UPGRADING OUR OPERATING SYSTEM: ENERGY

TOWARD
A JUST TRANSITION

WHERE DOES YOUR ELECTRICITY COME FROM?

ELECTRICITY COMES FROM SOMEWHERE ELSE BEFORE IT COMES OUT OF THE WALL

Florida's retail residential electricity use is second highest in the nation (after Texas) - in part because of high air conditioning use during the hot summer months and the widespread use of electricity for home heating during the winter months.

Florida is second only to Texas in net electricity generation from natural gas, which accounts for 61% of Florida's net generation.

Coal accounts for almost 23%

Nuclear power plants account for 12%.

2.3% comes from renewable sources.

2014 Florida Energy Systems Consortium) http://floridaenergy.ufl.edu/florida-energy-facts/

107,000 people (2011) in the US die each year of heart attacks, strokes and other illnesses caused by air pollution spewed from factories, motor vehicles and farm pollution, roughly equal to the number of people killed in car crashes.

Car emissions are the biggest culprit, but agriculture accounts for about 15 percent of premature deaths caused by particulate matter emitted by fertilizer and manure. Corn production alone generates about a quarter of such emissions. https://www.pnas.org/content/116/18/8775.short

In 2017, global fossil fuel subsidies grew to $5.2 trillion, representing 6.5 per cent of combined global GDP.

Fossil fuel **subsidies continue to grow** despite the urgent need to decarbonise the global economy.

China leads all countries in the level of **subsidies** provided to fossil fuels **- $1.4 trillion** in 2015.

The **United States followed - $649 billion**

Russia with $551 billion and the

EU with $289 billion.

If fossil fuels had been priced appropriately, global carbon emissions would be reduced by 28 per cent.

Effective fossil pricing would also lead to a decrease in air pollution deaths by up to 46 per cent.

The elimination of fossil fuel subsidies would also increase global government revenues by 3.8 per cent of GDP.

Working Paper, IMF Fiscal Affairs Department, 2019

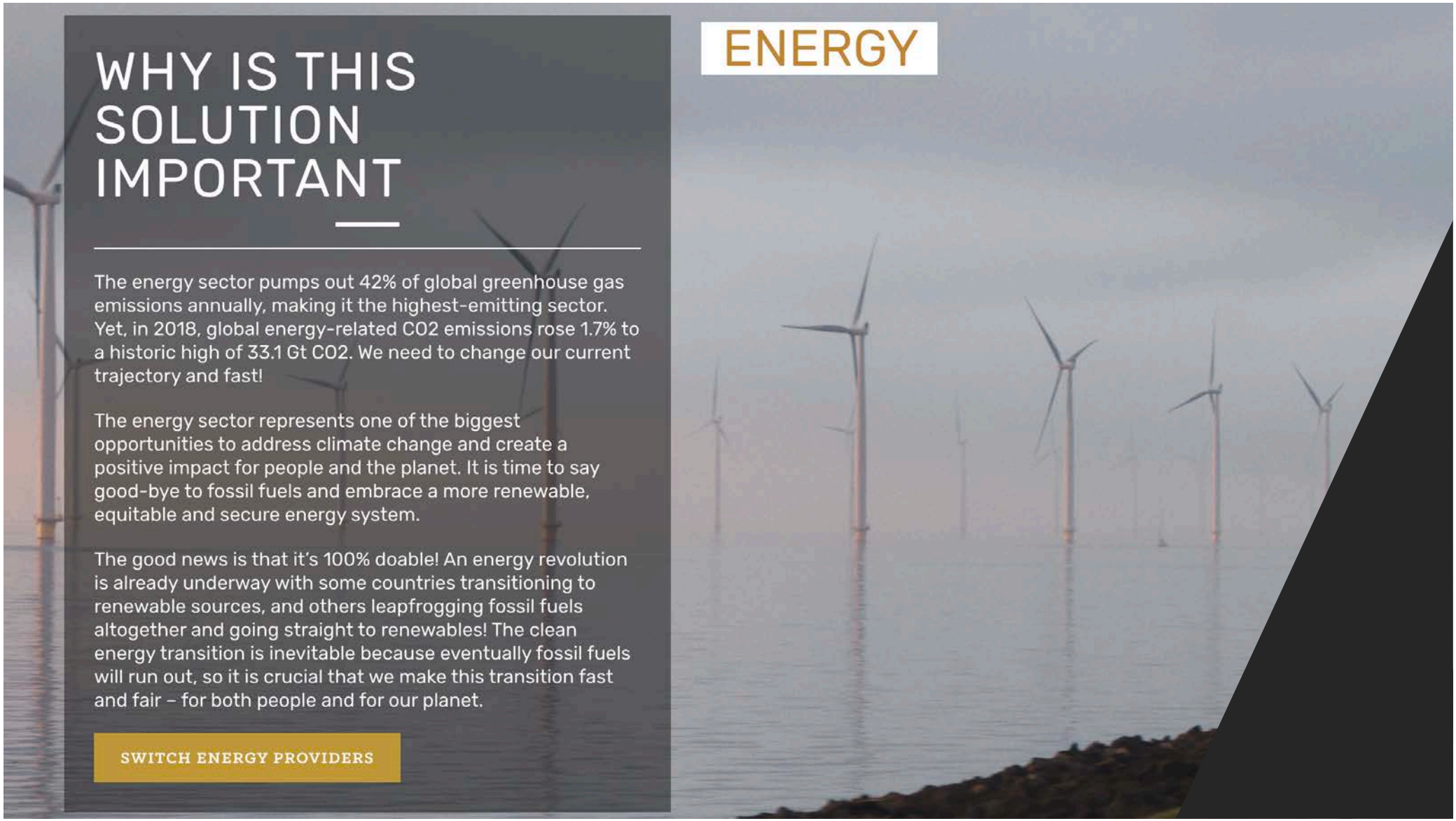
RENEWABLE ENERGY & ENERGY EFFICIENCY

DECENTRALIZATION & SMART GRIDS

Generating electricity accounts for almost half of all of our global emissions - mostly due to coal, oil and gas.

Renewable energy technologies - wind, solar and others (such as ocean current & wave) produce cleaner energy and **are now cheaper than fossil fuels.**

New models combine localised generation with the latest in battery storage tech., with some communities creating decentralised systems that remove any reliance on the fossil fuel industry.



ENERGY

WHY IS THIS SOLUTION IMPORTANT

The energy sector pumps out 42% of global greenhouse gas emissions annually, making it the highest-emitting sector. Yet, in 2018, global energy-related CO2 emissions rose 1.7% to a historic high of 33.1 Gt CO2. We need to change our current trajectory and fast!

The energy sector represents one of the biggest opportunities to address climate change and create a positive impact for people and the planet. It is time to say good-bye to fossil fuels and embrace a more renewable, equitable and secure energy system.

The good news is that it's 100% doable! An energy revolution is already underway with some countries transitioning to renewable sources, and others leapfrogging fossil fuels altogether and going straight to renewables! The clean energy transition is inevitable because eventually fossil fuels will run out, so it is crucial that we make this transition fast and fair – for both people and for our planet.

SWITCH ENERGY PROVIDERS

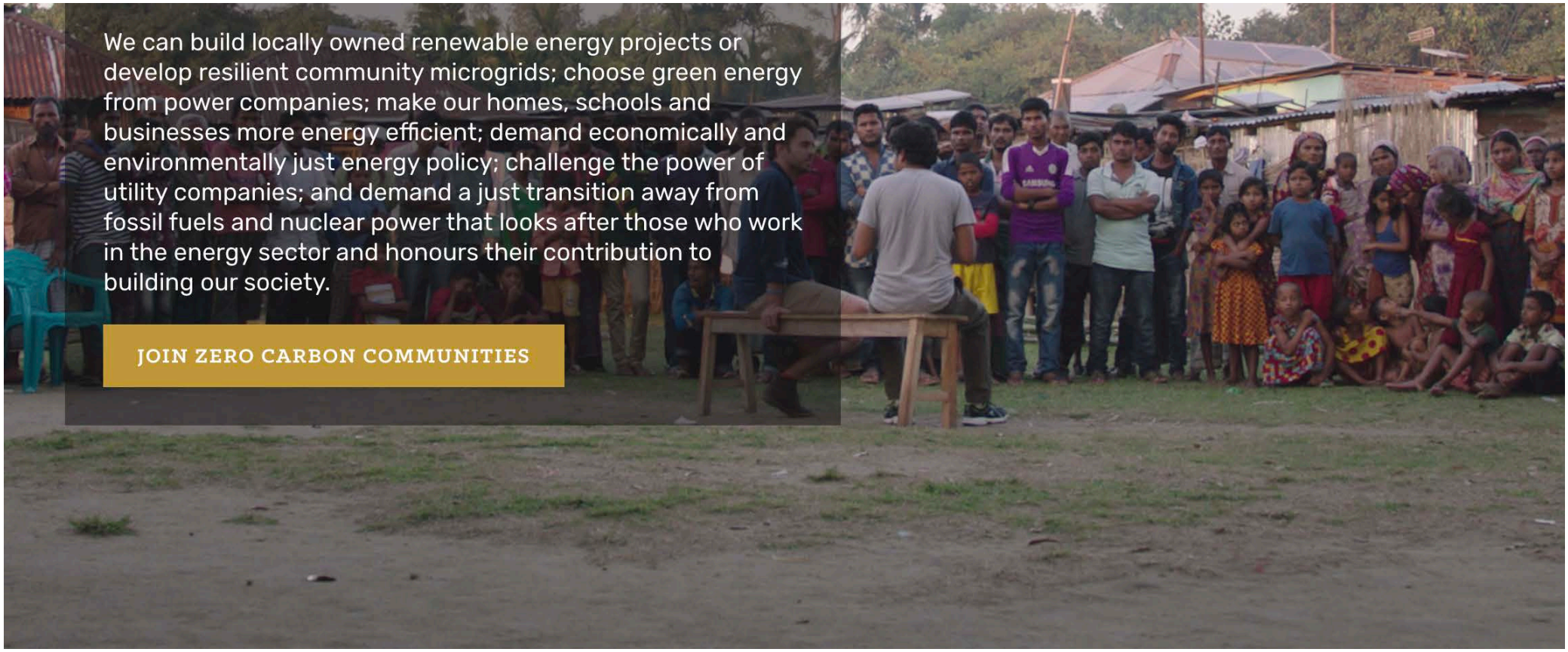
WHAT NEEDS TO HAPPEN BY 2040

The first step in the clean energy transition is a no-brainer – we need to stop building coal and natural gas power plants! The next step is phasing out existing fossil fuel plants and replacing them with renewable energy generation.

The real superstar here is something called decentralised generation. It will change the way we produce, distribute and consume energy. In fact, it is already happening in some parts of the world. With decentralised generation, energy is produced in close proximity to where it is being used, instead of relying on large power plants that send electricity through the grid. Roof-top solar panels are one such example of a decentralised system.

Advances in renewable energy technologies will soon make it cheaper to generate your own power than buying it from the grid. Essentially, anyone will be able to be an energy producer! Any home, business or school can become a mini power plant that links to other energy producers to form a microgrid. These grids will allow peer-to-peer electricity trading, so you can sell, buy and even share electricity with your neighbours. A decentralised structure builds grids from the bottom up, instead of from the top down. We are at the beginning of an era of energy democracy where power will literally be in the hands of the people.

DIVEST FROM FOSSIL FUELS



IT IS HAPPENING – BUT IT NEEDS TO HAPPEN A LOT FASTER!
WHERE CAN WE BEGIN?

HOW IMPORTANT IS IT TO VOTE? AND ON WHAT LEVEL?
HOW IMPORTANT IS IT TO PASS LAWS THAT GET CORRUPTION OUT OF POLITICS AT A STATE-LEVEL (WHICH EFFECTS THE FEDERAL LEVEL)?

Iceland 100%

Iceland generates the cleanest electricity per person on Earth with almost 100% of its energy coming from renewable sources that make the most of its unique landscape. It now derives all of its energy for electricity and home heating from geothermal and hydroelectric power plants.

Costa Rica 99%

Because of its small size (just 4.9 million people) and unique geography (67 volcanoes), Costa Rica is able to meet a large part of its energy needs from hydroelectric, geothermal, solar, and wind sources. The country aims to be completely carbon-neutral by the year 2021. It currently generates more than 99 per cent of its electricity from renewables, using five different sources; hydropower (78%), wind (10%), geothermal (10%), biomass and solar (1%).

Uruguay 95%

Thanks to a supportive regulatory environment and a strong partnership between the public and private sector, the country has invested heavily in wind and solar power, without using subsidies or increasing consumer costs. And as a result, it now boasts a national energy supply that's 95% renewables-powered, achieved in less than 10 years.

Nicaragua 58%

Nicaragua is another Central American country where renewable energy is growing in importance. Like Costa Rica, they have a number of volcanoes, making geothermal energy production viable and thanks to government investment in wind, solar, and geothermal energy. It currently generates more 58% of its energy from renewables and aims to generate 100%.

Sweden 50+%

In 2015, Sweden committed to eliminating fossil fuel usage within its borders. Half its energy already comes from renewables. It is expected to reach its target of net zero emissions of greenhouse gases by 2045.

Germany 40-78%

Generally, Germany gets more than 40% from renewables. On a windy day, however, it can generate up to 78% of the country's electricity demand.

Denmark 40-50%

By 2014, Denmark produced almost 40% of their overall electricity needs, and is working toward being completely carbon neutral.

Despite a lack of political will in some countries, the move to renewable energy is inevitable.

The world could be powered entirely by renewable energy in just 20 to 40 years from now with the technology we have.*

* https://news.stanford.edu/news/2011/january/jacobson-world-energy-012611.html

If more attention was paid to renewables over fossil fuels, the U.S. could reduce its emissions by almost 80% in only 15 years, without impacting on consumer electricity costs.**

(2016) **http://www.nature.com/nclimate/journal/v6/n5/full/nclimate2921.html

China is a huge polluter and a huge investor in renewables, with huge investment levels both at home and overseas.

China now owns: five of the world's six largest solar-module manufacturing firms; the largest wind-turbine manufacturer; the world's largest lithium ion manufacturer; and the world's largest electricity utility.

China and is fully committed to reducing fossil fuel consumption and with its heavily polluted cities has every incentive for doing so.

China currently gets around 24% from renewable sources, mainly hydro – which is the most problematic form of renewable energy.

USA only gets 15% from renewables: hydropower (6.5 percent) and wind (5.6 percent).

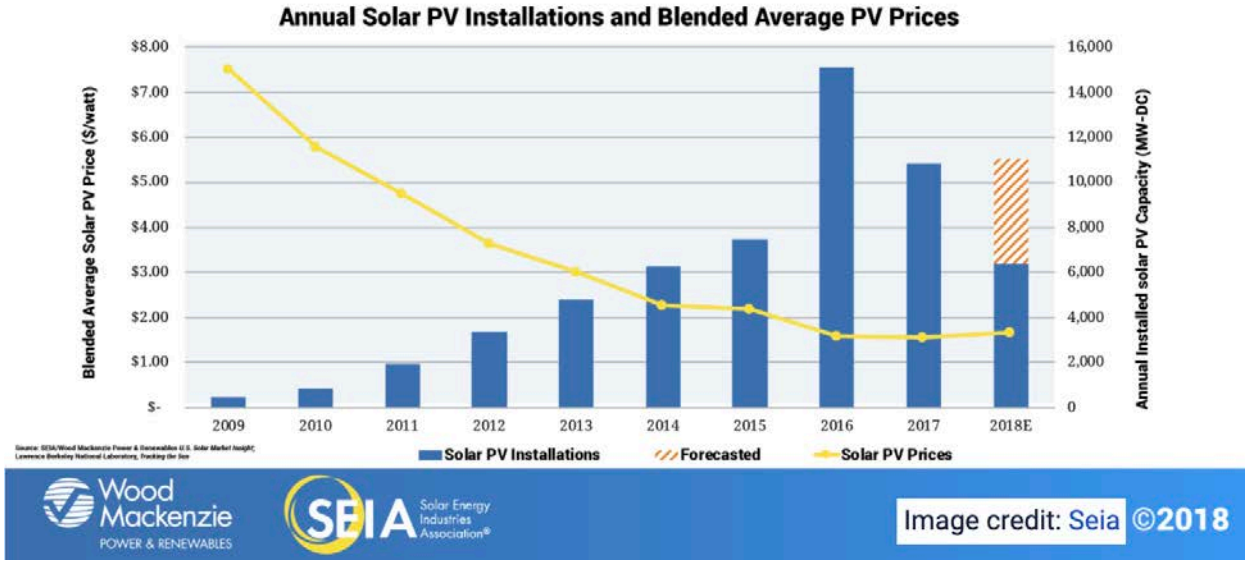
The US has one of the world's largest installed solar PV capacities and an installed wind energy capacity second only to China. But it is also one of the world's biggest energy consumers, which tends to cancel out much of its renewable capacity.

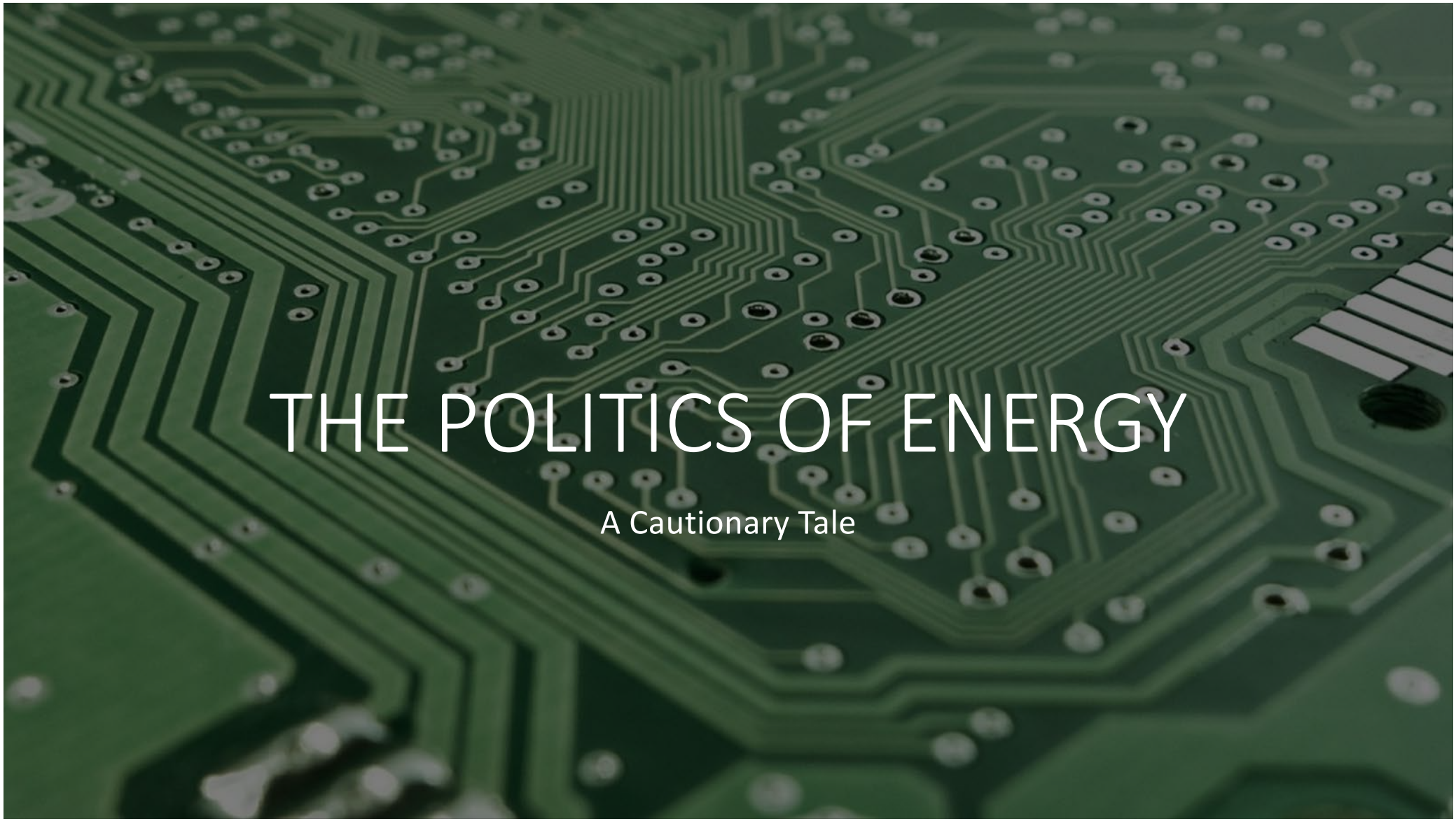
Florida is known as the Sunshine State, but until recently, all that sun didn't translate into solar energy.

While **Florida has the eighth-highest potential for solar-energy** generation in the US, it creates less than Vermont, which gets 2.4% of its energy from solar.*

But Floridians are installing more and more solar. **Solar employment rose 21% in Florida in 2018, with residential solar installation accounting for 63% of those jobs.**

The cost of solar power in Florida and America as a whole has been on a steady decline. Ten years ago solar was close to $7.00/watt; most Florida residents now pay $2.88 per watt— which is a real bargain.





THE POLITICS OF ENERGY

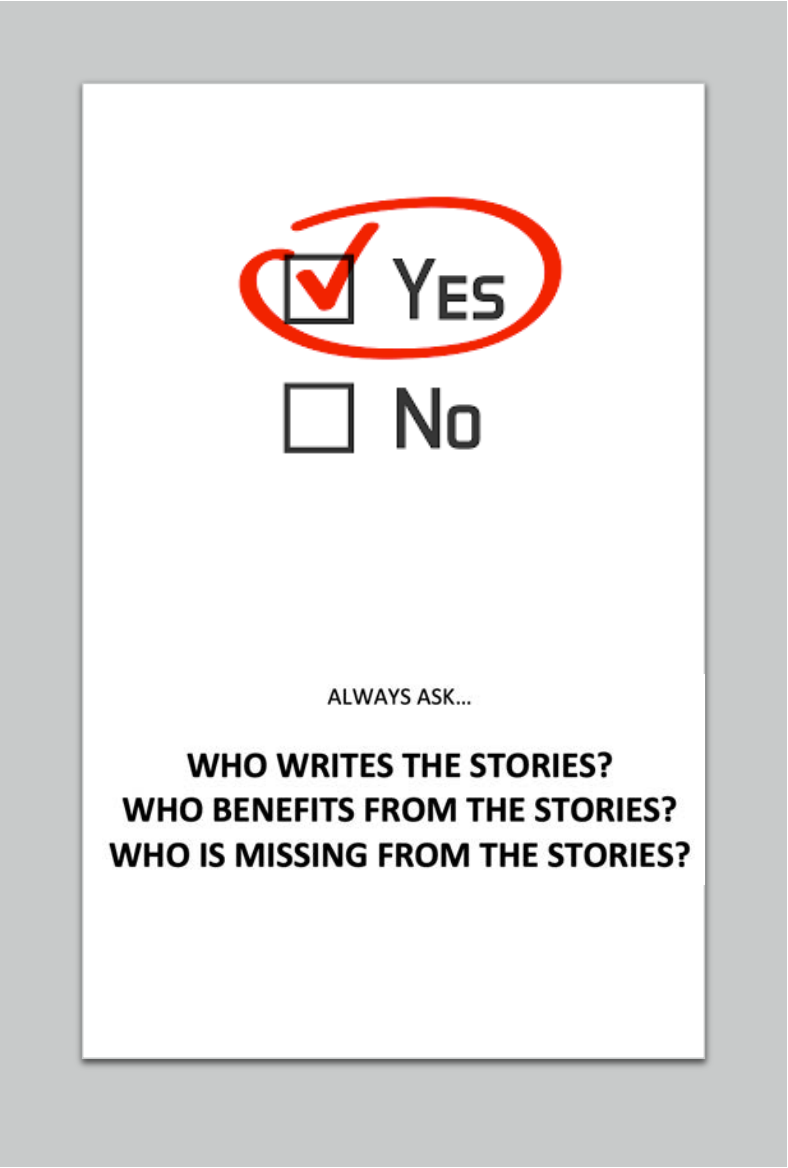
A Cautionary Tale

Florida exemplifies the ups and downs of dealing with the *politics of confusion* around climate and energy policy.

A 2016 Florida ballot measure (Amendment 1) read simply, asking voters if there should be:

"*a right under Florida's constitution for consumers to own or lease solar equipment*".

Would you support a ballot like this?



If you anwered *yes*, you would be like 89% of people in the US who support expanding solar power in some way.

However, in this case, the amendment was a deliberately misleading effort aimed at drastically limiting solar competition.

Who was underwriting this narrative?

A WIN FOR SOLAR

Floridians for Solar Choice

In 2015, a group called *Floridians for Solar Choice* began petitioning for a ballot amendment that would allow state residents to set up contracts with third party companies that install solar panels for no cost and in return, sell the energy produced back to the consumer.

It passed in 2016 by a wide margin.

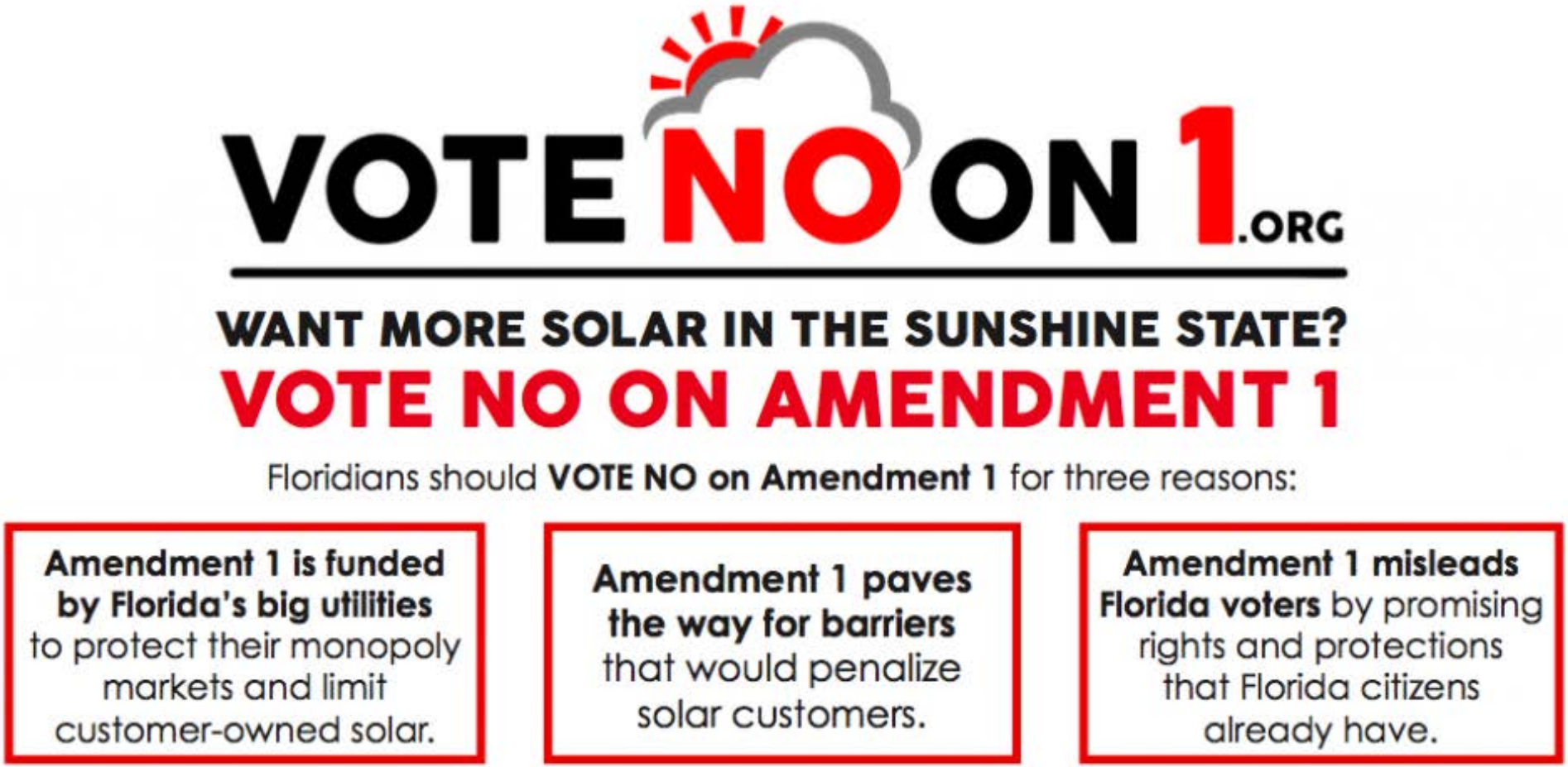
For more, see the Fact Sheet:
http://media.wix.com/ugd/aad50d_76195bed337b449aadfe27c8d9bb842c.pdf

Florida's utility firms saw this as a threat, as it reduces revenue from residential consumers who are otherwise still connected to the energy grid.

Soon a competing amendment (Amendment 1) by a group called "Consumers for Smart Solar" cropped up, titled "Rights of Electricity Consumers Regarding Solar Energy Choice".

The title and the language seem to indicate the amendment was broadly pro-solar, as it was promising the right to "own or lease solar equipment".

Consumers for Smart Solar, however, was a utilities-backed political committee made up of a "coalition of business, civic, and faith-based organizations" that aimed to stifle the solar industry in Florida.
https://www.politifact.com/personalities/consumers-smart-solar/



Controversy mounted, but in a 4-3 ruling, the Florida Supreme Court said the proposed amendment could go to the polls.

One of the judges called it "a wolf in sheep's clothing", writing that the ballot's title was "misleading", as it effectively meant that utility companies would raise fees to make third-party solar prohibitively expensive.

The utility consortium - *Consumers for Smart Solar's* "Yes on 1" began a media blitz - TV advertisements, direct mail and opinion pieces.

Many voters received four or five pieces of mail from the group.

They targeted their messaging for Florida's large elderly population - claiming the amendment would protect seniors from scams, despite the amendment language guaranteeing nothing of the sort.

YES ON 1
FOR THE SUN

CONSUMERS FOR SMART SOLAR

"Amendment 1 protects Florida seniors from scams and rip-offs."

— *PolitiFact Florida* on Thursday, November 3rd, 2016

***Consumers for Smart Solar* raised $27m for their campaign - $20m of that from utility companies, and the rest by undisclosed political organisations and coalition groups.**

GRASSROOTS PUSHBACK

In contrast, the grassroots coalition - *Floridians for Solar Choice* - raised about a tenth of that - $2.5m to combat the misinformation messaging.

Most of it was donated by the Southern Alliance for Clean Energy Action Fund, environmental groups, solar industry groups and several hundred individuals.

Local celebrities such as Jimmy Buffet, local newspaper editorial boards, and Al Gore got involved.

Captain Carter Quillen made a stop at Front Street Park on the Florida east coast Solar Truth Voyage, promoting "Vote No" on Amendment 1. His boat is a 50 foot diesel-solar hybrid.
(Photo: MALCOLM DENEMARK/FLORIDA TODAY)

Then came the kicker, a leaked audio recording of Sal Nuzzo, a policy director at James Madison Institute, a right-wing think tank hired by *Consumers for Smart Solar*, speaking at a conference put on by the think tank.

Nuzzo called the amendment campaign "an incredibly savvy manoeuvre" that "would completely negate anything they [pro-solar interests] would try to do either legislatively or constitutionally down the road".

Nuzzo suggested political operatives in other states could "use a little bit of political jiu-jitsu and take what they're kind of pinning us on and use it to our benefit either in policy, in legislation or in constitutional referendums".

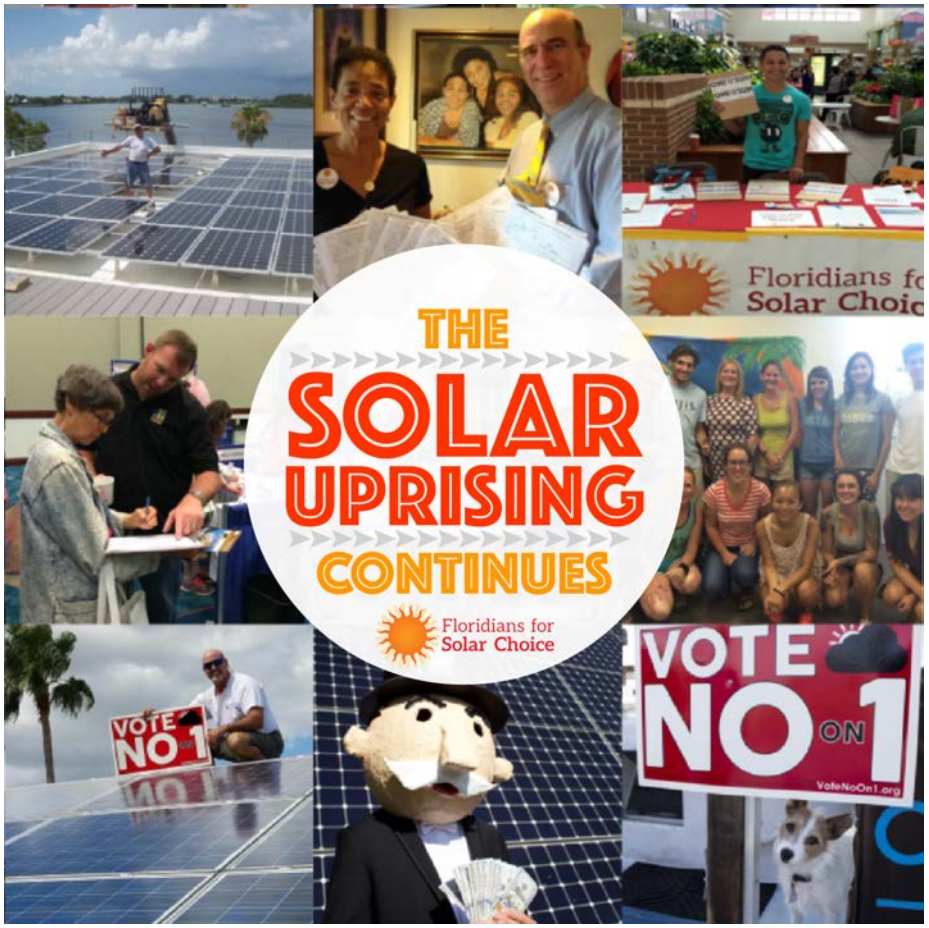
"As you guys look at policy in your state, or constitutional ballot initiatives in your state, remember this: solar polls very well," Nuzzo said.

https://www.bbc.com/news/world-us-canada-39258421

The reaction was swift and harsh. Endorsements were withdrawn and mentions of the think tank were removed from websites.

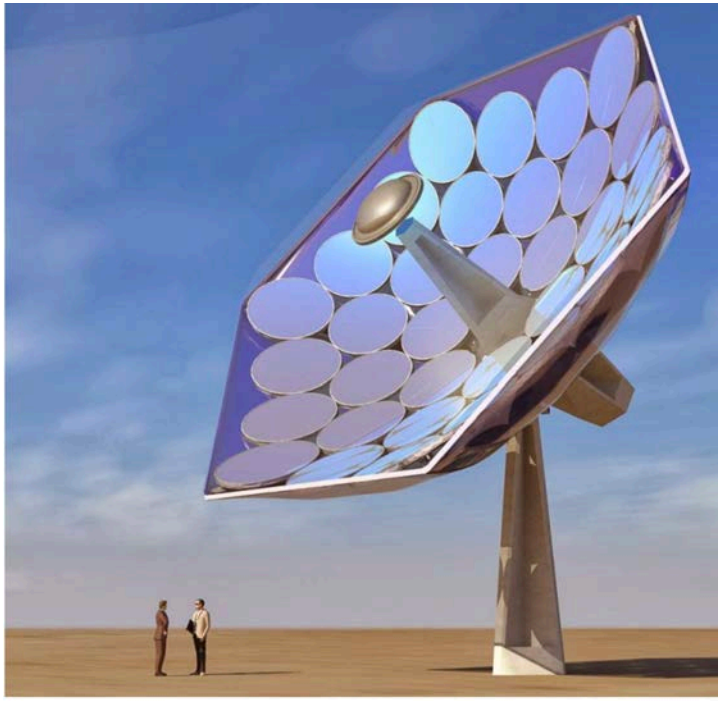
The amendment was defeated, and citizens retain their rights to solar power in the state of Florida – for now.

A HAPPY ENDING - YAYYYY! ☺



Solar energy technology is improving all the time.

Tesla's new solar roof will be as cheap as the average shingle roof, CEO Elon Musk says. Photo Credit: Tesla



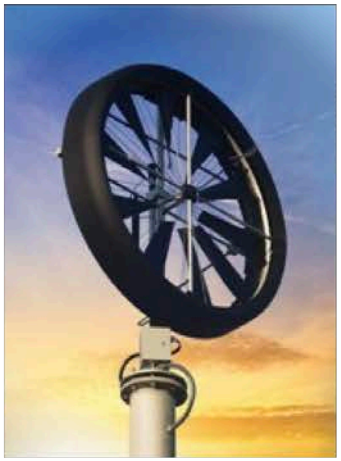
The High Concentration PhotoVoltaic Thermal (HCPVT) system Photo Credit: La Solar Power

France declared all new rooftops must be topped with plants or solar panels.

Green roofs and living walls also help with weatherization as well as water and air filtration, and carbon sequestration.

WIND ENERGY TECHNOLOGY IS ALSO CONSTANTLY EVOLVING








NEW GREEN DEAL

The Green New Deal will convert the old, gray economy into a new, sustainable economy that is environmentally sound, economically viable and socially responsible. It seeks to solve the climate crisis **by combining quick action to get to net- zero greenhouse gas emissions and 100% renewable energy by 2030 along with an "Economic Bill of Rights" – the right to single-payer healthcare, a guaranteed job at a living wage, affordable housing and free college education.**

WHAT DO YOU THINK OF THE NEW GREEN DEAL?

The national Green Party platform calls for the following:

Enact an emergency Green New Deal to turn the tide on climate change, **revive the economy and make wars for oil obsolete**. Initiate a **WWII-scale national mobilization to halt climate change**, the greatest threat to humanity in our history. Create **20 million jobs by transitioning to 100% clean renewable energy by 2030, and investing in public transit, sustainable (regenerative) agriculture, conservation and restoration of critical infrastructure, including ecosystems.**

Implement a Just Transition that **empowers those communities and workers most impacted by climate change and the transition to a green economy. Ensure that any worker displaced by the shift away from fossil fuels will receive full income and benefits as they transition to alternative work.**

Enact energy democracy based on public, community and worker ownership of our energy system. Treat energy as a human right.

Redirect research funds from fossil fuels into renewable energy and conservation. Build a nationwide smart electricity grid that can pool and store power from a diversity of renewable sources, giving the nation clean, democratically-controlled, energy.

End destructive energy extraction and associated infrastructure: fracking, tar sands, offshore drilling, oil trains, mountaintop removal, natural gas pipelines, and uranium mines. Halt any investment in fossil fuel infrastructure, including natural gas, and phase out all fossil fuel power plants. Phase out nuclear power and end nuclear subsidies. End all subsidies for fossil fuels and impose a greenhouse gas fee/tax to charge polluters for the damage they have created."

WHAT ELSE DO WE NEED TO THINK ABOUT AS WE WORK TOWARD A JUST TRANSITION?