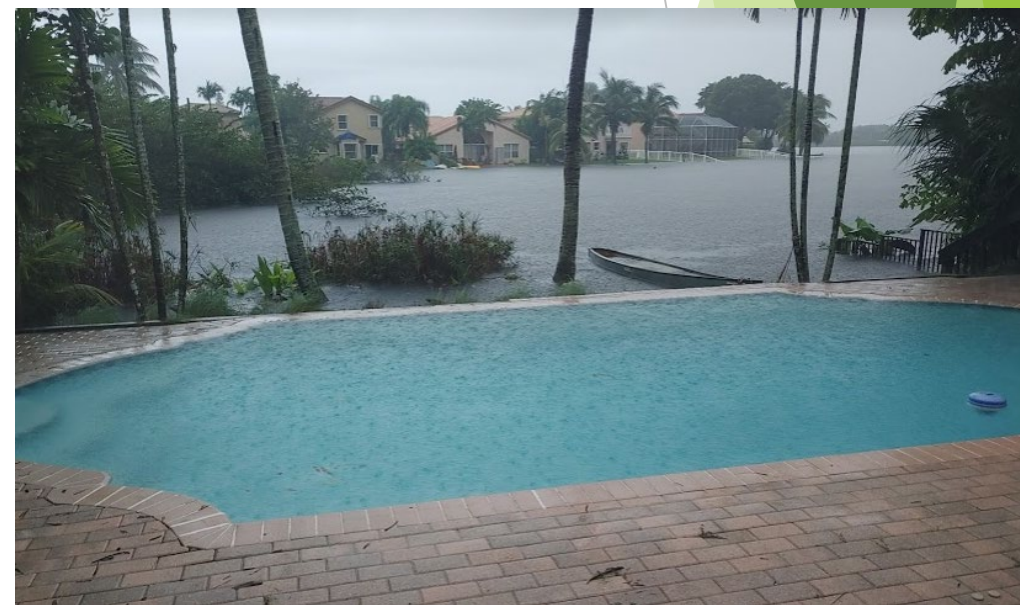


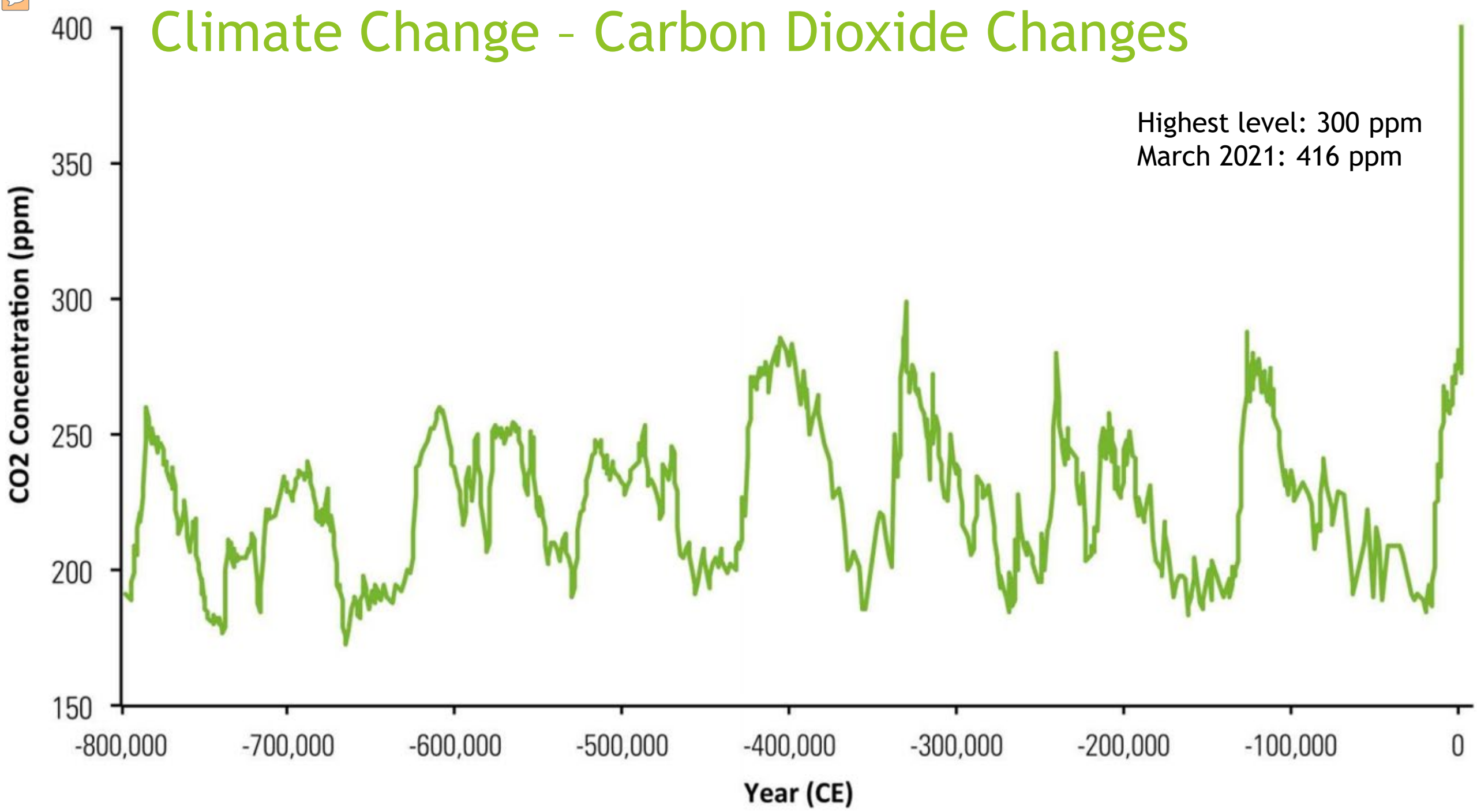
# Climate Change: Risks and Opportunities for Pembroke Pines

Dr. Heike Naigur  
Resident, SilverLakes/Emerald Sound  
Environmental Manager



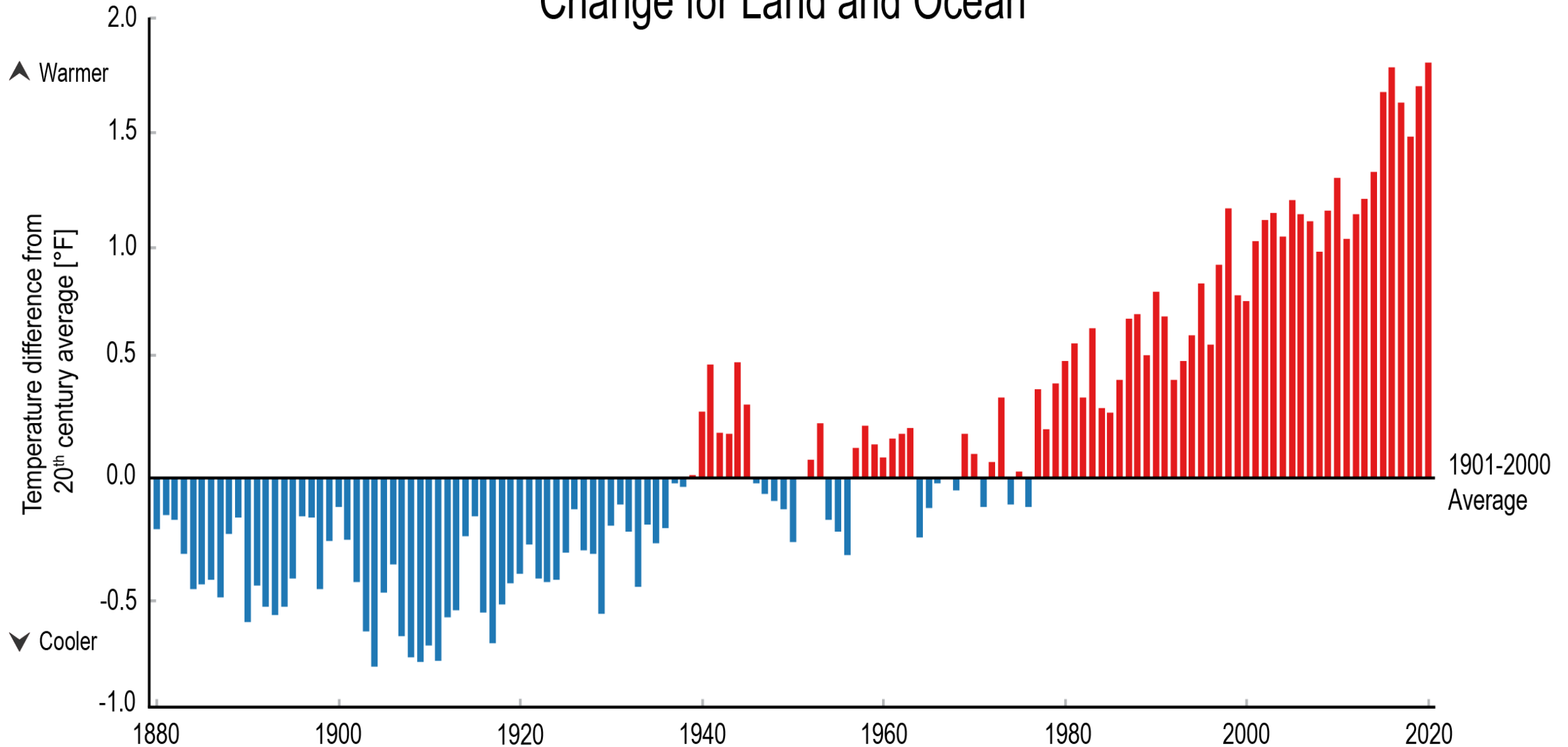


# Climate Change - Carbon Dioxide Changes



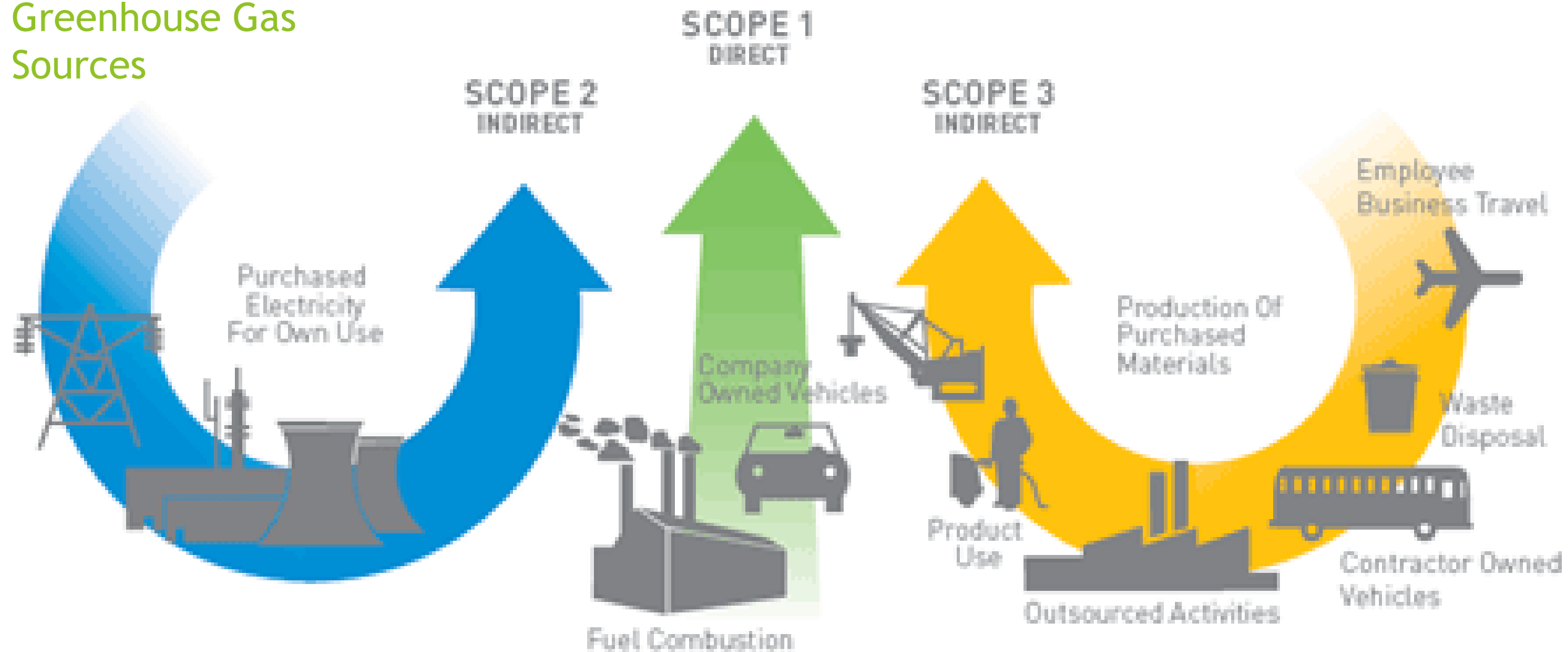


# Annual Global Surface Temperature Change for Land and Ocean





## Man-made Greenhouse Gas Sources



# Building Climate Resilience

## MITIGATION

ACTION TO REDUCE EMISSIONS  
THAT CAUSE CLIMATE CHANGE

Sustainable  
transportation



Clean energy

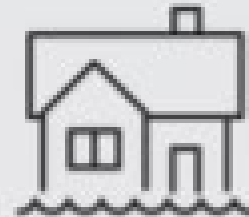
Energy  
efficiency



## ADAPTATION

ACTION TO MANAGE THE RISKS OF  
CLIMATE CHANGE IMPACTS

Disaster management  
& business continuity



Flood  
protection



Infrastructure  
upgrades



Water  
conservation



New energy  
systems



Local food



Education



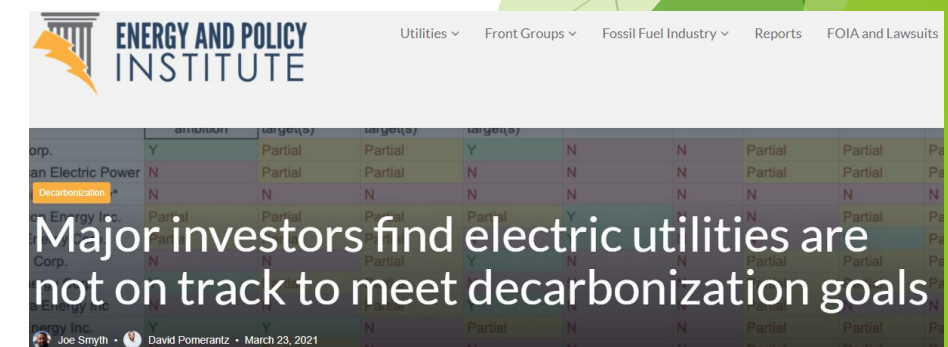
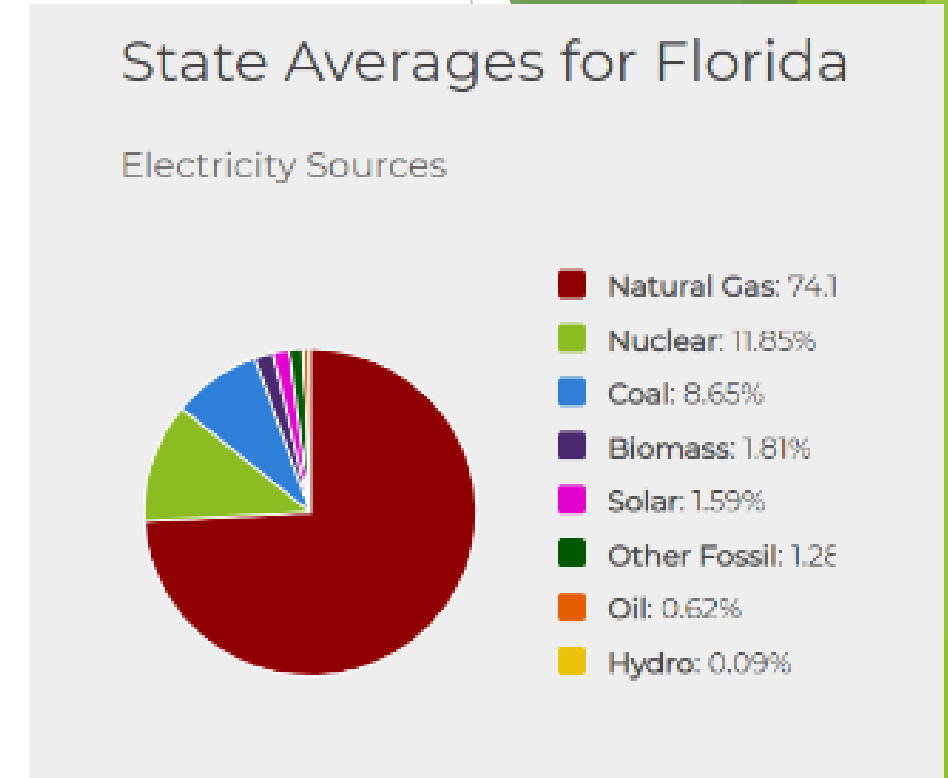
Complete  
communities



Urban  
forest

# Our Challenges in Florida

- ▶ Utilities are not favoring renewable energy
  - ▶ Most energy comes from fossil fuels
  - ▶ Utilities controlling use of renewable energy
  - ▶ **Natural Gas is NOT A CLEAN FUEL**
- ▶ State and governor are proposing adaptation measures
  - ▶ Opposition to climate change plans
  - ▶ State proposing adaptation measures - but no focus on mitigation (root cause)



# Pembroke Pines - Climate Change *Risks*

## ► Sea Level Rise

- Increased flooding
- Saltwater intrusion damaging infrastructure and contaminating our freshwater supply

## ► Storms/Hurricanes

- Destruction of property
- Limited insurability

## ► Extreme heat

- Health effects
- Vector-borne diseases



# Pembroke Pines - Climate Change Opportunities

- ▶ Create Jobs
- ▶ Cost savings by becoming more efficient
- ▶ Deploy new technologies
- ▶ Reputational Benefits - it's the right thing to do

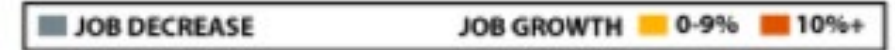
**REMINDER:** The cost of being unprepared will be immense and irreversible.

## U.S. Solar Jobs

The U.S. had nearly 250,000 jobs in the solar industry as of November, an increase of 2 percent from the prior year. Here is where the industry is growing or shrinking:

### SOLAR JOBS BY STATE

Including Wash., D.C. and Puerto Rico; 2019



### STATES WITH THE LARGEST PERCENTAGE GAIN IN SOLAR JOBS

1 Georgia	29.8%	6 Indiana	15.6%
2 Florida	17.8%	7 Virginia	15.4%
3 Utah	17.6%	8 Alabama	15.2%
4 Hawaii	17.2%	9 Louisiana	13.6%
5 New Hampshire	16.0%	10 Illinois	13.0%

SOURCES: Solar Foundation; BW Research

PAUL HORN / InsideClimate News

# Pembroke Pines Priorities - *Opportunities*

## ► Energy and Fuel Priorities:

- Promote renewables policies and technology
- Advance energy efficiency and conservation
- Streamline permitting and admin processes
- Make city fleet fuel-efficient, use alternative fuels

## ► Water:

- Inventory water and wastewater infrastructure and assess climate change impacts through scenario analysis
- Modernize standards to improve drainage based on elevation maps and future climate conditions
- Develop resiliency strategy to ensure existing levels of service are maintained or improved

### TIPS

- Create a five year budget
- Create a sustainability position
- Form Partnerships with academic institutions

# Pembroke Pines Priorities - *Opportunities cont'd*

## ▶ Sustainable Community Planning:

### ▶ Develop localized adaptation strategies

- ▶ Develop policies and capital plans related to climate-related vulnerable areas
- ▶ Identify locations within vulnerable areas where targeted infrastructure improvements, new infrastructure, modified land use, and/or development practices could reduce vulnerability and/or improve community resilience
- ▶ Identify populations and communities that are most vulnerable or of special concern within vulnerable areas
- ▶ [...and much more]

Source: <https://southeastfloridacclimatecompact.org/recommendations/>

# South Florida Leaders

- ▶ **City of Boynton Beach - 50% Reduction by 2035**
  - ▶ FPL Solar Together Participant
  - ▶ Green Globes certified buildings
  - ▶ Sustainability Team
  - ▶ 2020 Climate Action Plan - created with support from SE Regional Climate Compact, CDP, ICLEI
- ▶ **Miami - Carbon Neutral by 2050**
  - ▶ Joined C40 Cities
- ▶ **City Furniture - Carbon Neutral by 2040:**
  - ▶ FPL Solar Together Participant 500 kW
  - ▶ 420 kW private PV array (coming this spring)
  - ▶ Added EV charging stations

# What are next steps

1. Create Citizen Workshop for PP Climate Change Resiliency Planning
2. Create Budget to incorporate climate change impacts (grants?)
3. Hire Sustainability Manager
4. Create GHG Inventory
5. Create Climate Action Plan with short-term (<10 years) and long-term goals aligned with Science Based Targets

# RESOURCES

[Coastal Cities at Risk | Climate Matters \(climatecentral.org\)](#)

[CO-OPS Technical Report \(noaa.gov\)](#)

<https://southeastfloridacclimatecompact.org/>

<https://www.climaterealityproject.org/>

<https://drawdown.org/solutions/table-of-solutions>

<https://www.ipcc.ch/report/ar4/wg1/regional-climate-projections/>

<https://en-roads.climateinteractive.org/scenario.html?v=2.7.29>

# Pembroke Pines Climate Change - *Opportunities*

President Biden's Infrastructure Plan with focus on  
Greenhouse Gas Emission Reduction:

- ▶ Plan includes \$174 billion in spending to boost the electric vehicle market and shift away from gas-powered cars.
- ▶ Install half a million charging stations across the country by 2030, incentives for Americans to buy EVs and money to retool factories and boost domestic supply of materials. Electric cars only make up about 2% of new auto sales in the U.S.
- ▶ The plan also proposes \$100 billion in funding to update the country's electric grid and make it more resilient to climate disasters
- ▶ Update aging infrastructure like roads and bridges to be more resilient to weather events like droughts, floods and wildfires
- ▶ Invest \$35 billion in research and development for projects on technologies to mitigate climate change and create jobs, such as carbon capture and storage, hydrogen, offshore wind, and electric vehicles.