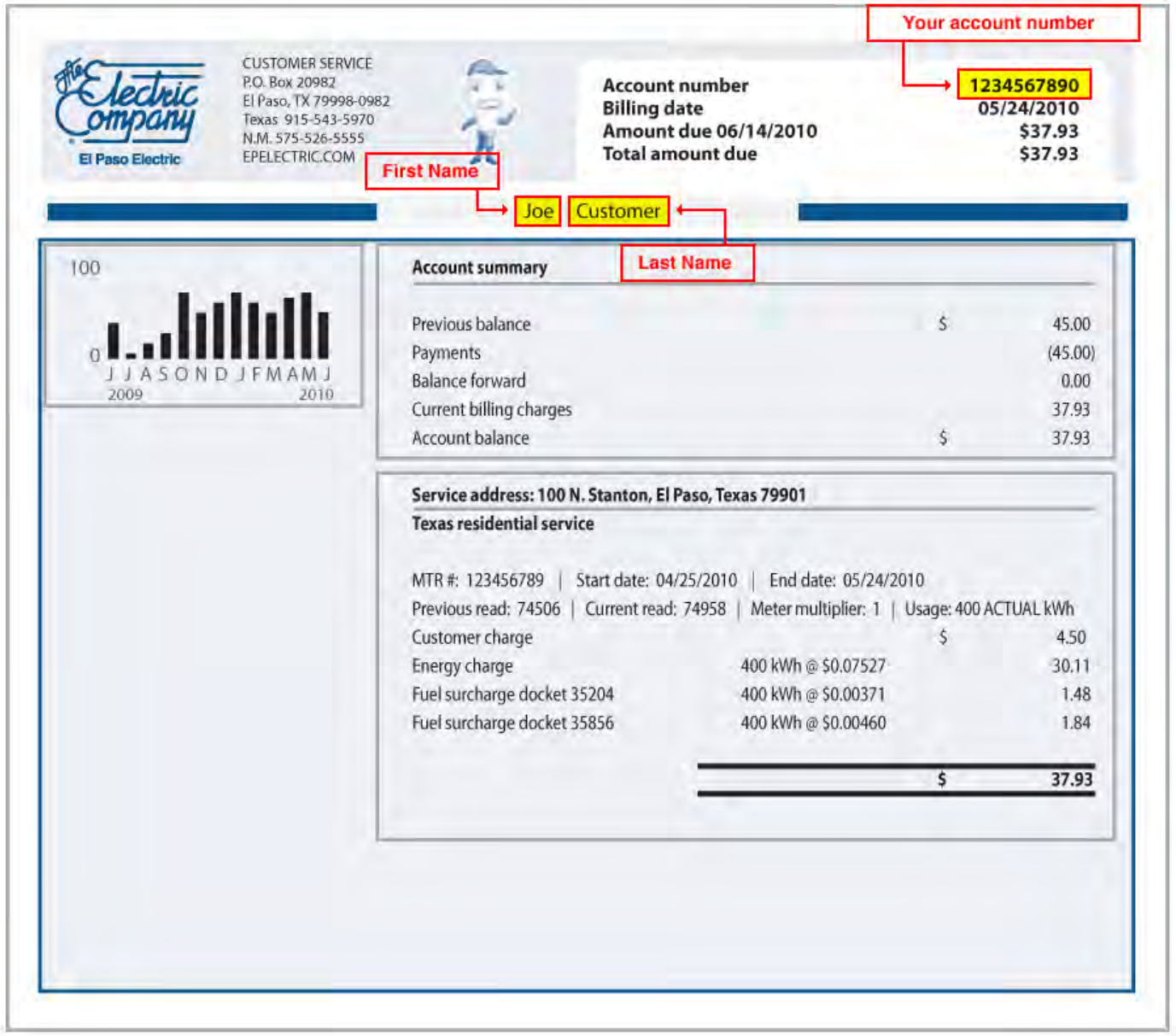
- Meet 50% of energy needs by using renewable energy by 2025.
- Meet 100% of energy needs by renewables by 2030.

Goal #2 - Municipal Goals

- Meet the Paris Climate Agreement, Net Zero emissions by 2050.
  - El Paso's goal should be by 2040, 10 years sooner to protect our health, our planet, water, and our wallets.

Goal #2 - Municipal Goals

- Request that the $30 minimum bill be removed for new solar homeowners.

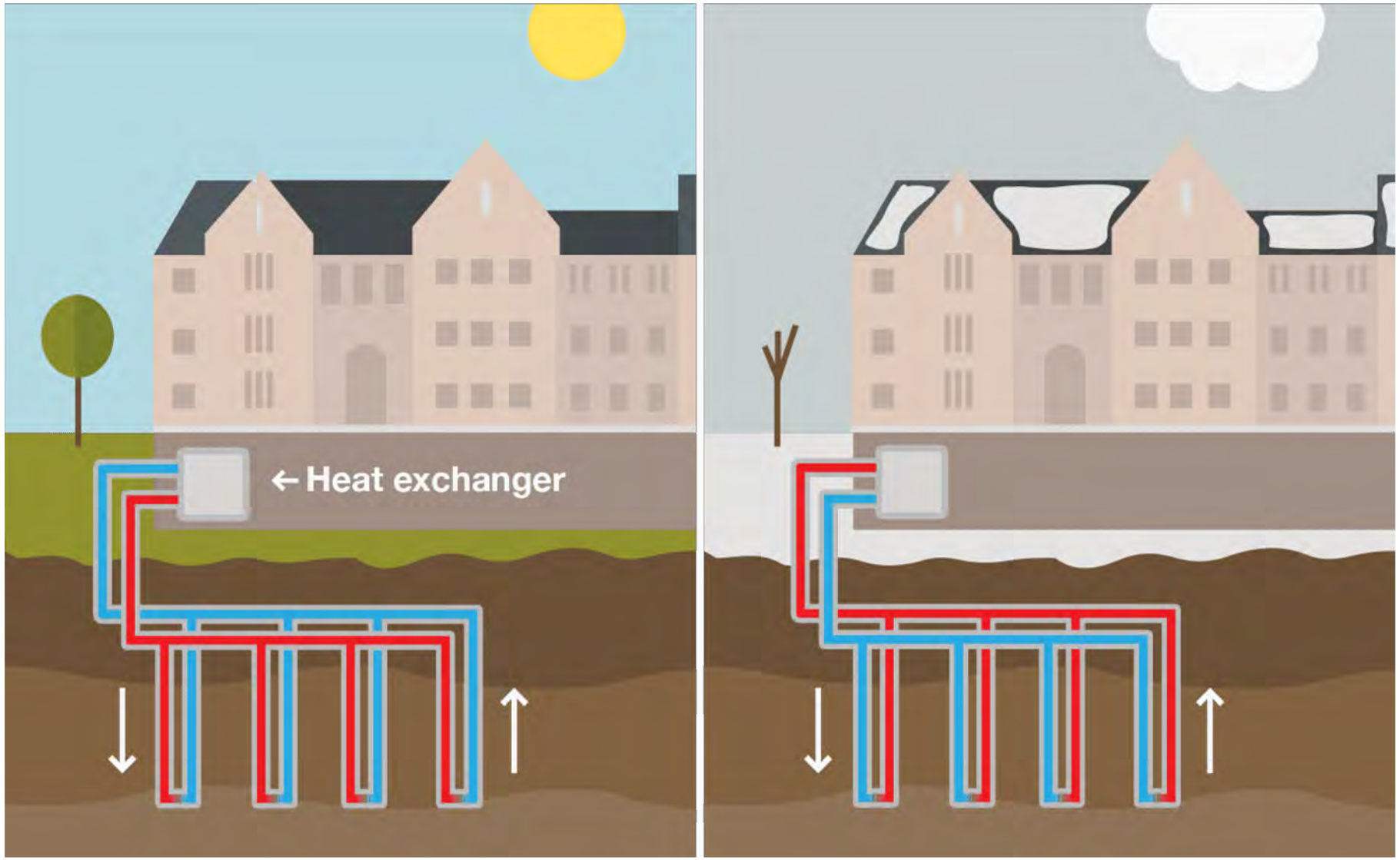


Goal #2 - Municipal Goals

- PPA Agreement with the El Paso Electric Utility for any energy needs that can't be met with onsite renewable energy in order to achieve % goals each year.

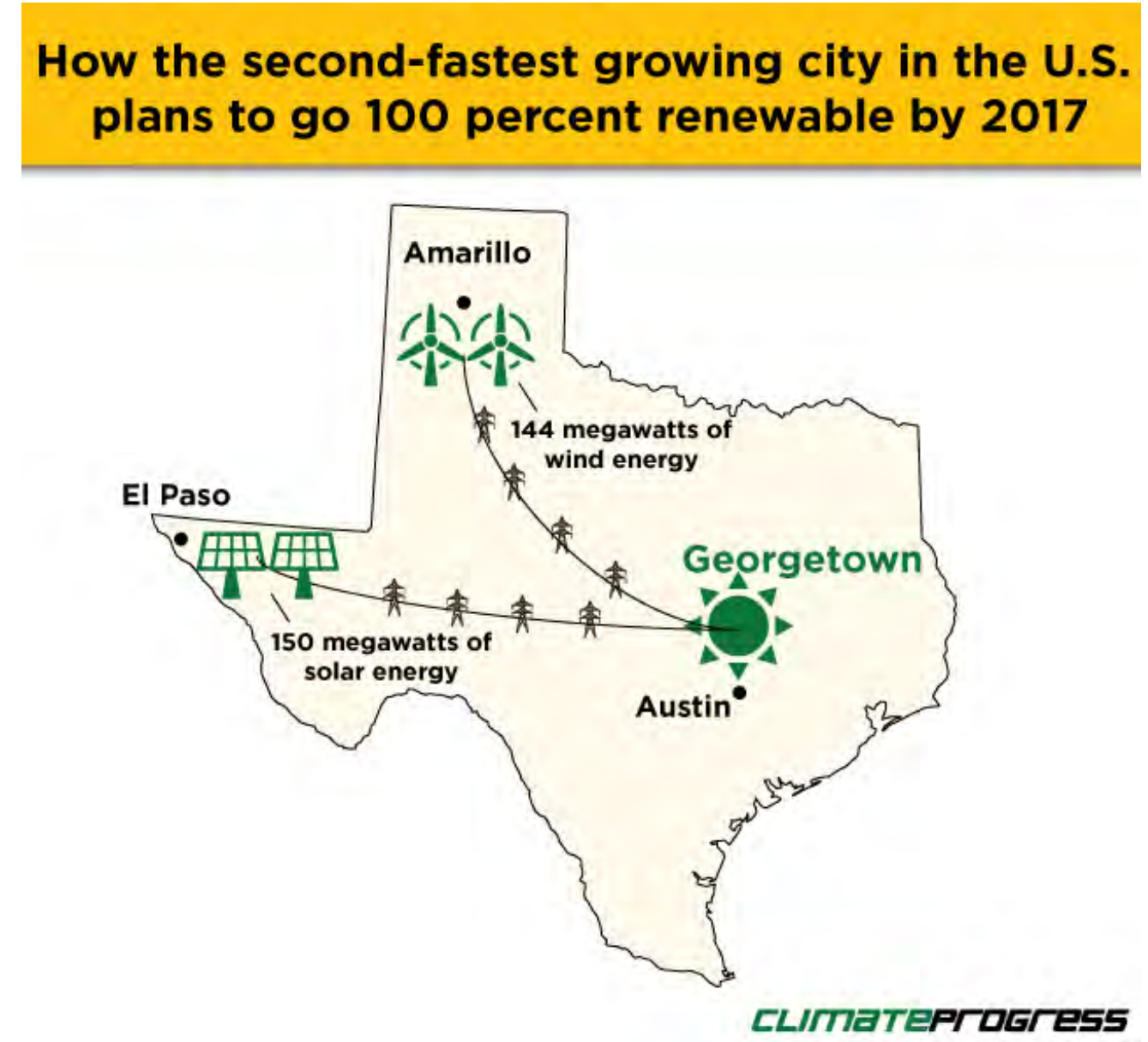
Goal #2 - Municipal Goals

- Install 1 major Geothermal project for a municipal facility by 2020.



Goal #3 - Community Goals

- 50% energy offset of all homes/businesses by 2030.
- 100% energy offset of all homes/businesses by 2050.
- El Paso should shoot for a goal of 2040 to fast track the process which will create jobs, improve our air quality, reduce our water consumption at Utility power plants, and will create a more resilient El Paso.



Goal #4 - Public Education & Career Paths

- Create a visible display in City Hall showcasing the data monitoring of various renewable energy products being used by the city in real time on flat screen TV's.
- Monitoring displays at each city owned facility using renewable energy to educate employees.

Goal #4 - Public Education & Career Paths

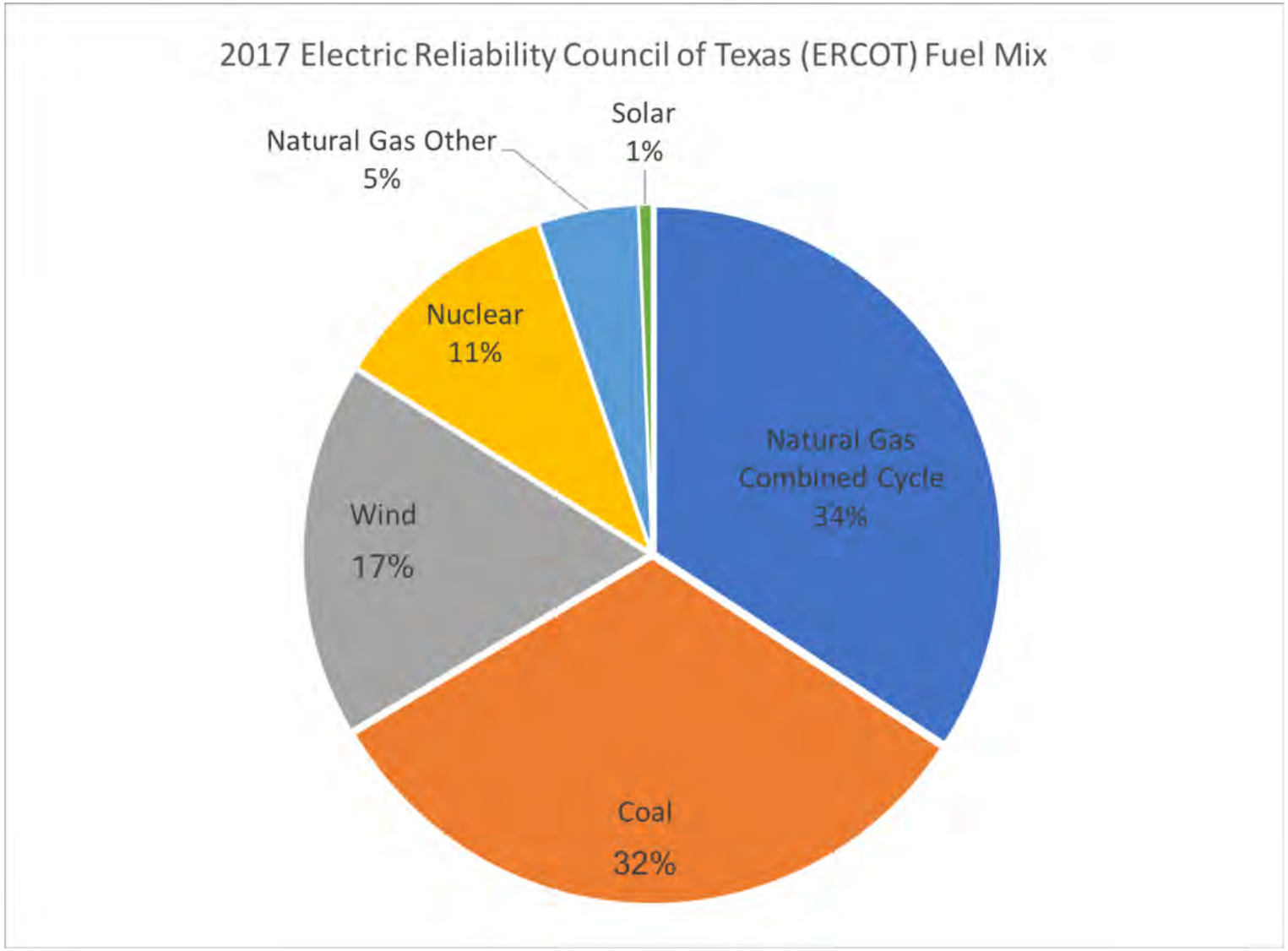
- Promote PACE Financing throughout El Paso.
- The City should promote PACE Financing through marketing to the general public during city council meetings, emails, constituent meetings, your weekly/monthly video that is sent out by email to the city, etc.

Goal #5 - ACTIONS

- Actions Needed by City Council
- Short Term
- Long Term
- Written Commitment to the Citizens of El Paso by Each City Council Member, the Mayor, and City Manager.

Short Term – Data & Metrics

- City of El Paso should create a database of power used by ALL city facilities and report this data on the City Website each month for the citizens to review. *Fuel Mix Data.
- Also show data for all renewable energy systems already connected to municipal facilities.
- This database can track the City's progress toward 100% renewable energy on all city facilities.



Short Term - Hire a City Energy Manager

- Create City position of Energy Manager to manage the energy needs for all municipal facilities, a focus on renewable energy and 100% renewables for all city facilities by 2030, all while supporting community wide renewable energy goals.
- The Energy Manager will also audit all energy bills, all facilities, usage, and forecasts combined with renewables. They will also consider all upgrade options to existing facilities.

ENERGY MANAGER

Short Term - Renewable Energy Incentives

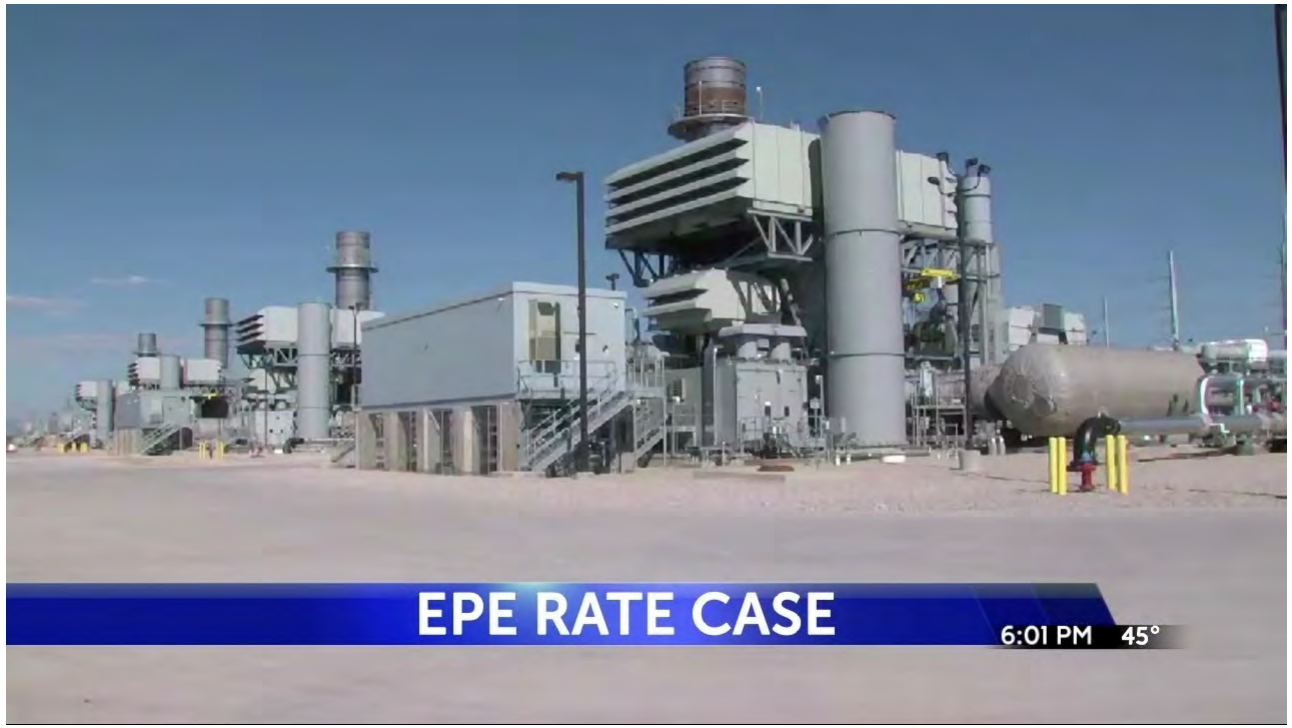
- Create clean energy incentives for homeowners and business owners to increase renewable energy adoption throughout the city.
- Fund these incentives by using 20% of the franchise fee that the city receives each year from El Paso Electric to increase renewable energy adoption.

Short Term - Renewable Energy Incentives

- Create a low income homeowner / property owner incentive to increase renewable energy / clean energy adoption in areas of the city with low incomes.
- These should be some of the largest incentives offered in order to increase adoption in low income communities.
- Low Interest loan programs for clean energy projects.
- Sales Tax Credit for residential and commercial clean energy projects. Tax Free Solar!

Short Term –
Remove the $30 Minimum Bill for Solar Homeowners

- Request that El Paso Electric Utility remove the $30 Minimum Bill for solar energy homeowners into perpetuity.
- Do this through a written letter from the Mayor and signed by all City Council representatives and send it directly to the Public Utility Commission of Texas as well as El Paso Electric Utility in support of solar and ask them to remove the $30 Minimum Bill.
- El Paso Electric Utility communications rep stated that they never asked for a $30 minimum bill and it wasn't their idea so they should be able to stop this practice since they said it in the last RREAC meeting on recording.



They Already Own the Meters

Solar PV Dedicated Meter or REC Meter

El Paso Electric Utility Net Meter

Short Term – Workforce Training

- Workforce training via apprenticeship programs focusing on technical and non-technical careers in the clean energy industry.
- The City should partner with Workforce Solutions and they are willing to fund paid internships if a program is created with the City.

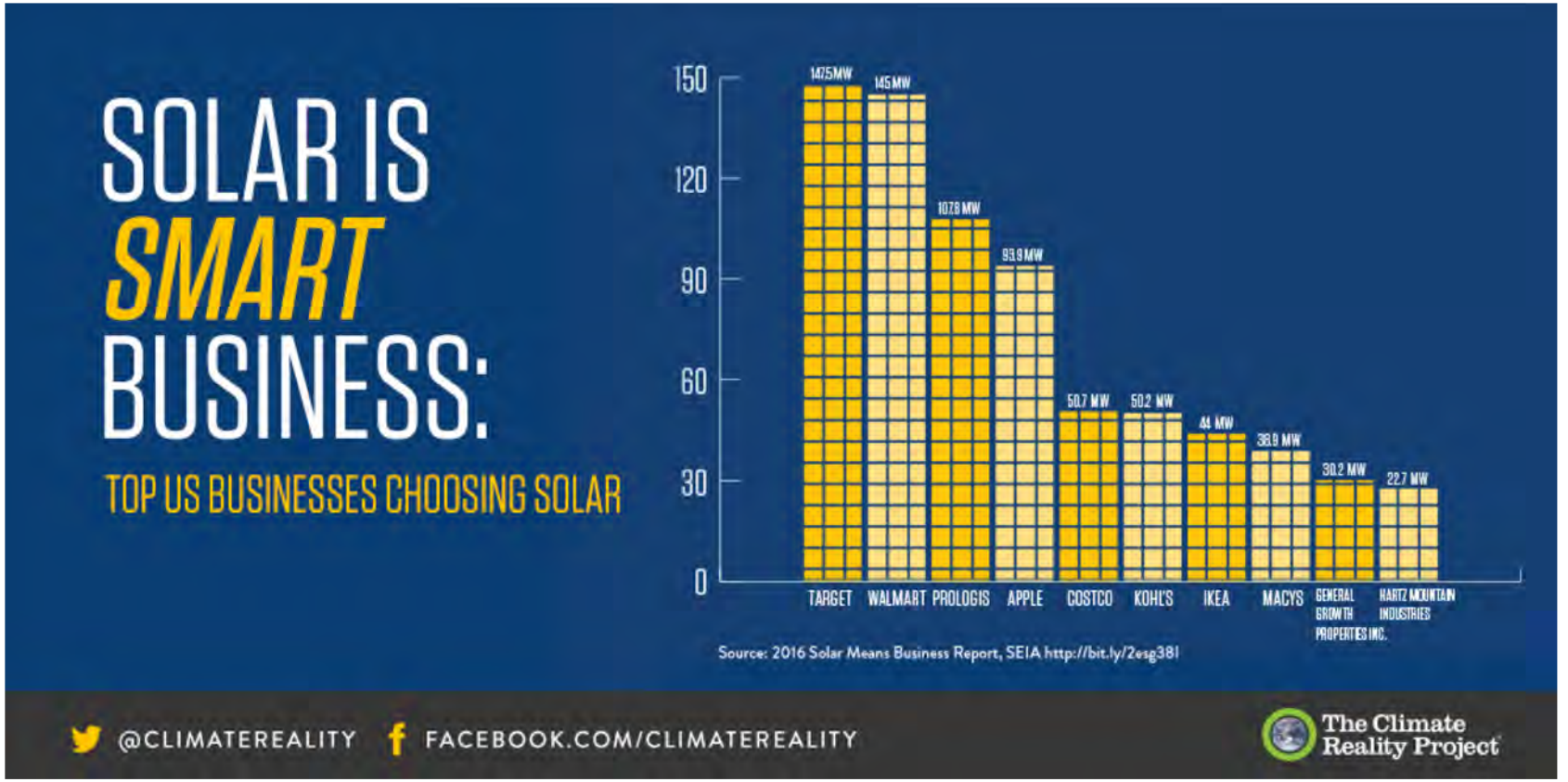
Short Term – Workforce Training

- Support and Promote all renewable energy programs at public schools and universities across El Paso.
- Promote clean energy industry Training & Certifications at public and private schools of all levels.
  - **Example:** Riverside High School is a great example of public school training in a High School environment where students learn about solar power and have the opportunity to earn their NABCEP Certification, which is the sole certification program for solar energy in the USA.

WORKFORCE DEVELOPMENT

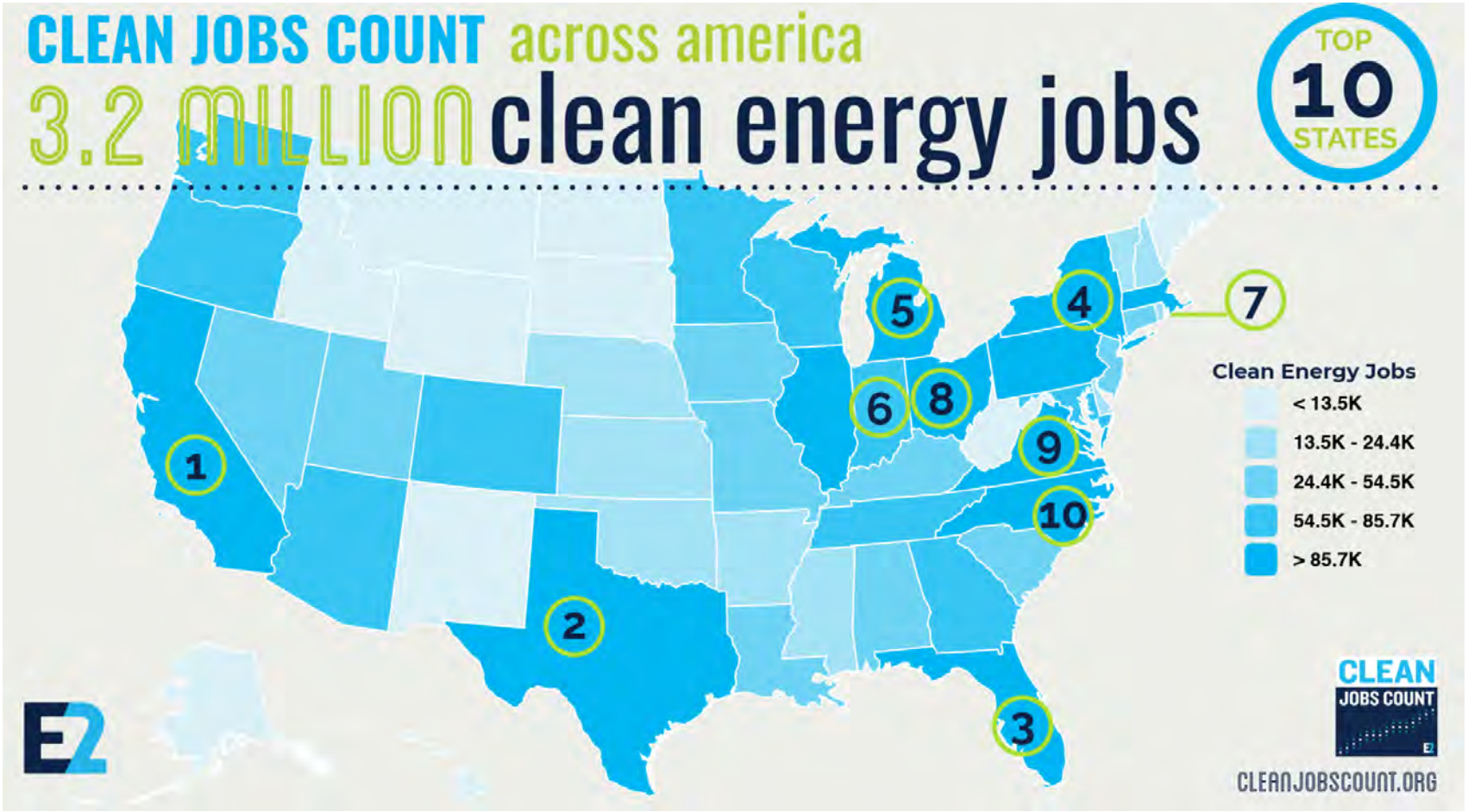
Short Term – Workforce Training

- Revisit the City's historical pursuits of green energy companies efforts to locate in El Paso, and the reason they moved to our region or decided this was not a viable city for their business. What did we learn?
- Assess the talent supply chain and job market of the clean energy industry locally.
  - Create an inventory of companies.
  - Offer incentives to drive new companies to our region.
  - Benchmark the existing workforce against the skills gap.



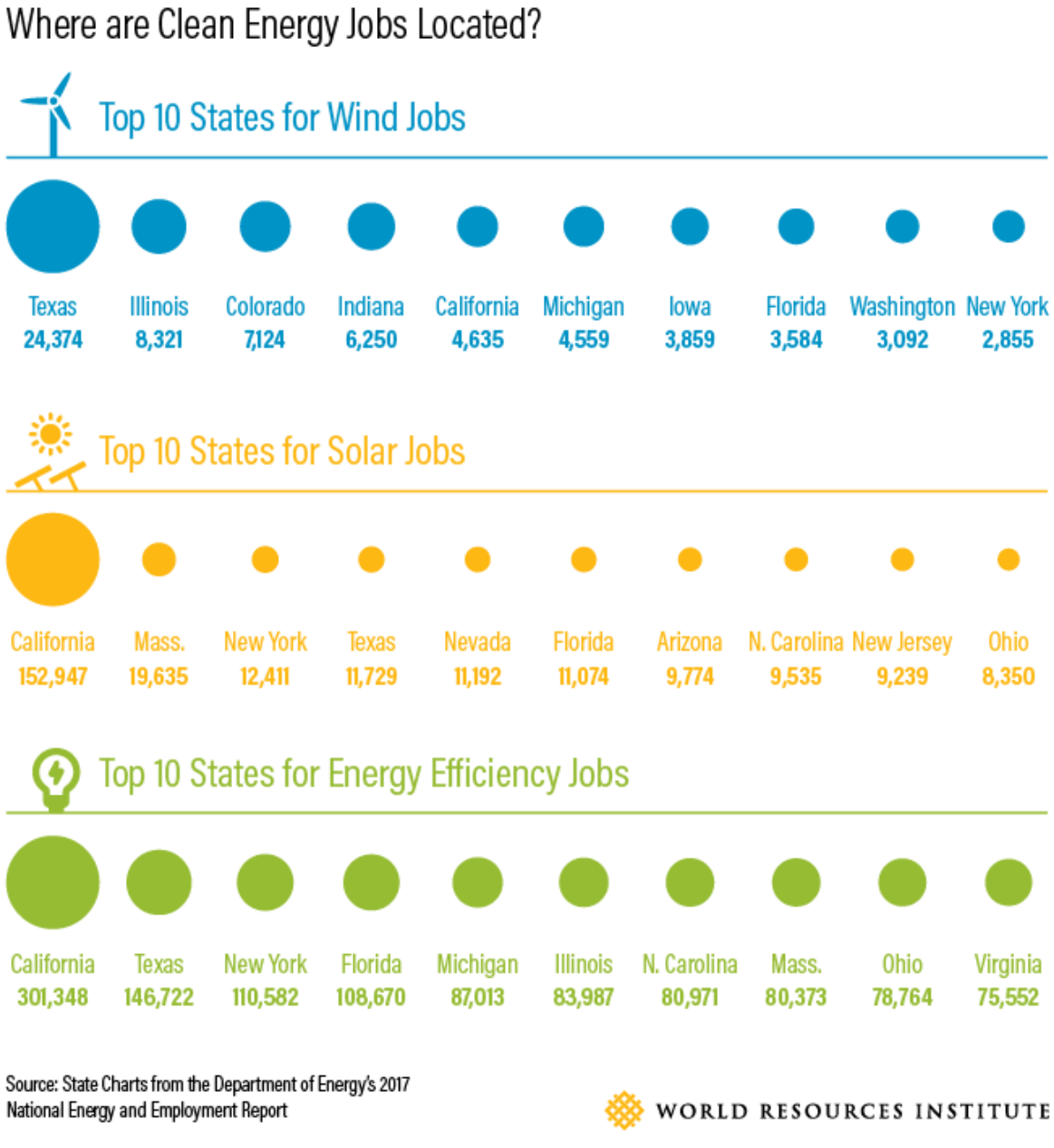
Short Term – Workforce Training

- Why is El Paso City Council not promoting clean energy businesses to relocate to El Paso, TX since we are the #2 State in the USA for Clean Energy Jobs?
- Should all of these jobs go to Austin, San Antonio, Dallas, or Houston?
- On average, there are **297 sunny days** per year in El Paso. The US average is **205 sunny days**.



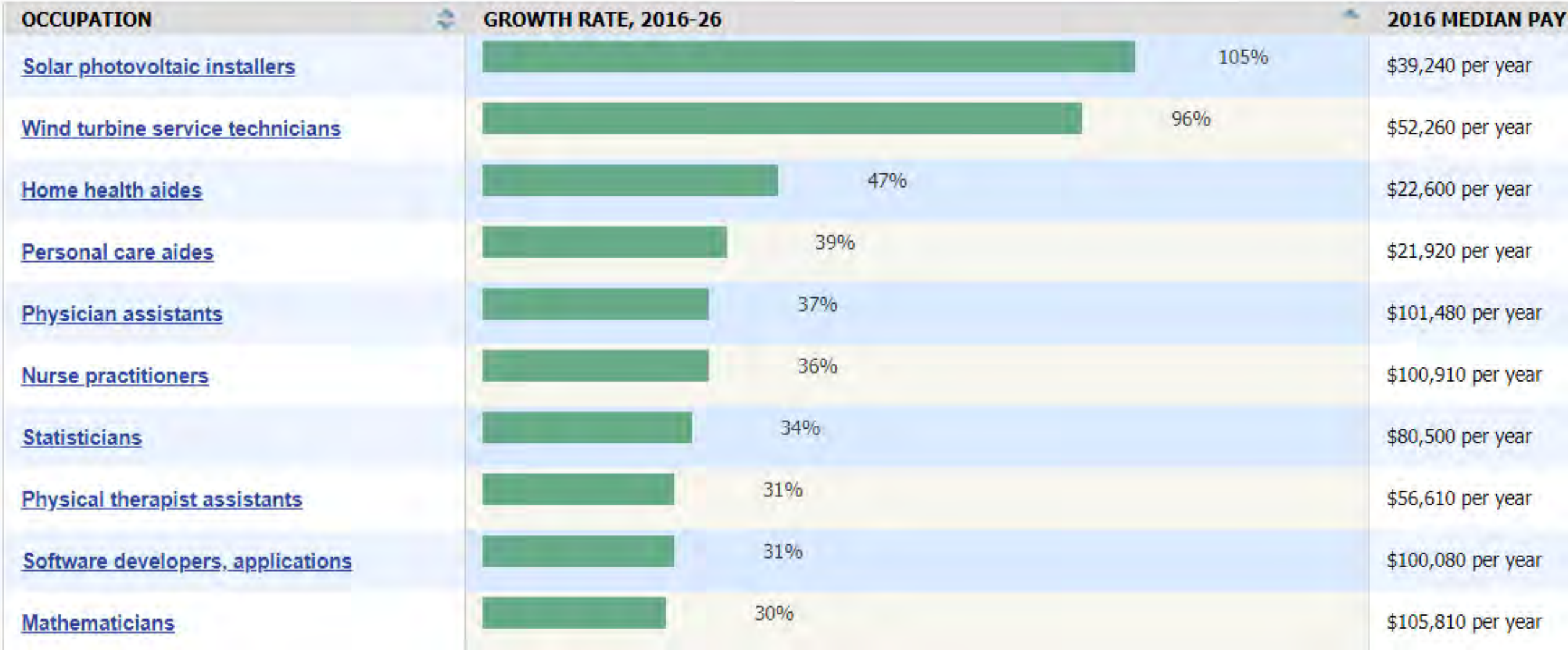
Short Term – Workforce Training

Why Not El Paso?



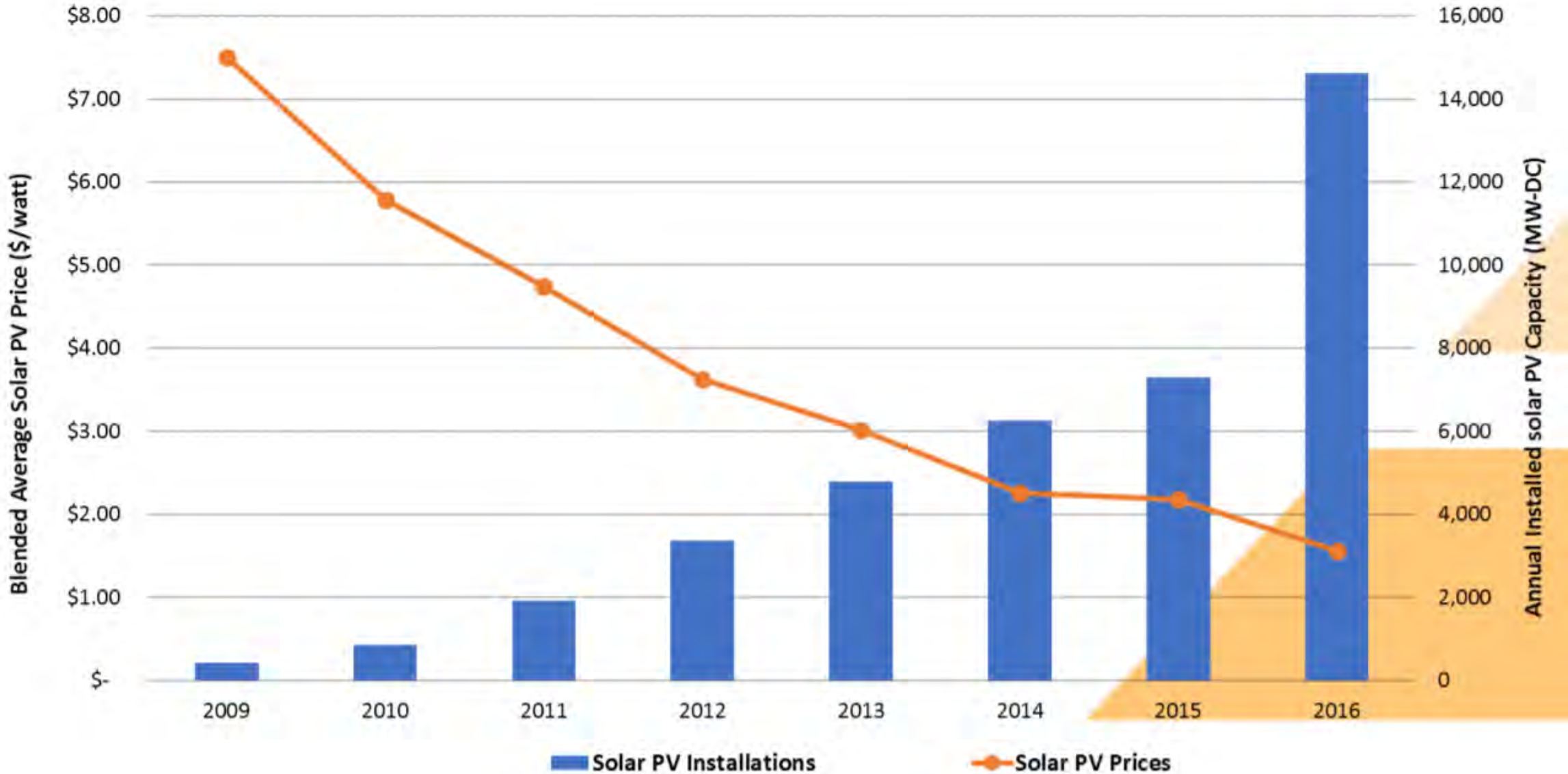
Fastest Growing Jobs in the Next 10 Years

U.S. Bureau of Labor Statistics



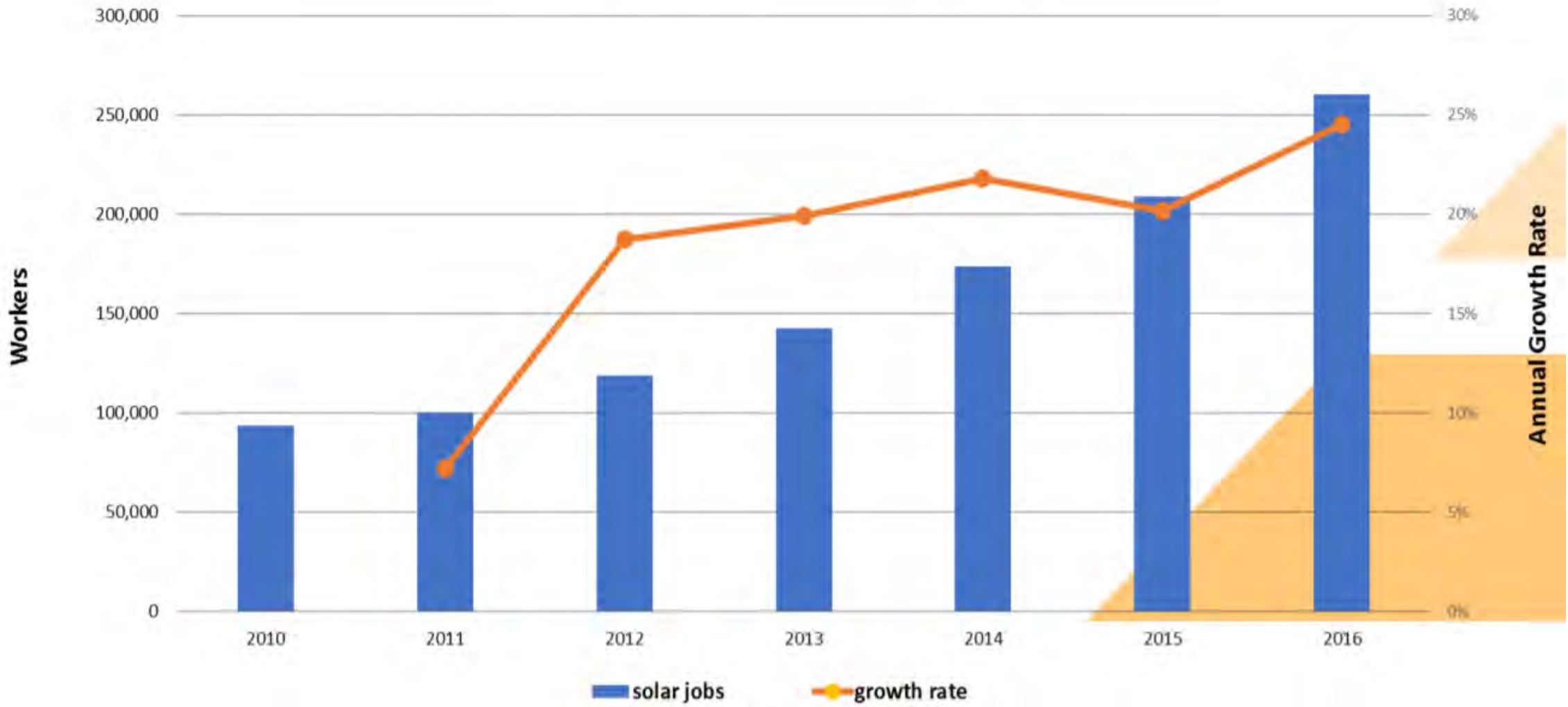
OCCUPATION	GROWTH RATE, 2016-26	2016 MEDIAN PAY
Solar photovoltaic installers	105%	$39,240 per year
Wind turbine service technicians	96%	$52,260 per year
Home health aides	47%	$22,600 per year
Personal care aides	39%	$21,920 per year
Physician assistants	37%	$101,480 per year
Nurse practitioners	36%	$100,910 per year
Statisticians	34%	$80,500 per year
Physical therapist assistants	31%	$56,610 per year
Software developers, applications	31%	$100,080 per year
Mathematicians	30%	$105,810 per year

Growth in Solar led by Falling Prices

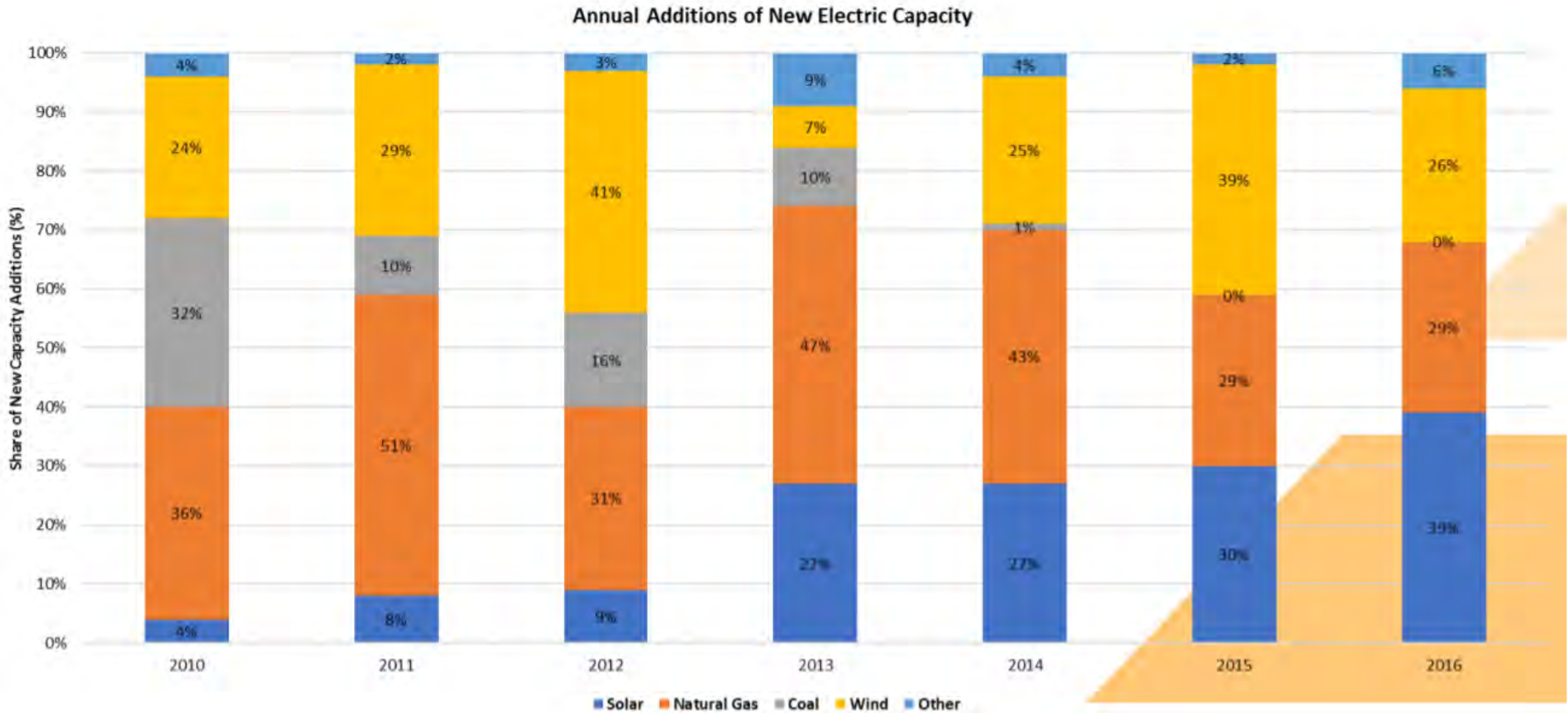


Solar is a Job-Creating Industry

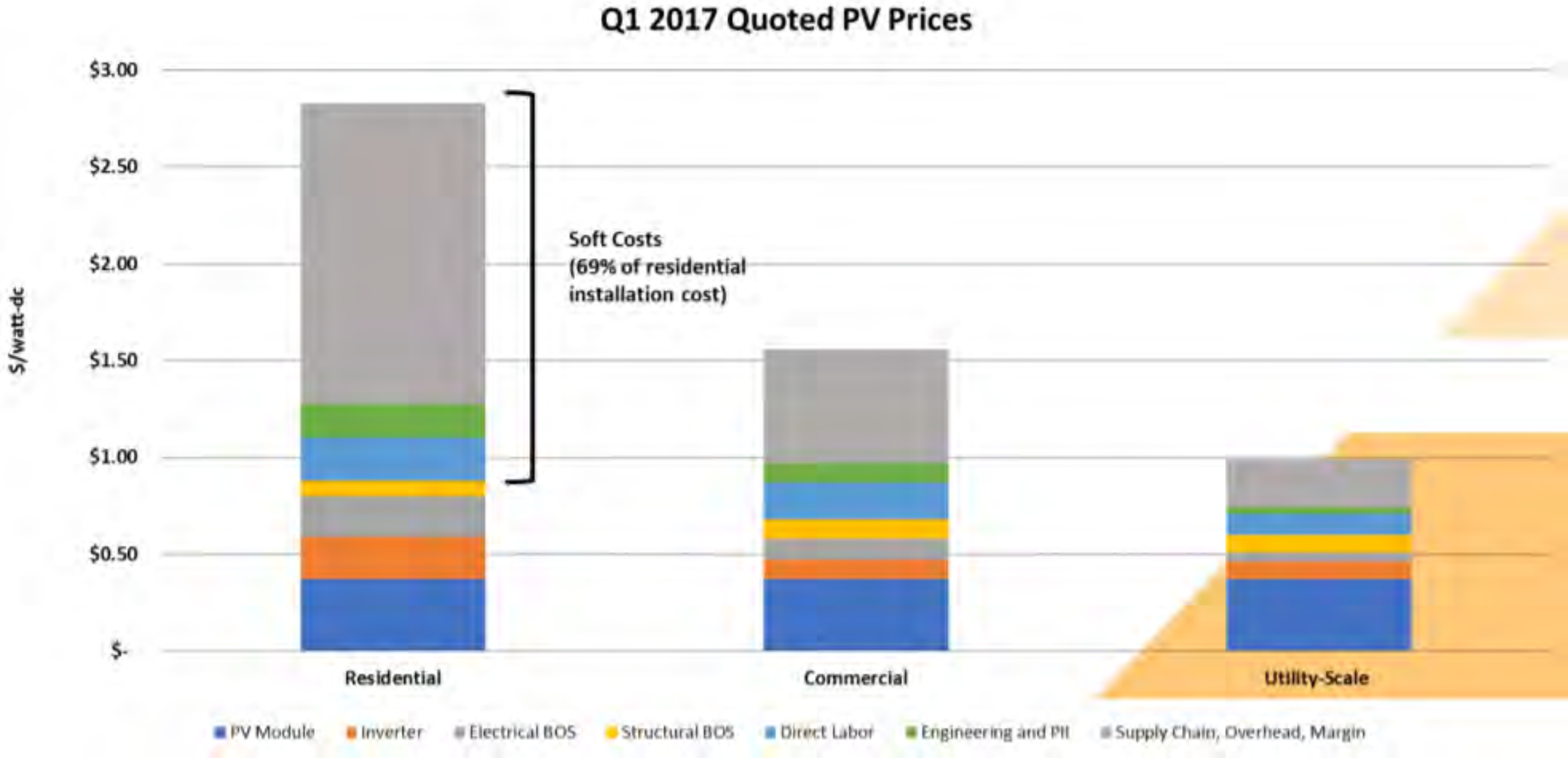
Over 260,000 American workers in solar – more than double the number in 2012 – at more than 9,000 companies



Solar's Share of New Capacity Has Grown
In 2016 it was 1st



Solar PV Price Breakdown

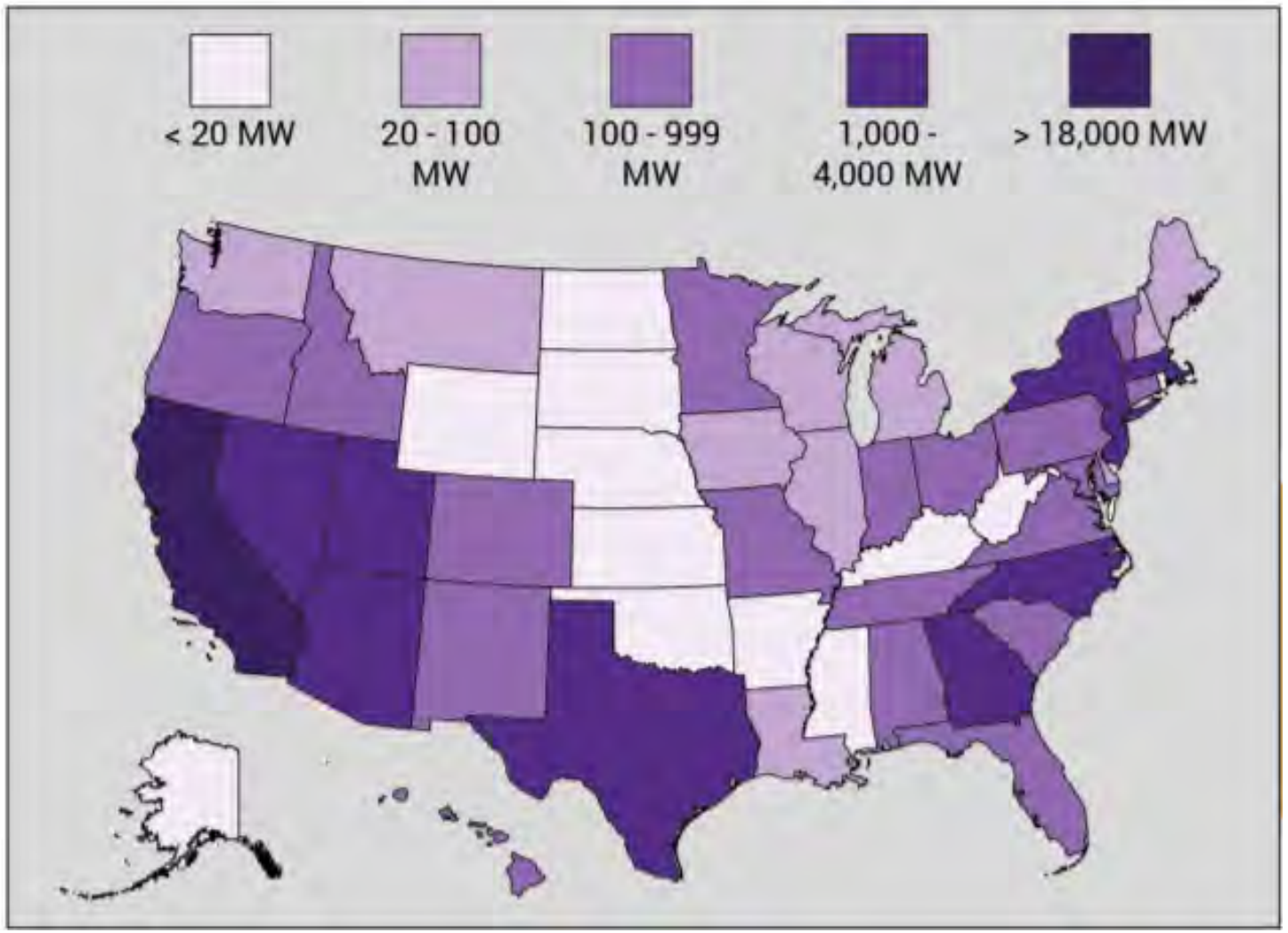


Solar Growing Coast to Coast

Top 10 States

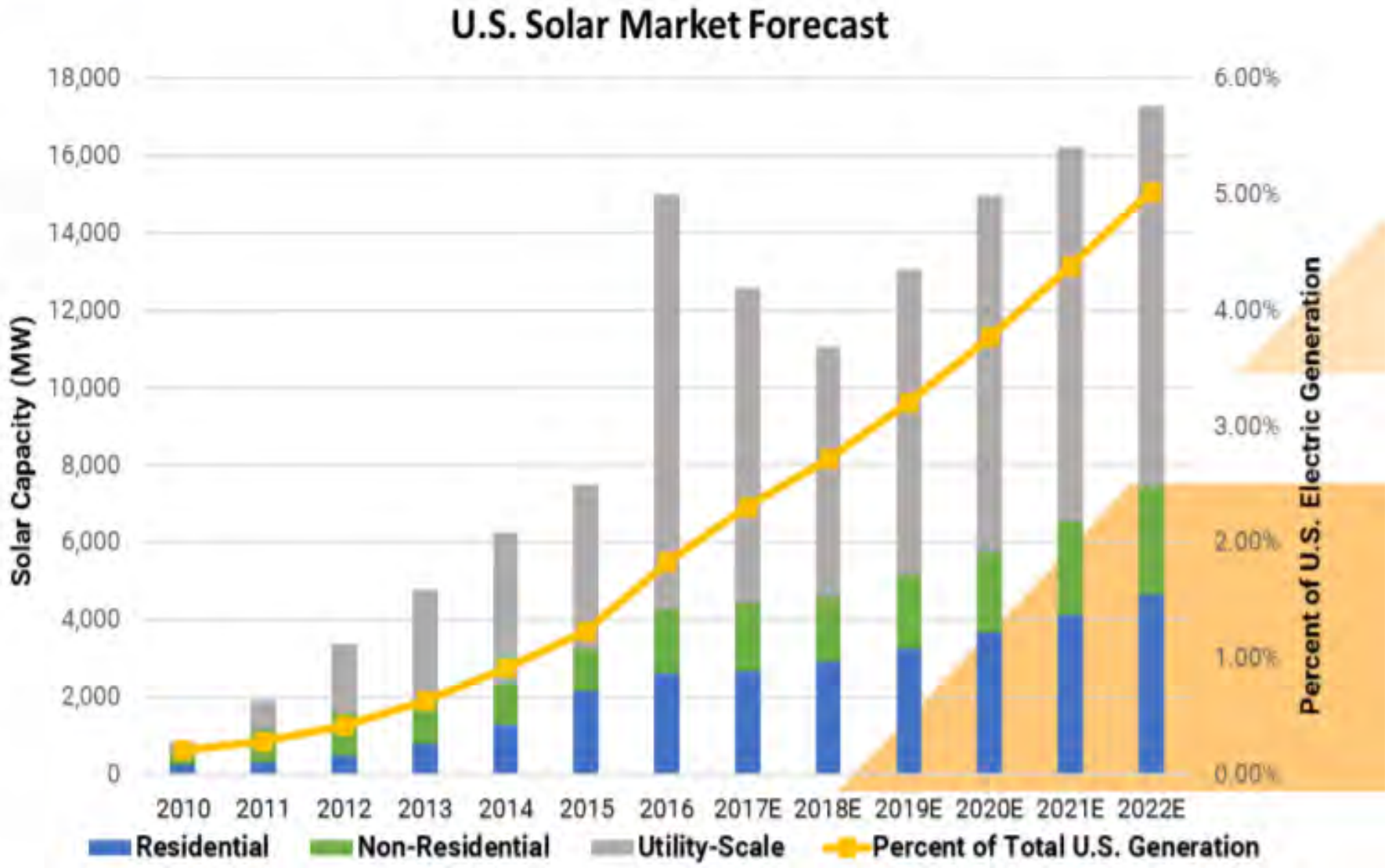
1. CA: 18,963 MW
2. NC: 3,288 MW
3. AZ: 3,151 MW
4. NV: 2,269 MW
5. NJ: 2,114 MW
6. MA: 1,592 MW
7. UT: 1,527 MW
8. GA: 1,478 MW
9. TX: 1,228 MW
10. NY: 1,012 MW

Cumulative Solar Capacity by State, through Q1 2017

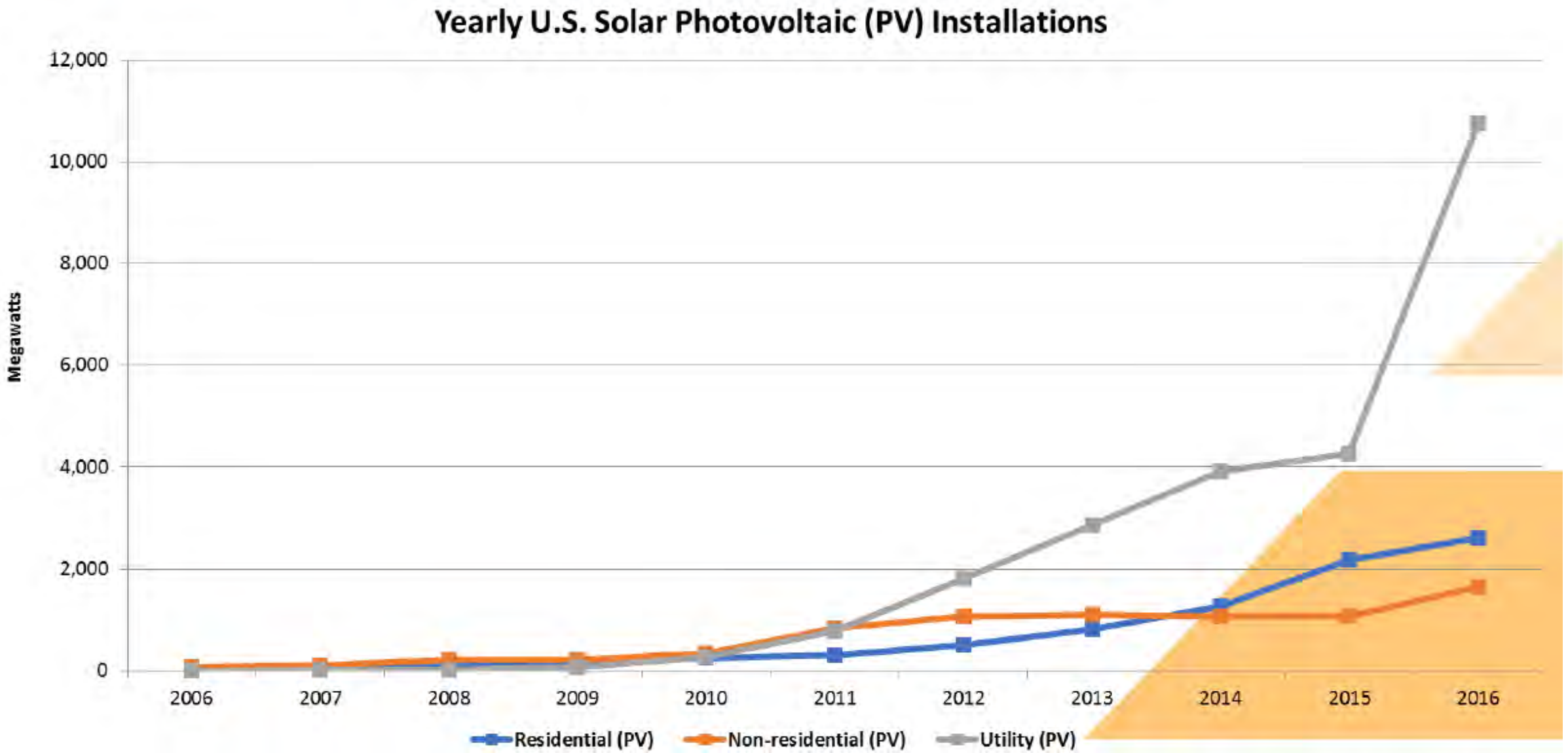


Deployment Forecast

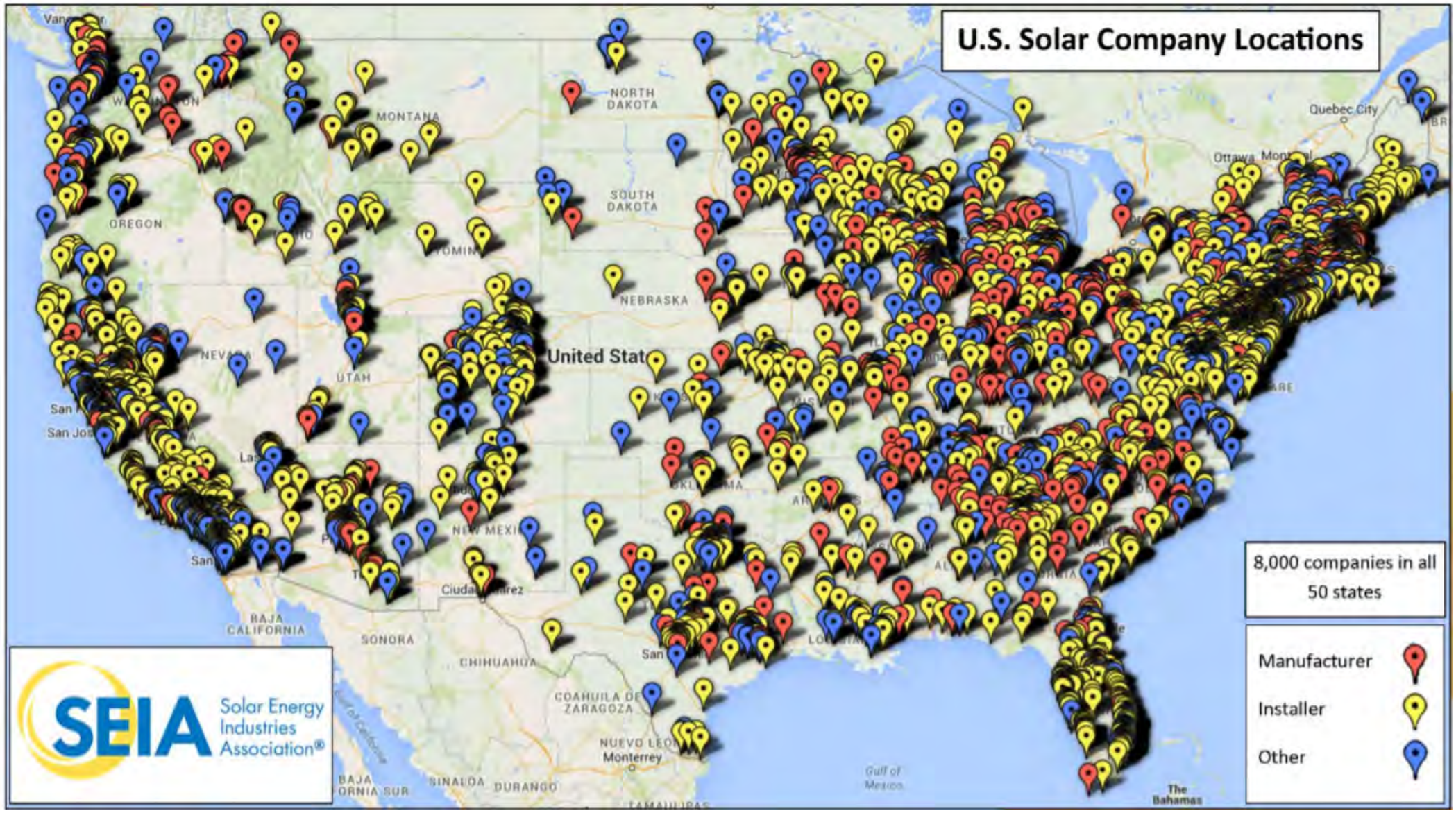
- By 2021, over 100 GW installed in the U.S., enough to power 19 million homes
- Represent 5% of America's annual electricity generation by 2022, up from 0.2% in 2010
- Installed on over 4 million rooftops nationwide by 2022
- Nearly $20 billion in annual economic activity by 2022



Continued Growth Across All Markets

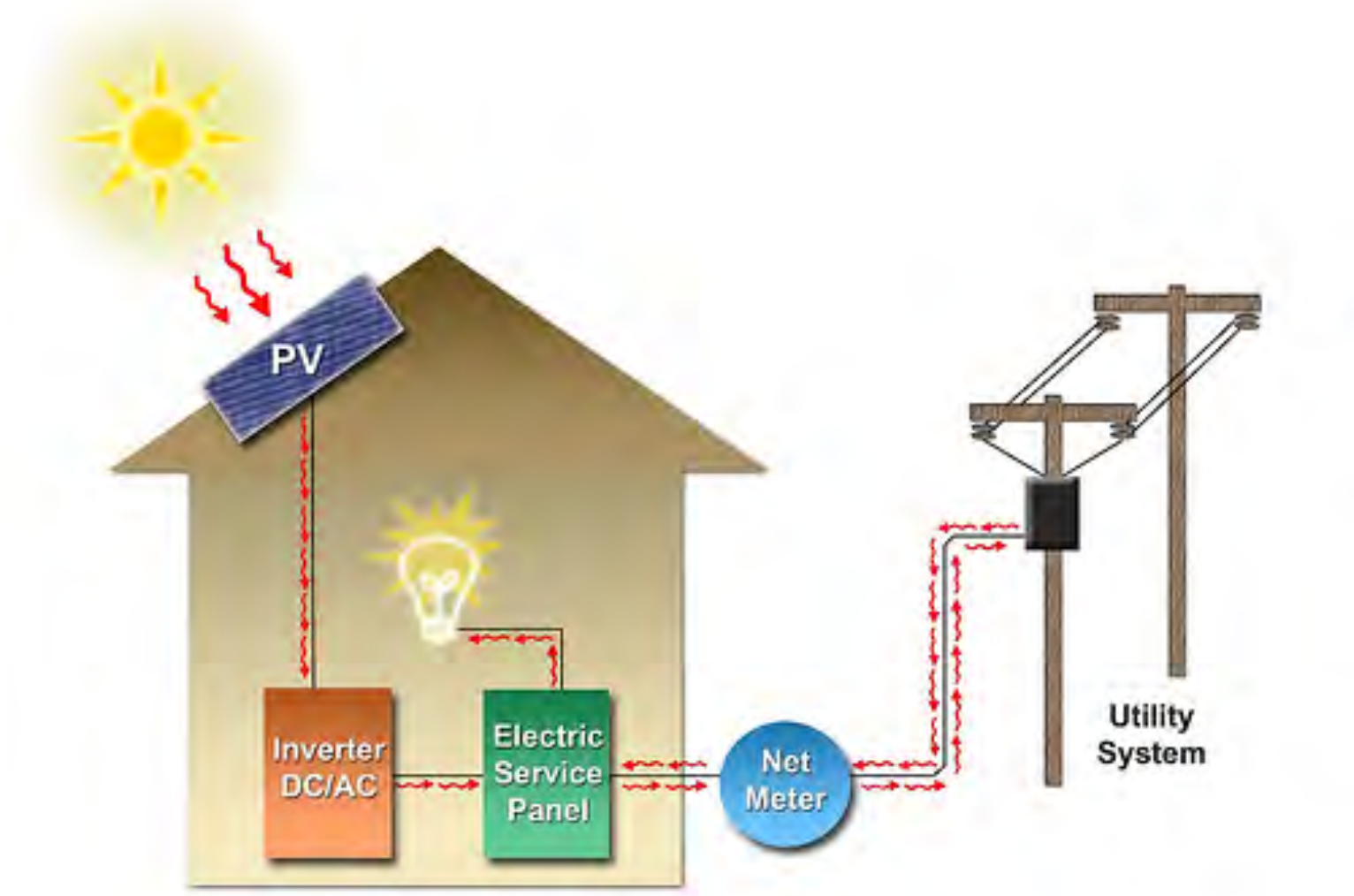


Over 260,000 American workers in solar – more than double the number in 2010 – at 9,000 companies across the country



Public Policy

- Recommend the City request the State of Texas to continue protecting net metering in our region.
- Support the law protecting electric utility customers in a monopoly utility service territory from installing new smart meters.
- Smart Meters add major costs to the rate payers, do not add additional renewable energy to our city's grid, these meters primarily help at commercial and industrial sites, the Electric Utility already owns all meters, and they have 2 meters at every solar energy customer location.
- City Council should appose smart meters on Residential Properties.



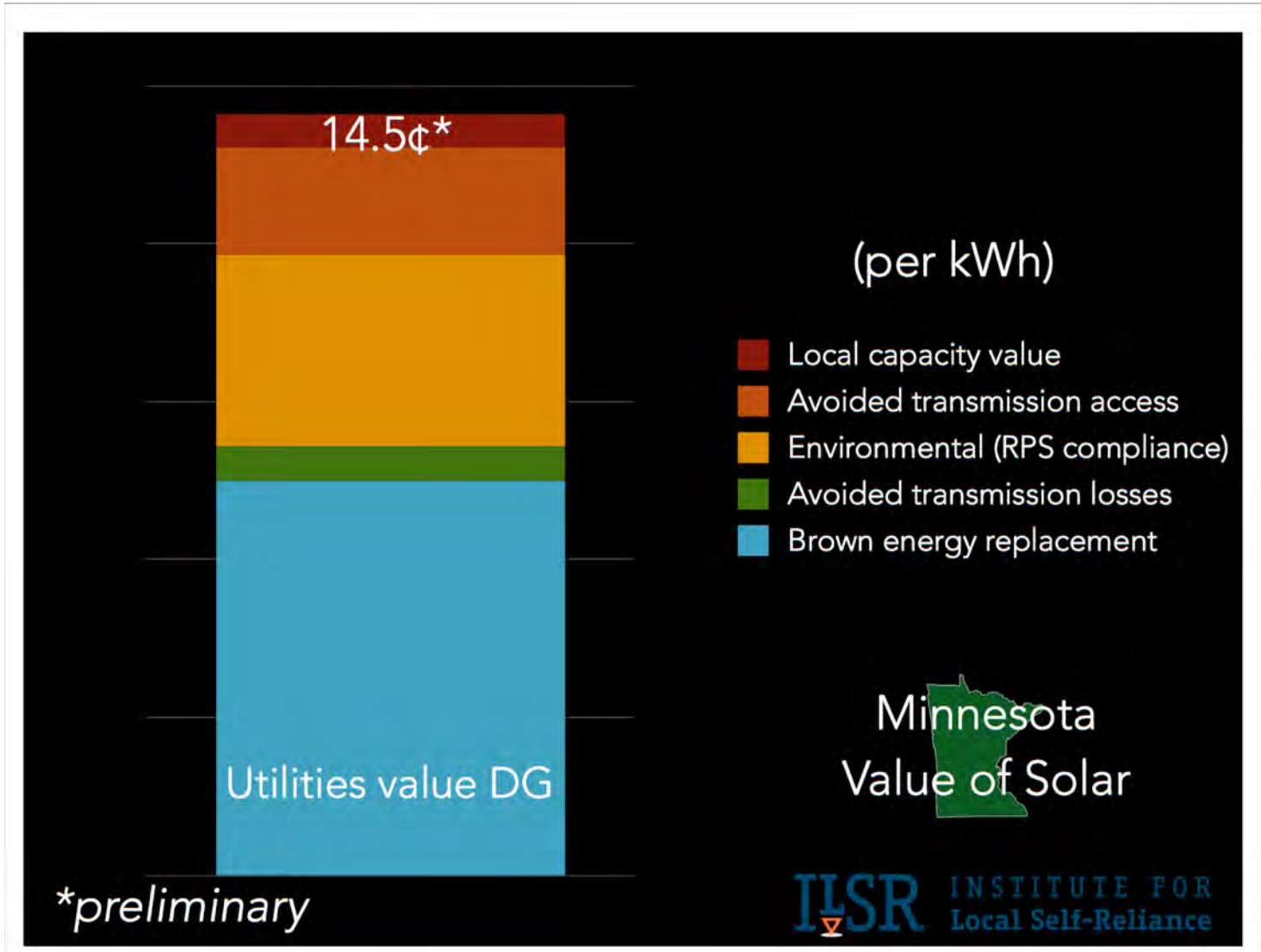
Public Policy

- Arrange for an Independent Assessment/Audit of our local electric utility, and solar energy markets/businesses.
- Include financial impact EPE rate cases have on our economic growth
- Include impact EPE has on the growth of clean energy industries in our city.

Public Policy

- Assess the real cost and value of solar energy to the electric grid, factoring in all benefits that the Utility receives such as:
  - Reduced wear and tear on Transmission & Distribution lines as well as transformers and other hardware.
  - Reduces PEAK DEMAND!
  - Reduced Transmission Line Losses
  - Reduced water usage at Utility plants
  - Stabilizes the grid
  - Allows the Utility to move into Utility Scale Solar & Battery Storage that benefit all citizens and rate payers.
  - Reduced Man Hours required to keep the grid updated and maintained
  - Environmentally Friendly
  - Improves Air Quality
  - Reduces the city's water use at the Electric Utility.

EXAMPLE: Value of Solar



Public Policy

- Take 20% of the Franchise Fee that the city receives from the Utility and reallocate those funds for clean energy project incentives and loan programs for low income home or property owners.
- *Revolving loan fund by the City for low income property owners.

City Outreach & Marketing

- Education by the City about these sustainability and renewable energy programs.
- Website details showcasing all renewable energy options and research for citizens to review.
- Include in City wide newsletters, emails, Video Newsletters, etc. in order to reach a wider audience.
- Include in social media efforts used by the City of El Paso.
- Promote SolSmart Award

New Street Car Electric Bill?

- Offset the new electric Street Cars energy usage by using solar and renewable energy sources; PPA agreement.
- Monthly energy bill for street cars?
- Yearly energy bill estimate?

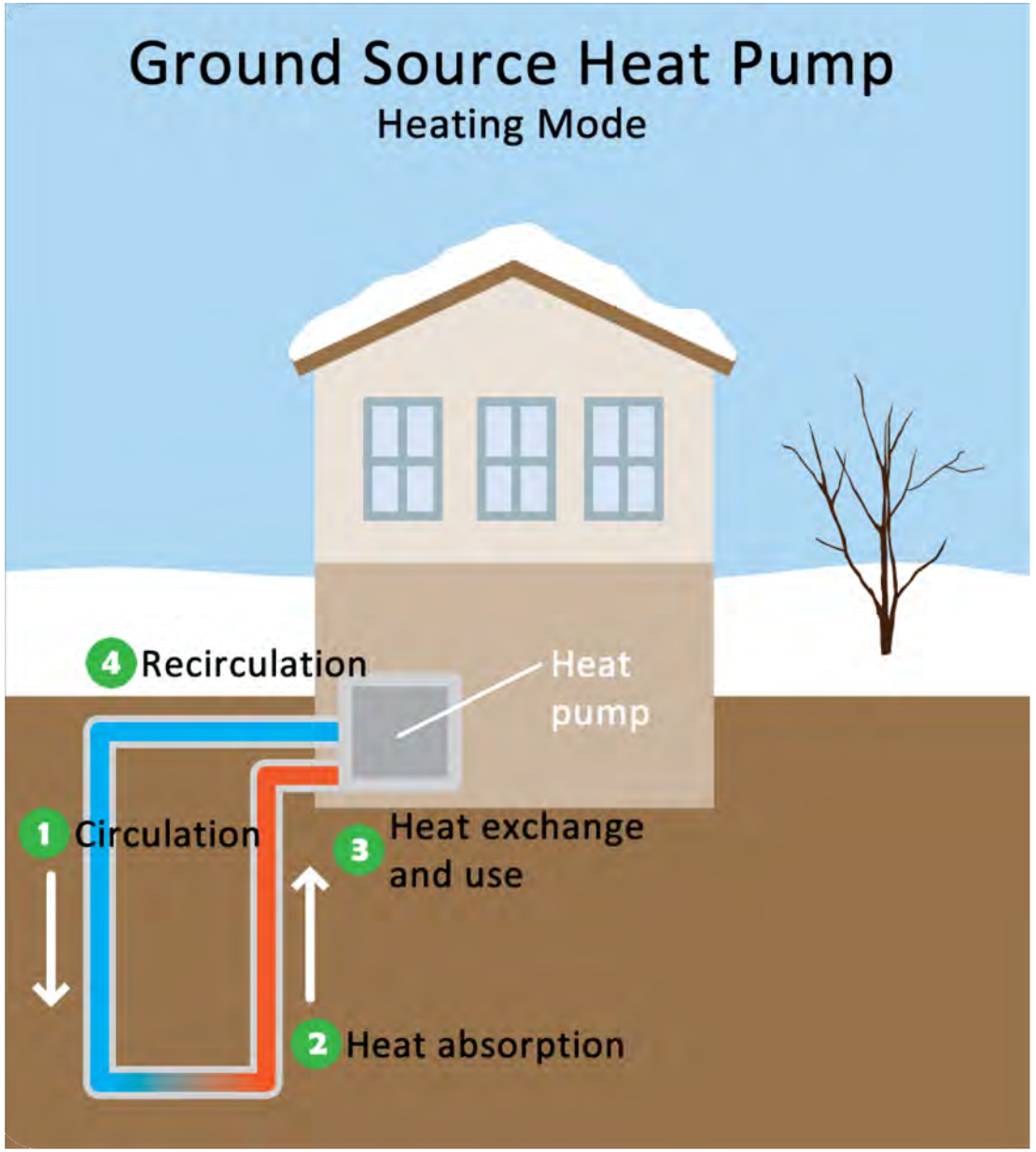
New Construction – Solar Ready

- All new properties should be built as “Solar Ready”: Municipal, Commercial and Residential.
  - Homes and commercial properties in El Paso should be built as “Solar Ready”.
  - Make this a mandatory building code for all new buildings.
  - Incentives to help retrofit residential or commercial buildings to be “Solar Ready”.
  - All new City owned Facilities should be built as solar ready and Geothermal ready.

- What does “solar ready” really mean?
  - **Solar-ready** building design, as the name suggests, refers to designing and constructing a building in a way that facilitates and optimizes the installation of a rooftop solar photovoltaic (PV) system at some point after the building has been constructed.

New Construction – Geothermal Ready

- All new homes and commercial properties in El Paso should be built as “Geothermal Ready”
  - Make this a mandatory building code for all new buildings.
  - Incentives to help retrofit residential or commercial buildings to be “Geothermal Ready”.

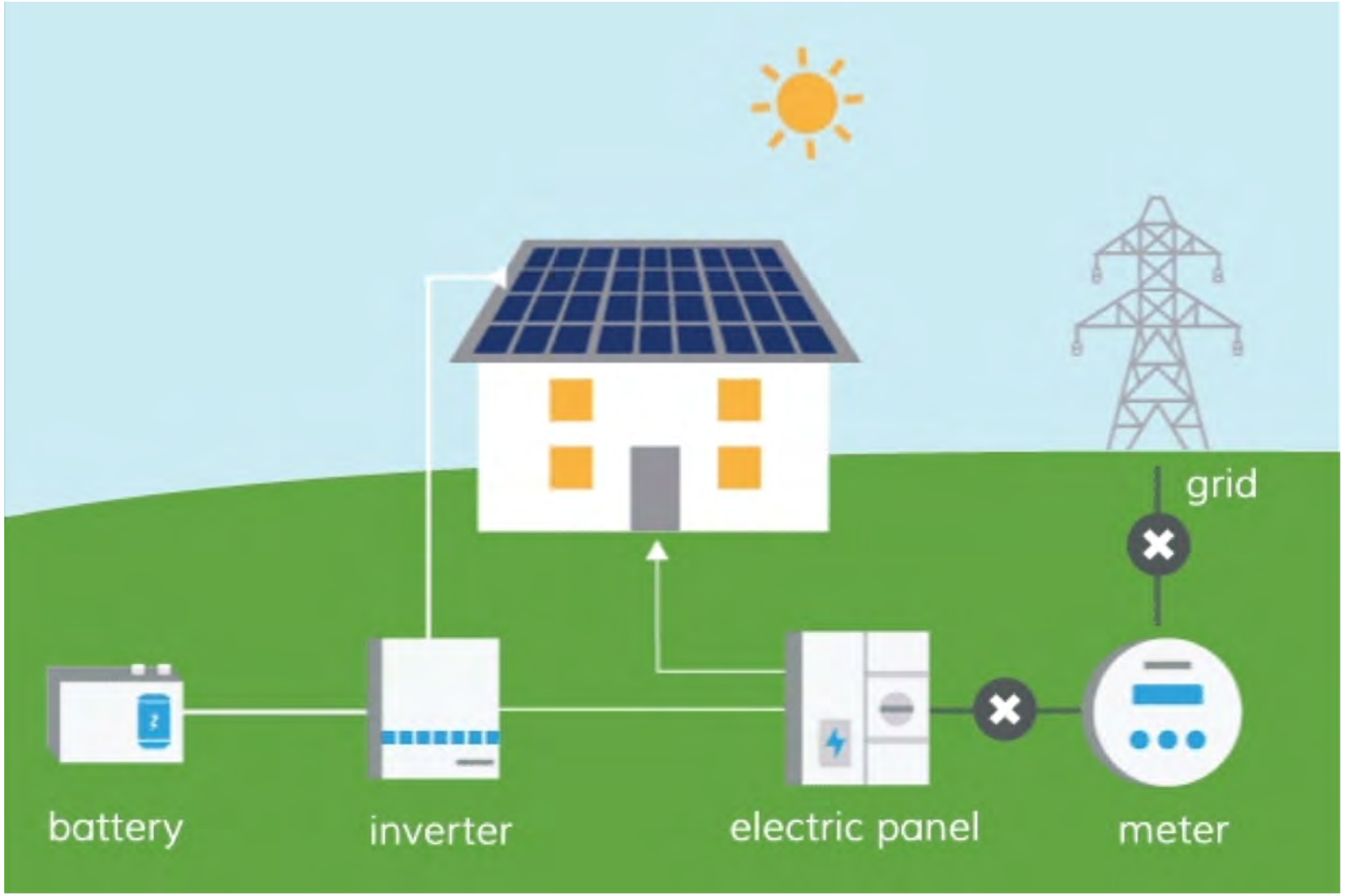


Renewable Incentives

- City incentives for solar PV, geothermal, solar water heating, and energy storage.
- Based on energy savings, each type of technology will have a different incentive and calculation for the incentive.
- The highest rebates for peak demand reduction.

Battery Storage

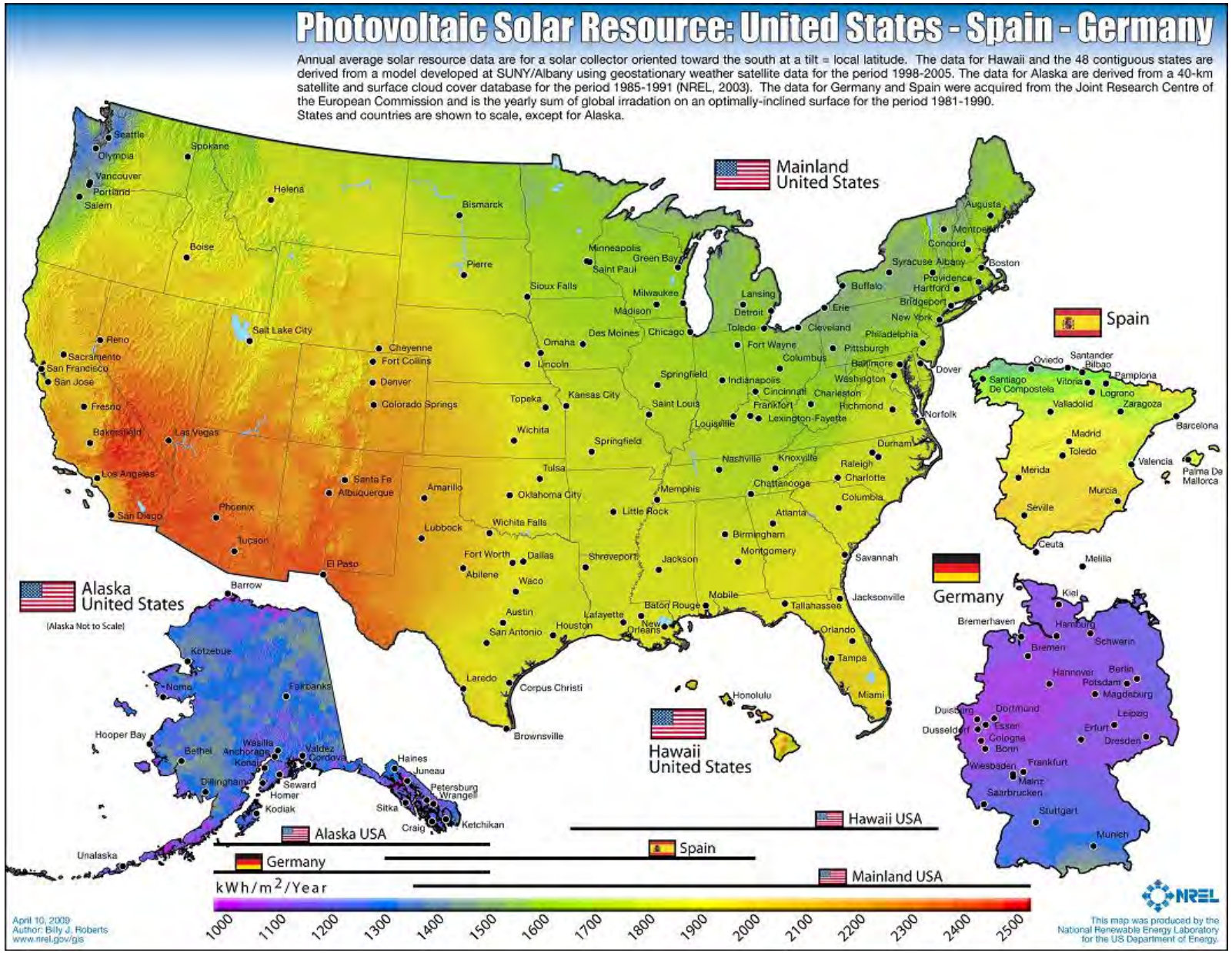
- Test at least 1 commercial scale battery storage project on a Municipal facility by 2020.



Long Term Goals

- Best Practice Examples
- RREAC Policy
  - Renewable Energy
  - Sustainability
  - Economic Growth - Workforce Development
- SolSmart Recommendations
- Energy Data Request – Usage & Solar Production on all existing facilities.
- Energy Data Request – Solar DG #’s each month from El Paso Electric Utility regarding all Solar DG metrics requested by RREAC in various monthly meetings.

We've Struck Solar!



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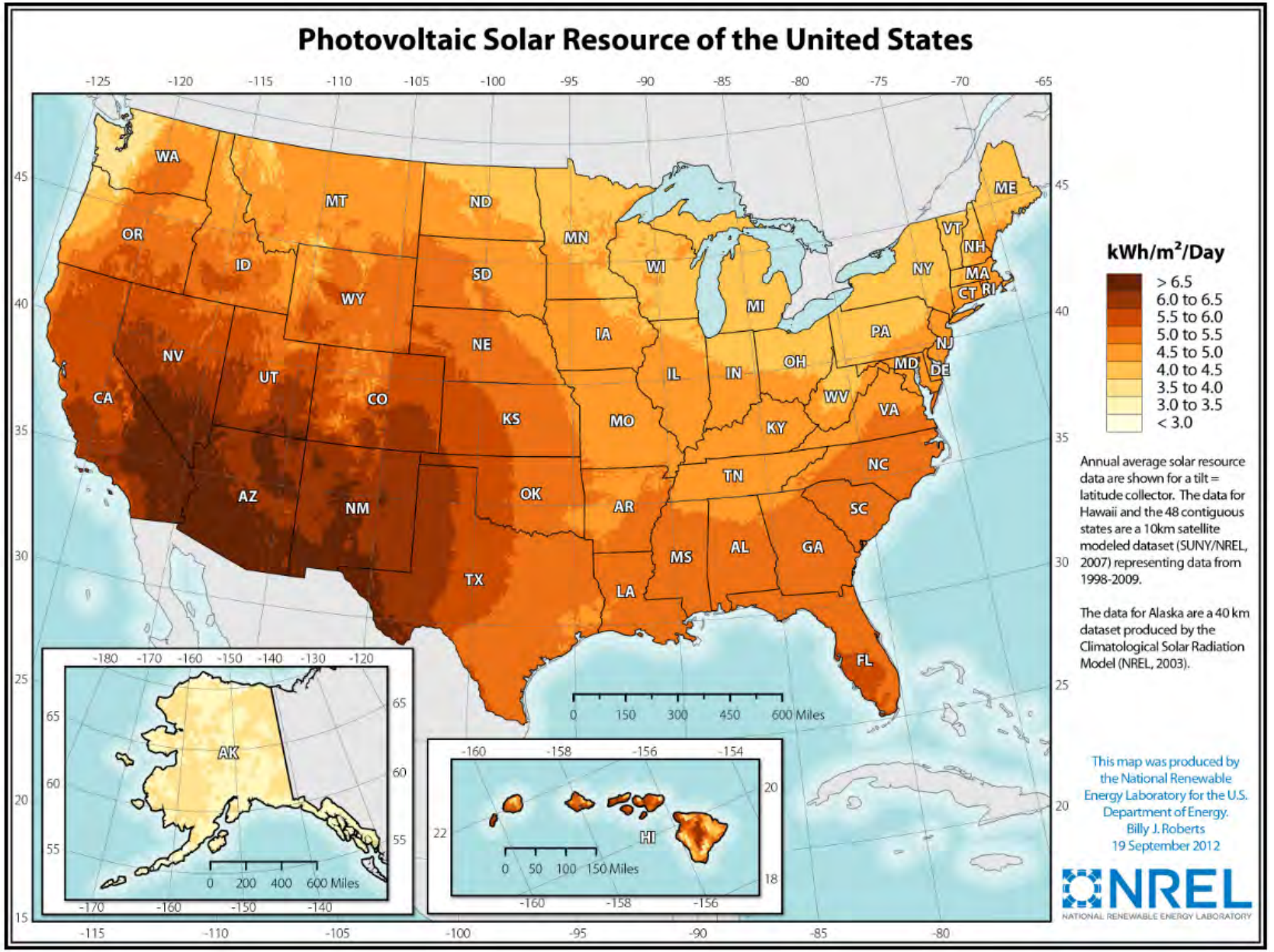

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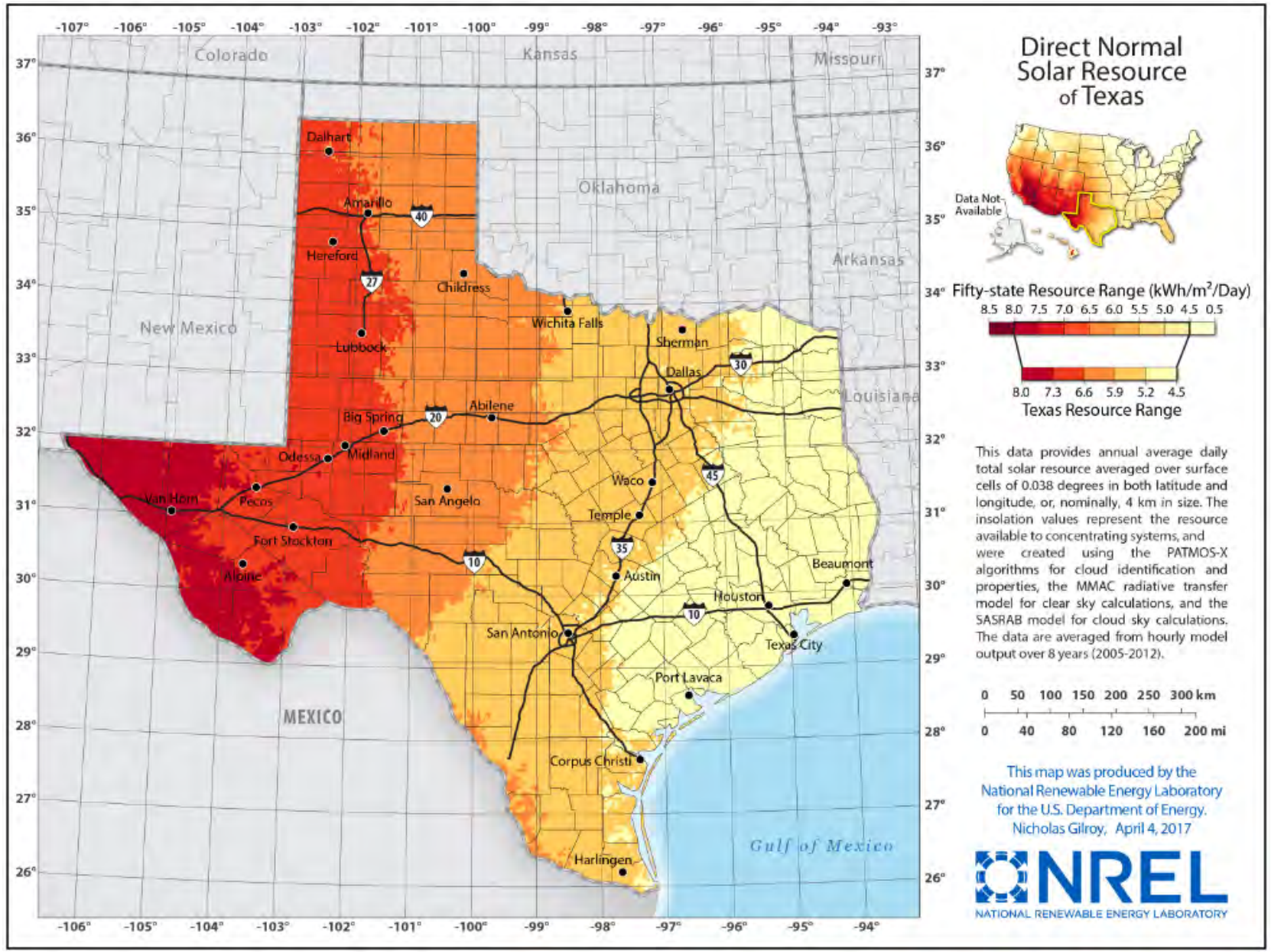

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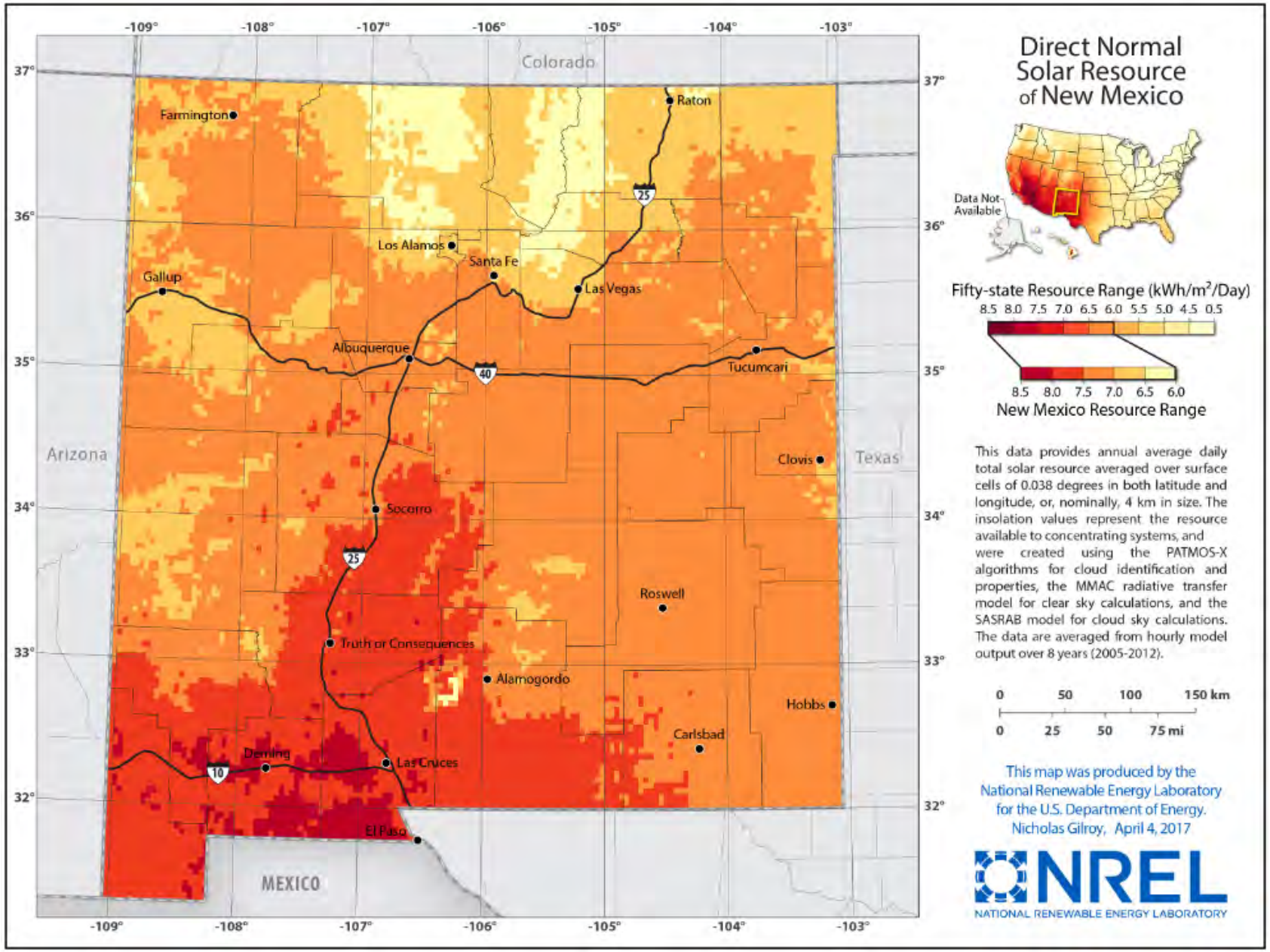
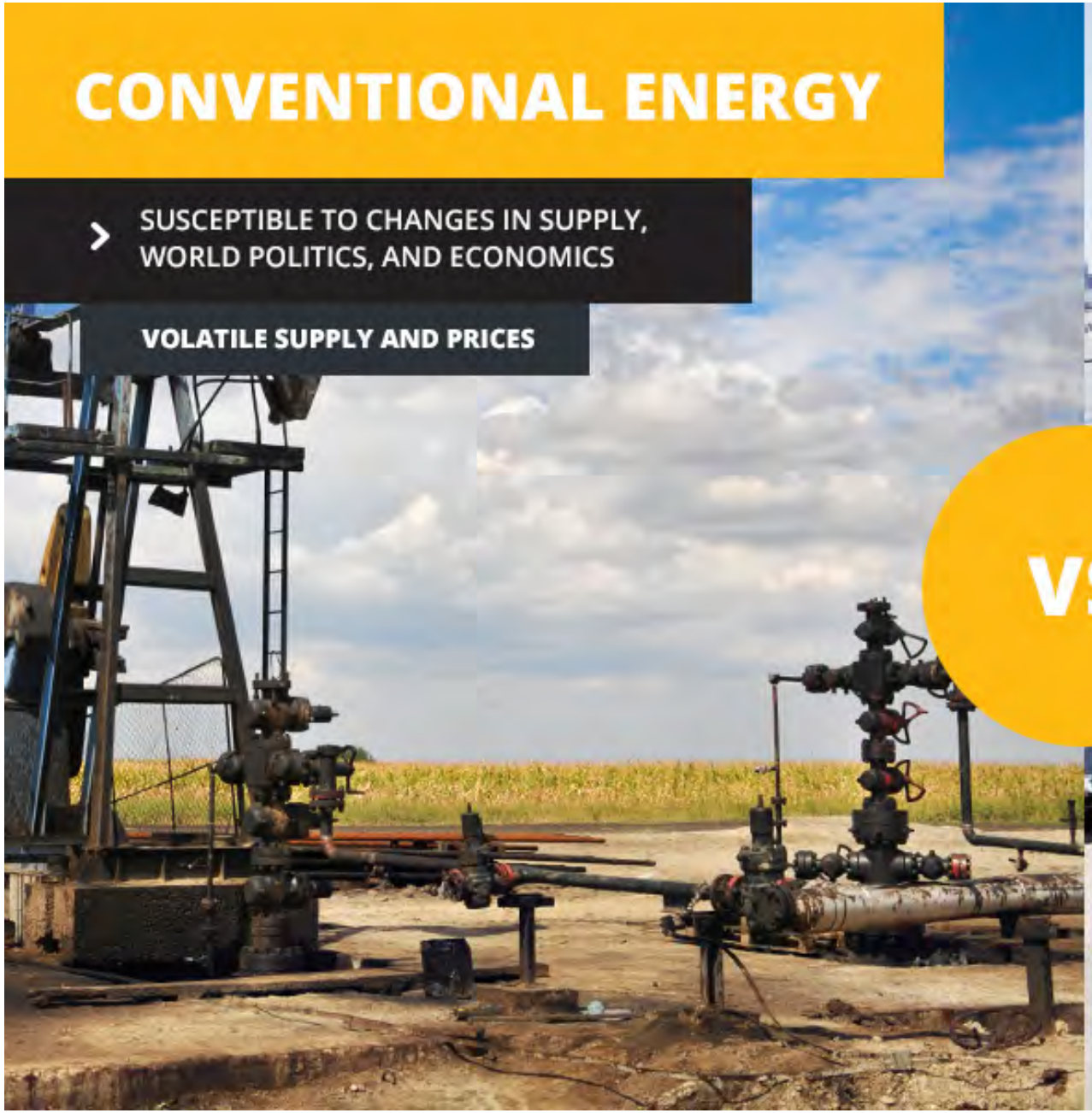


CONVENTIONAL ENERGY

- SUSCEPTIBLE TO CHANGES IN SUPPLY, WORLD POLITICS, AND ECONOMICS

VOLATILE SUPPLY AND PRICES



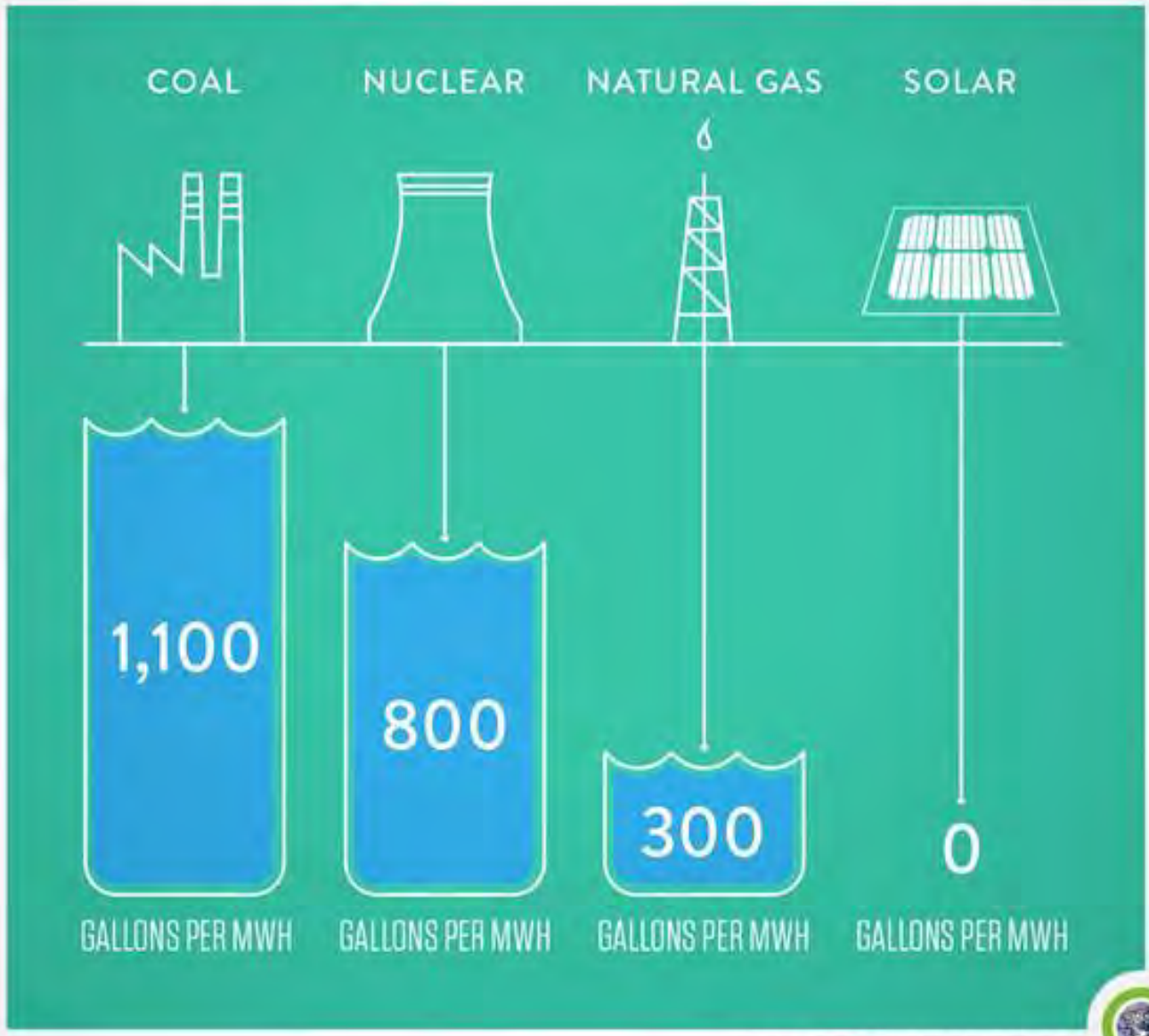
VS.

STABLE, RELIABLE PRICES

- THE SUN WILL ALWAYS BE SHINING.

SOLAR ENERGY

WATER USED BY POWER PLANTS



CLIMATEREALITYPROJECT.ORG

Thank You City Council of El Paso, Texas

- RREAC Members – December 2018
  - Blanca Gadney-Moss
  - Shelby Ruff
  - Gustavo Arriaga


SOLSMART
GOLD
SolSmart.org


SOLSMART
GOLD
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Protect The Earth For Our Children