

Climate Change in the Time of Covid-19

Thoughts for Loudoun County

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A climate change crossroads

Challenge:

Climate change presents greater threat/risk to human societies than we have realized

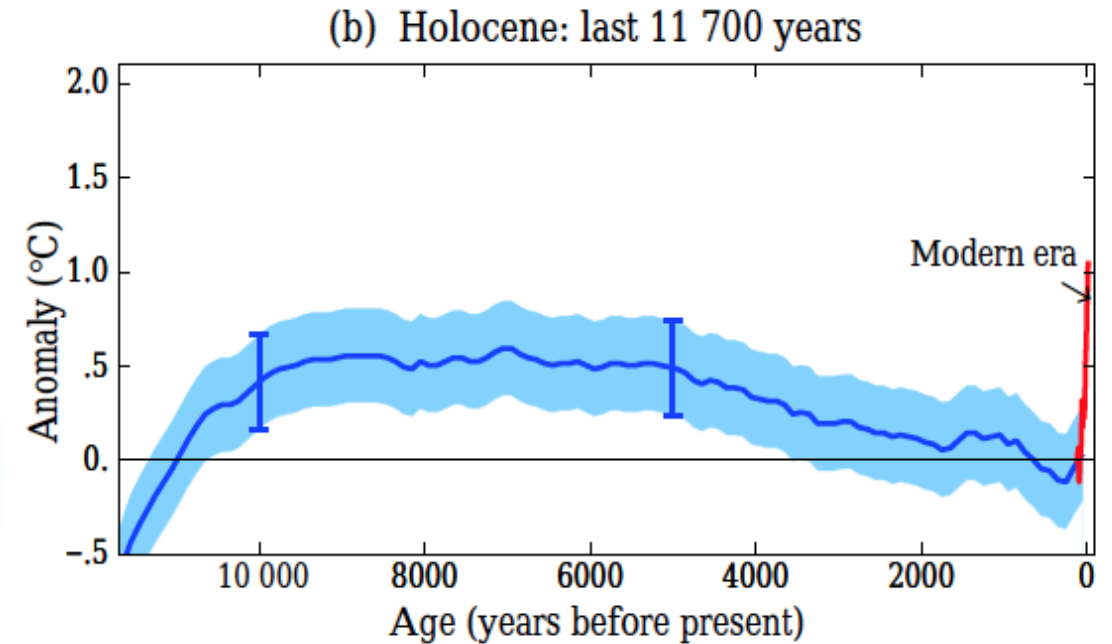
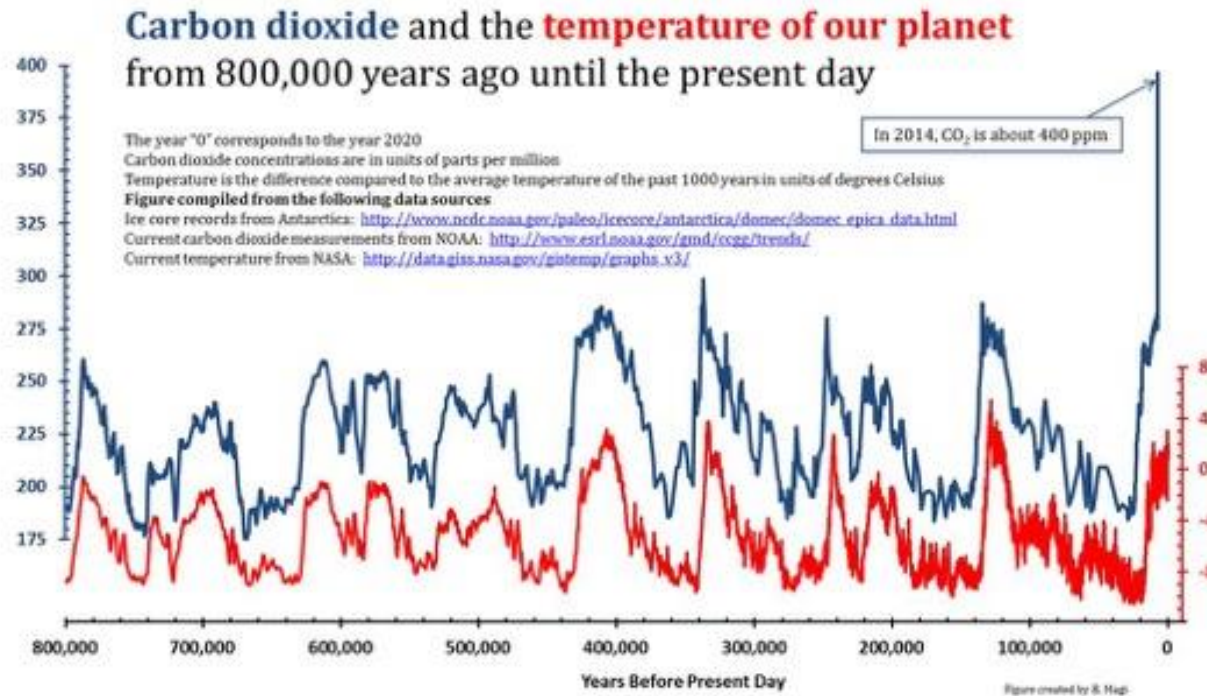
Opportunity:

To embark on transformative policies toward greater sustainability and equity

Context:

What can we learn about policy responses from Covid-19?

Earth is warmer today than humans have ever seen



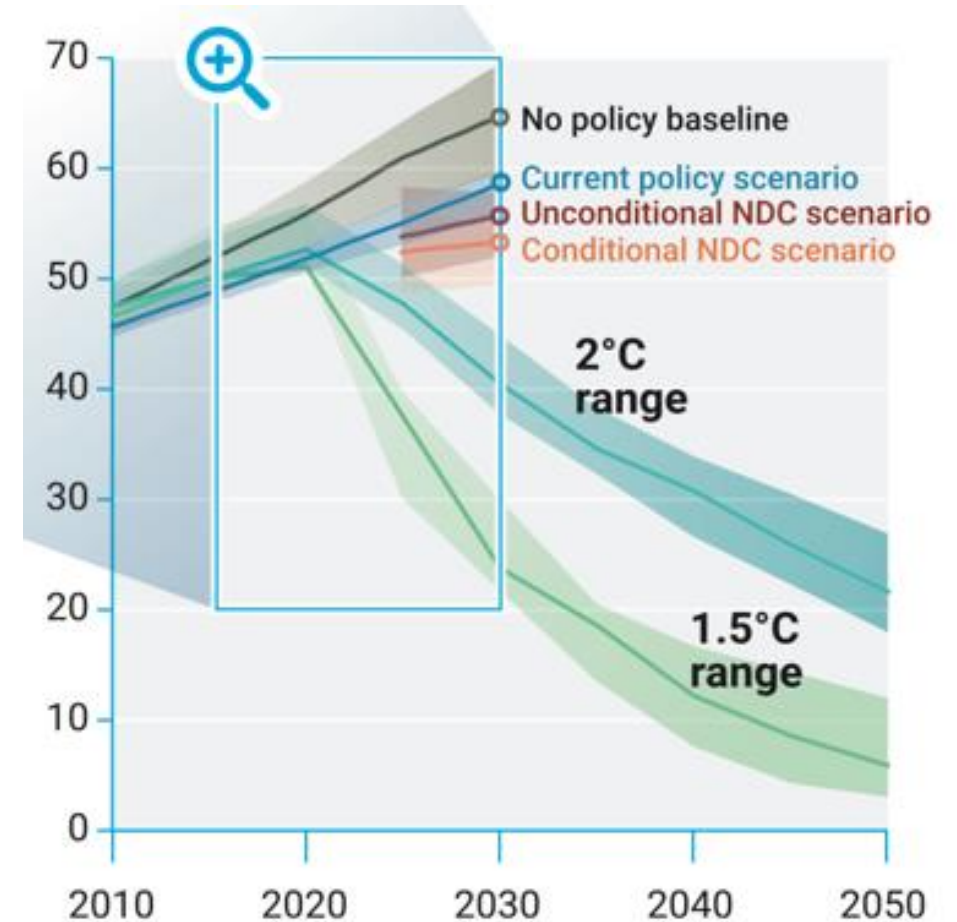
Challenge: 2015-2019 trends and outlook

Warmest 5-year period ever recorded

- Impacts worse, and happening sooner
- Net warming of 1.2°C already
- World policy response insufficient
- CO2 emissions will not peak by 2020 as needed – not even by 2030

We are now in the 3-4°C (by 2100) range

- Need GHG reductions from all sectors
- By 3-fold to align with 2°C target
- by 5-fold to align with 1.5°C target



Opportunity: local governments, youth, private sector

Local governments:

- We Are Still In: Over 2,700 US states and localities
- 35% US states have carbon pricing policy
- 84 US cities and counties have committed to 100% renewable energy



Youth mobilization:

- School climate strikes, climate marches
- Children's lawsuit



Private sector:

- Renewable energy commitments
- Divestment from fossil fuels
- Climate risk accounting

Two climate policy imperatives:

Decarbonize the economy - Mitigation

- Transition to renewable energy, increase energy efficiency
- Absorb CO₂ through forest/agriculture management
- Change behavior...

Develop greater resilience - Adaptation

- Assess hazards/risks using local data, mainstream climate into current activities
- Identify and target the most vulnerable
- Communicate...

Mitigation in Loudoun – GHG emissions sources

Virginia GHG emissions sources

- ~40% electric power, 30% transport, 30%, agriculture & other
- Decreased 20% since 2005
- Electricity: 53% gas, 31% nuclear, 10% coal, 7% renewables

Some likely Loudoun GHG emission sources

- Commercial electricity (data centers, other commercial and business)
- Home electricity (including heat and AC)
- Transport (automobiles)
- Other industry and residential fossil fuel use
- Methane from gas facilities/pipeline leakage
- Agriculture (fertilizers, animal waste)

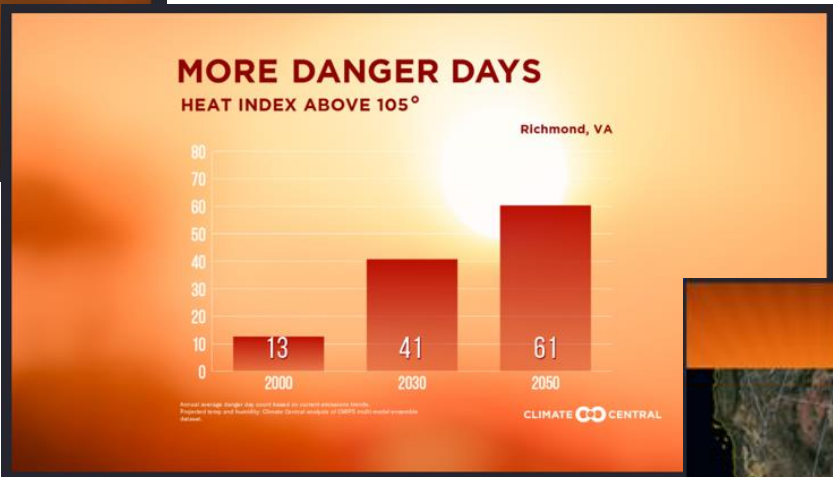
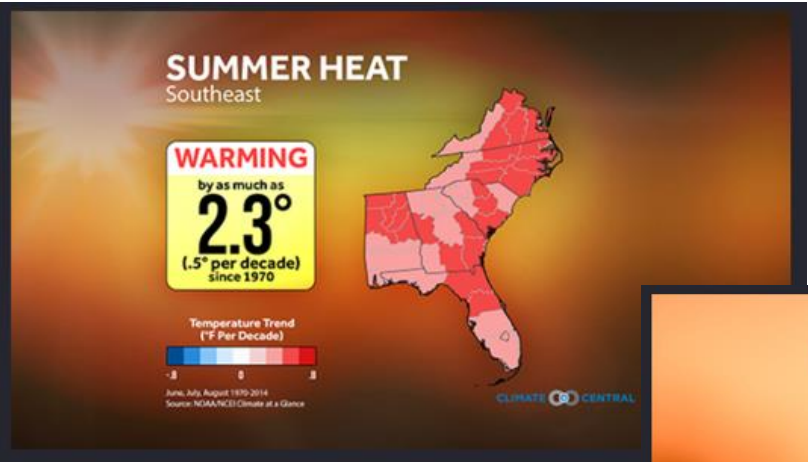


Mitigation in Loudoun – some policy opportunities

- Targets for GHG reduction
- Incentivize renewable energy for power
 - Commercial: Some data companies have committed to 100% renewable
 - Residential: Information, subsidies, tax policy
- Green building and net-zero energy policies
- Increase/protect green space
 - Absorbs CO₂, reduces heat, enhances drainage management
- Promote public transport, bike paths, walking trails
- Climate education and outreach
 - Networking, citizen science

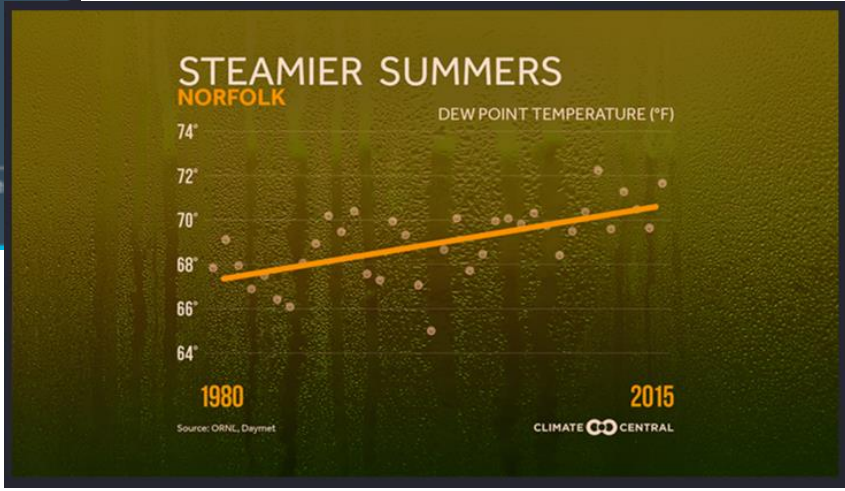
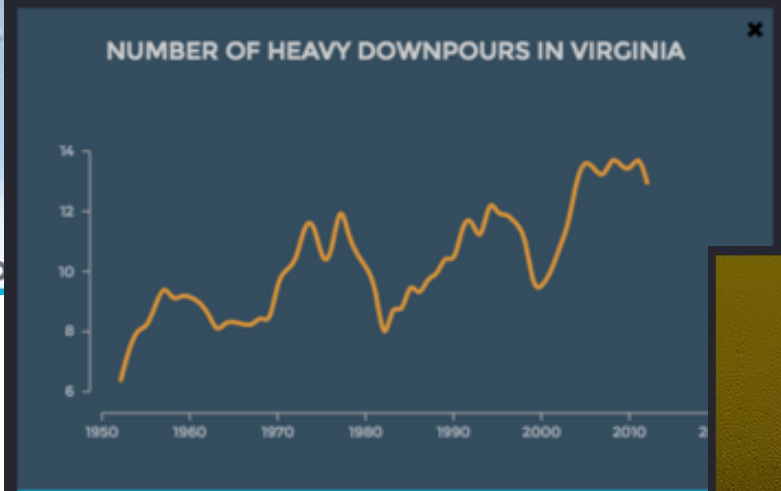
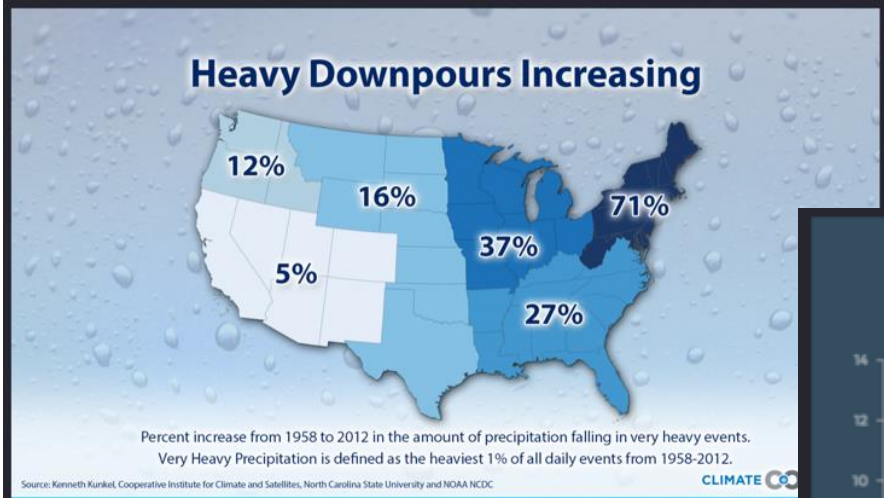


Adaptation in Loudoun – heat like South Texas



Source: States at Risk, Climate Central, 2020 (based on downscaled IPCC RCP8.5 scenario; AR5 2014)

Adaptation in Loudoun – when it rains it pours



Source: States at Risk, Climate Central, 2020 (based on downscaled IPCC RCP8.5 scenario; AR5 2014)

Adaptation in Loudoun – human, economic impacts

Extreme heat

- Heatstroke, heat stress, dehydration, kidney disease
- Vulnerability: Elderly, outdoor workers, athletes, underlying conditions, urban heat island

Extreme precipitation

- Flash flooding, mental health impacts of losses, traffic accidents, water runoff, erosion, managing sewerage and drainage, indoor mold
- Vulnerability: Low-lying, urban and rural

Longer insect and pollen seasons

- Asthma, allergies, insect-borne disease (Lyme, West Nile)
- Vulnerability: Urban and rural

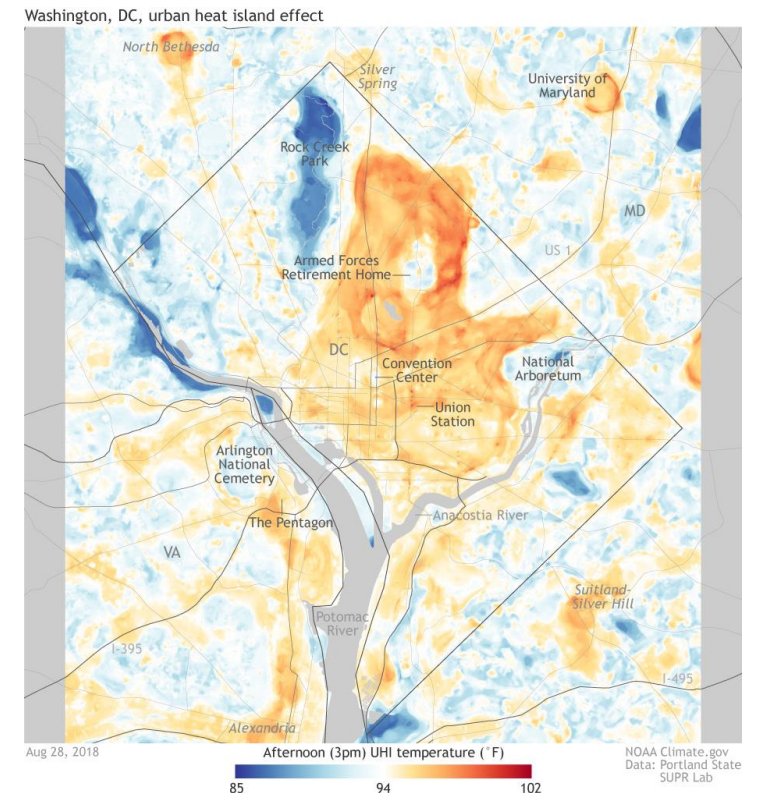
More invasive pests and plants

- Economic - agriculture, tourism
- Vulnerability: Farms, wineries, open spaces



Adaptation in Loudoun – some opportunities

- Prioritizing local/regional climate hazards
- Assessing risks
 - Human physical and mental wellbeing
 - Emergency preparedness and response
 - Potential economic impacts (agriculture, tourism)
 - Infrastructure stress testing
- Developing climate action strategy/plan
 - Identifying key vulnerable populations
 - Mapping hazards/risks: extreme heat, flooding
- Early warning for heat, flooding, unhealthy air days
- Green and blue infrastructure
- Climate education and outreach



How Covid-19 may inform climate policy options

Maintain some mitigation gains from stay-at-home networked economy

- 25% reductions in GHG emissions (China, EU)
- Implications for telework, online learning policies
- Local delivery, pick-up, other new business models

Build on pandemic preparedness lessons for adaptation/resilience

- Risks from climate-related infectious disease, extreme weather may similarly strain local public health, other systems
- Healthcare PPE, hospital surge capacity
- Citizen emergency training, preparedness drills
- Infrastructure grid interlinkages and cascading effects with outages
- Mental health preparedness, stress reduction

