

# Killer Heat in Charlotte County



Florida SouthWestern State College  
Lifelong Learning Institute  
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# Agenda

- Introductions
- Heat  
consequences,  
our choices
- Examining the  
choices
- How to get there
- Economy and  
uncertainties
- Quiz/Conclusions
- Q&A, discussion



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# Heat Consequences of our Choices

## ■ Four heat index thresholds

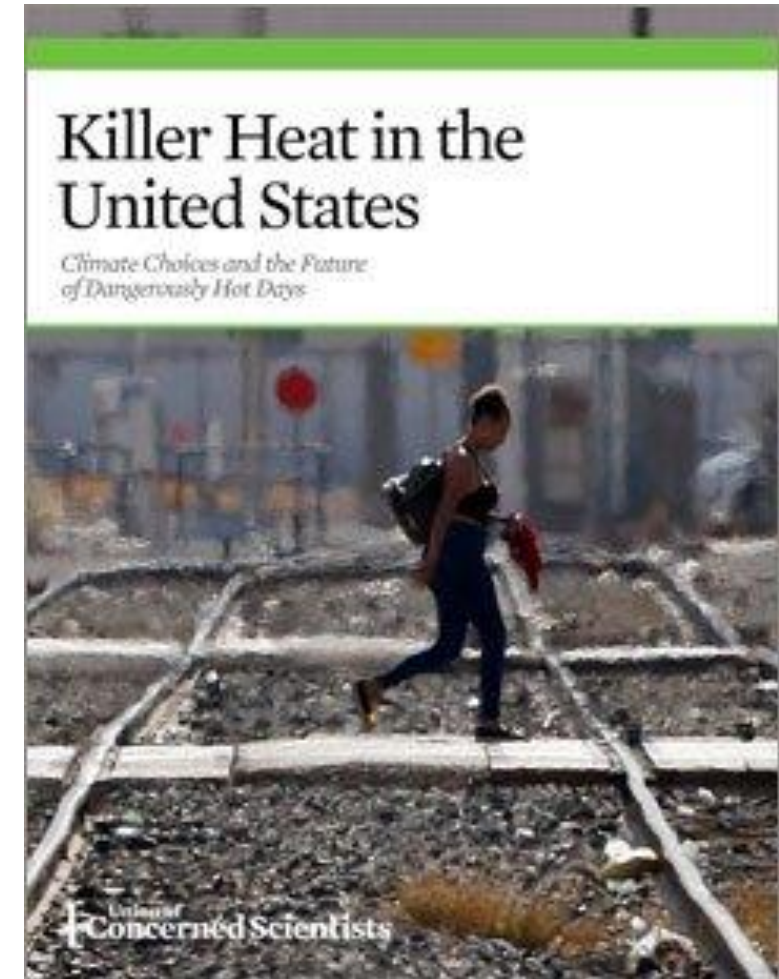
- above 90°F,
- above 100°F,
- above 105°F,
- and “off the charts”

## ■ Three timeframes

- Historical,
- Midcentury 2036-2065
- Late century 2070-2099

## ■ Three scenarios climate action

- no action,
- slow action,
- and rapid action



# Summary Choices and Consequences

Historically, Charlotte County has experienced an average of 3 days per year with a heat index above 105°F

Consequences of no action. If we fail to reduce heat-trapping emissions,

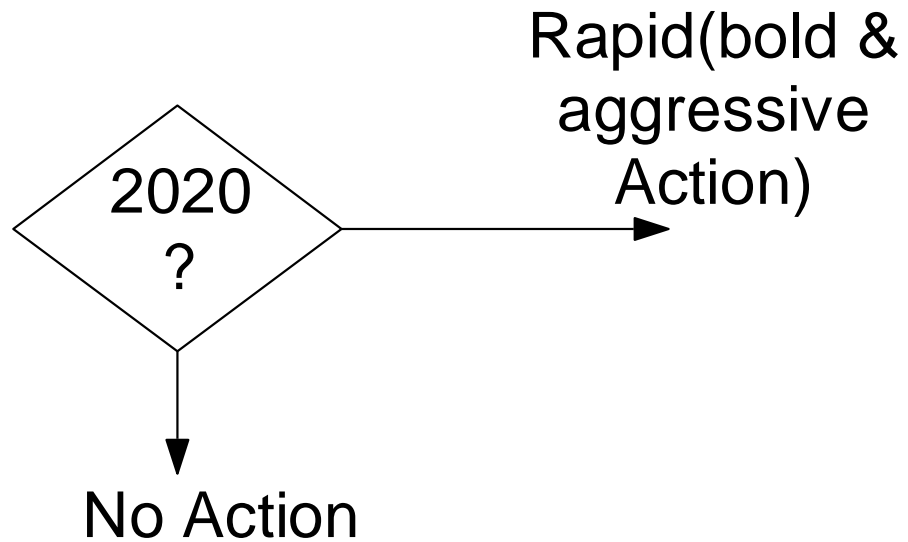
- by midcentury (2036-2065) Charlotte County would experience an average of 78 days per year with a heat index above 105°F. This includes 1 day with an off-the-charts heat index.
- by late century (2070-2099) Charlotte County would experience an average of 130 days per year with a heat index above 105°F. This includes 17 days with an off-the-charts heat index

Consequences of slow action: Heat-trapping emissions start to decline midcentury,

- by midcentury Charlotte County would experience an average of 50 days per year with a heat index above 105°F.
- by late century Charlotte County would experience an average of 68 days per year with a heat index above 105°F.

Consequences of Rapid action: If we take bold and aggressive action NOW to reduce heat-trapping emissions, we can limit the increase in extreme heat in Charlotte County to an average of 50 days per year with a heat index above 105°F.

# Examining our Choices



- UCS tell us the outcomes of our choices
- What kind of action are we talking about?
  - Adaptation, Mitigation?
  - What qualifies as bold and aggressive action?



# Adaptation and Mitigation

## IPCC:

- Adaptation: the process of adjusting to actual or expected climate change
- Mitigation: human intervention to reduce heat-trapping emissions or remove carbon already in the atmosphere
- We cannot focus exclusively on adaptation (or resiliency), The climate will continue changing and the long-term impact of global warming will be too severe to manage unless we stop contributing to the problem
- We must do both in order to solve the problem of climate change.
- UCS Killer Heat “rapid action” is mitigation.

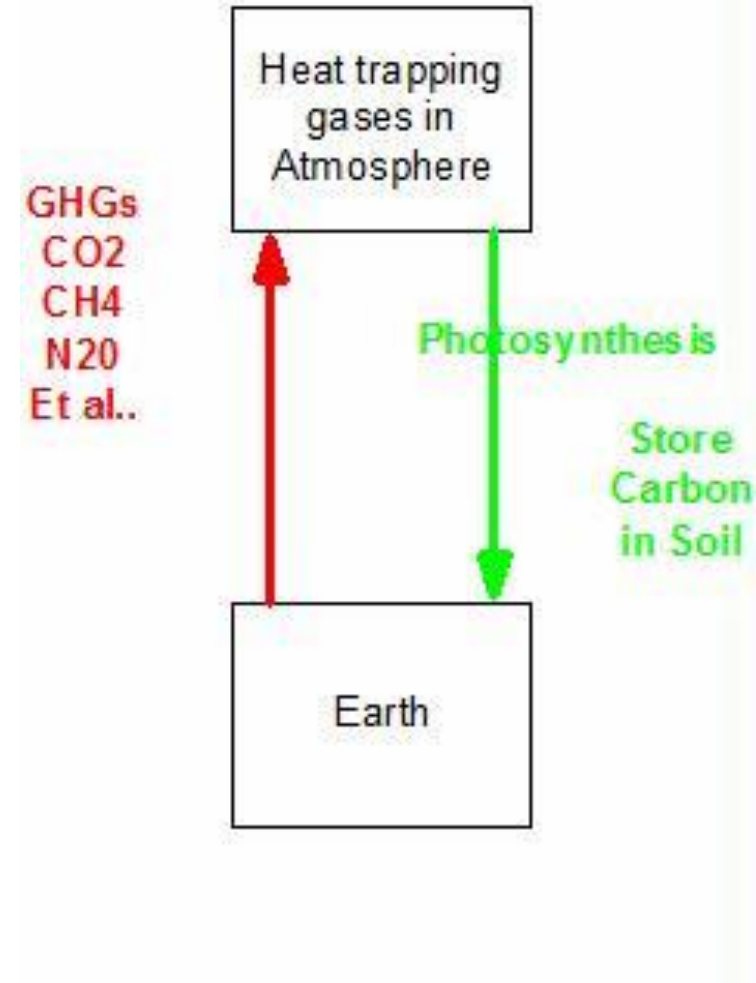


# What is Rapid (Bold and Aggressive) Action

- UN/IPCC *Special Report on Global Warming of 1.5°*. (Oct 2018)
- US Fourth Climate Assessment (Nov 2018)
- The Sixth Global Environment Outlook (GEO6) (Mar 2019)
- Intergovernmental Panel on Biodiversity and Ecosystems Service (IPBES) (May 2019)
- Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) (Sep 2019)
- UN Emissions Gap Report (Nov 2019)
- Reduce emissions 70-100% by 2030 (almost 8% annual reduction)
  - Conservation
  - Replace fossil fuels with zero emission sources of energy (solar, wind, nuclear, hydro, geothermal)
- Take resident carbon from the atmosphere thru reforestation, soil management, emerging technologies

# How to get there

- Huge Challenge
- Success dependent on all levels of global community
- Leverage: Where/how to get the *Best Bang for the Buck*
  - *National level*
  - *State government*
  - *Local level*







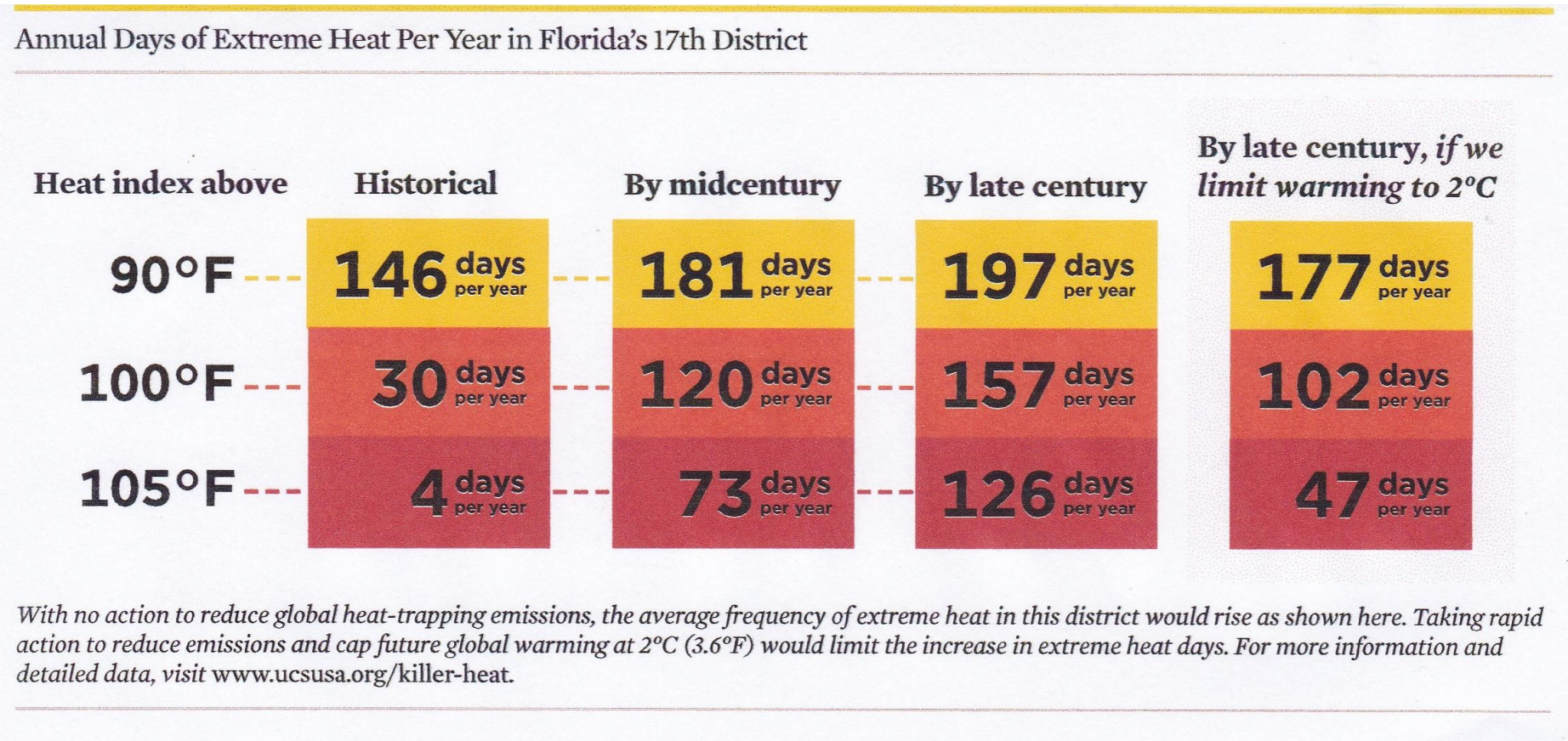
# Federal Government Leverage

Congress put a price on carbon, return revenues back to households

- Energy Innovation and Carbon Dividend Act (H.R. 763)
- Not a regressive carbon tax

- Reduce emissions by 40% in 10 years,
- Create jobs,
- Stimulate the economy
- Improve health.

# Extreme Heat in our Congressional District



# State Government Leverage

## Regulate Utilities

- Low carbon energy portfolios -100% zero emission electricity generation by 2030 (solar, wind, nuclear, hydro, geothermal)
- Change utility business model so utilities don't make more money by selling more electricity

FPL 2029 Projections (MW)			
Utility Solar	Distributed	Total Solar	Total Capacity
8,500	600	9,100	36,000
23.6%	1.7%	25%	100%

Solar in the Southeast 2018 Annual Report  
Southern Alliance for Clean Energy (SACE)

# State Leverage (Continued)

Barriers to roof top solar:  
Regulatory Capture

New rules needed

- Portfolio standards, Utility business models
- Community solar (virtual net metering)

PS: Ban Fracking?



# Local Government Leverage

	Adaptation?	Mitigation?
Charlotte County	No	No
City of Punta Gorda	Yes	No
City of Sarasota	Yes	Pending
Miami-Dade County	Yes	Yes

Conservation, sequestration, transition to zero emission fuels

- Building codes
- Landscape and farming rules
- Public transport

2021 update to county Comprehensive Plan. Adaptive Mitigation



# Economic Necessity

- Doing nothing, or too little to mitigate climate change threatens the whole economy with collapse
- Economic growth is decoupled from carbon emissions
- Economic benefits of the transition to zero emission energy
- Health benefits – no smokestacks, tailpipes

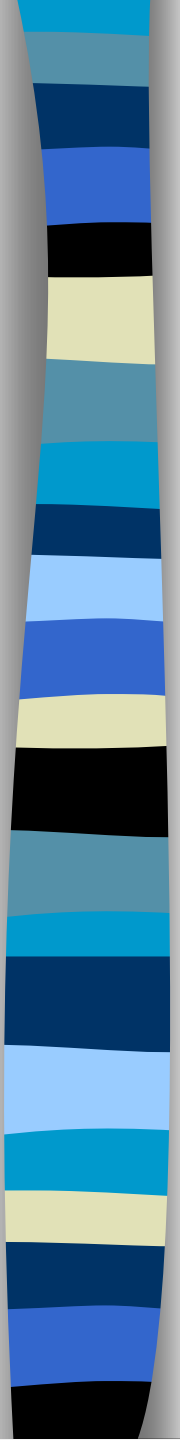
# Uncertainty

	Uncertainty A	Uncertainty B
Alternative 1	Outcome 1A	Outcome 1B
Alternative 2	Outcome 2A	Outcome 2B

Why should we invest and give up convenience when the rest of the world could fail to take similar action to curb emissions and remove carbon from the air?

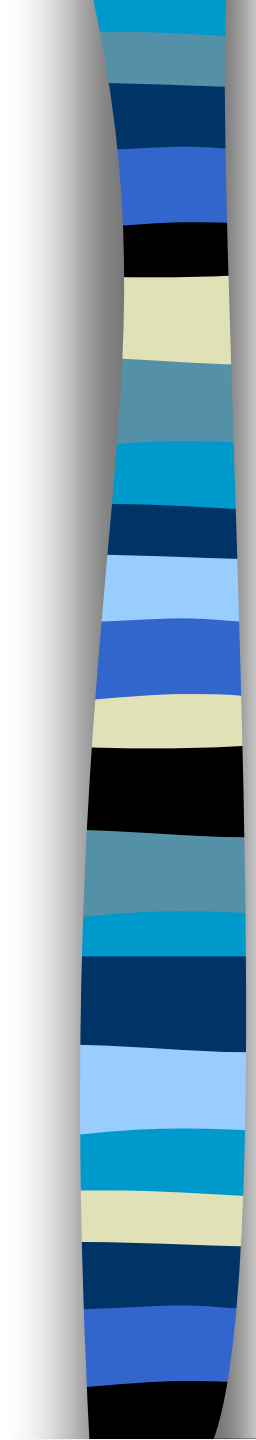
Decision science/Risk assessment

- Lay it out (choices, uncertainties, outcomes)
- Evaluate: decide how to achieve best case, avoid worst case

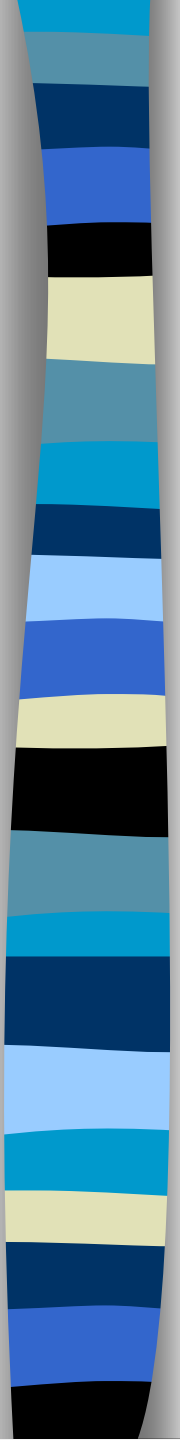


	Others take action	Others DO NOT Act
We do not act	Midcentury- on average, 50 days/year above 105°F heat index  Late century- 68 days 105°F  (Outcome Slow Action scenario)	
Bold and aggressive action		

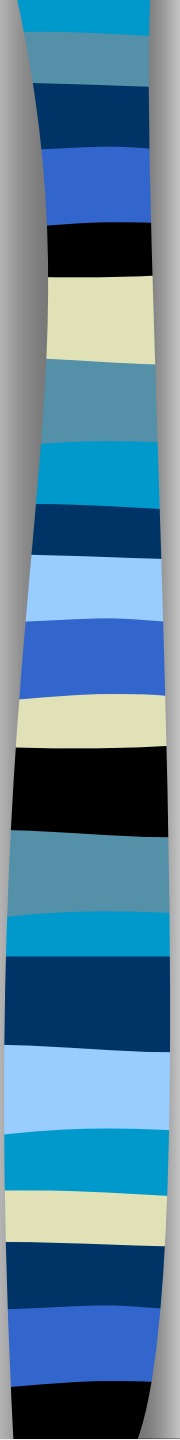




	Others take action	Others DO NOT Act
We do not act		<p>Midcentury -78 days/year above 105°F, including 1 day of off-the-charts</p> <p>Late century - 130 days of 105°F heat/year by late century including 17 days off-the-charts heat index.</p> <p>(Outcome No Action scenario)</p>
Bold and aggressive action		



	Others take action	Others DO NOT Act
We do not act		
Bold and aggressive action	50 days/year heat index above 105°F  (Rapid Action scenario)  Economic and health benefits of clean energy	



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Bold and aggressive action		50- 78 days mid-century, 68-130 days by end of century  (Between outcomes of Slow and No Action scenarios)  Economic and health benefits of clean energy

2/14/2020

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	Others take action	Others DO NOT Act
We do not act	<p>Midcentury- on average, 50 days/year above 105°F heat index</p> <p>Late century- 68 days 105°F</p> <p>(Outcome Slow Action scenario)</p>	<p><b>Worst case</b> Midcentury -78 days/year above 105°F, including 1 day of off-the-charts</p> <p>Late century - 130 days of 105°F heat/year by late century including 17 days off-the-charts heat index.</p> <p>(Outcome No Action scenario)</p>
Bold and aggressive action	<p><b>Best case</b> 50 days/year heat index above 105°F (Rapid Action scenario)</p> <p>Economic and health benefits of clean energy</p>	<p>50- 78 days mid-century, 68- 130 days by end of century (between outcomes of Slow and No Action scenario)</p> <p>Economic and health benefits of clean energy</p>

- What's likely to happen to us in terms of temperature, in Charlotte County.
- What our choices are
- Temperature consequence of our choices
- How to get there (action required, by level of gov't)
- Factor in economics, uncertainty of what others might decide

# Conclusions

