

Q&A: Climate, weather and energy in the 2024 presidential election

August 27 2024, by Adrienne Berard



The Bayside Picnic Area at Assateague Island National Seashore after Hurricane Sandy. Park staff is developing ways to respond to a changing climate based on public input and park needs. Credit: National Park Service

The topics of climate, energy and severe weather have taken on an increasingly critical role in political campaigns over the past few election cycles. With the Atlantic hurricane season in full swing and fires raging across the West Coast, the issues at stake—such as resilient infrastructure, diversifying energy sources and the preparation and response to extreme weather—affect individuals and families in Pennsylvania and across the nation, making the subjects a high priority among voters.

Penn State News spoke with two faculty experts about the pressing issues surrounding climate and how it may impact voters and their families.

Peter Stempel is an associate professor in the Department of Landscape Architecture at Penn State. He is social scientist, educator and architect. His research integrates peoples' qualitative concerns with physical impact models to create visualizations used for hazard and risk communication.

Erica Smithwick is a Distinguished Professor of Geography at Penn State. She is a landscape and ecosystem ecologist and serves as the director of Penn State's Earth and Environmental Systems Institute and associate director of the Institute of Energy and the Environment. Smithwick leads the Penn State Climate Consortium that brings together interdisciplinary researchers in partnership with society to innovate climate solutions.

What do we need to do to increase climate resilience? What are some examples of resilient infrastructure?

Stempel: We need to recognize how our local concerns are connected to larger natural systems. Any action we take affects the whole system. If

we can be strategic, we can work with nature to both enhance community resilience and support a thriving ecology. The 2022 Inflation Reduction Act has given us resources to implement this kind of thinking.

For instance, my colleagues and I supporting communities and nearby wildlife refuges in coordinating interventions that protect some areas while enhancing natural function in others so that we can maximize the ability of the coast to cope with changes naturally. This reduces the need for future interventions while protecting both people and ecology. The best infrastructure is the infrastructure you don't have to build, because among other things, your grandchildren won't have to pay cost of replacing it someday.

What are some of the impacts of climate change that may affect our communities? What can be done to prepare for climate-driven disasters like forest fires, drought, flooding, etc.?

Smithwick: Unnatural disasters are becoming the norm. Extreme weather is about 10 times more likely now than in the past and each year seems to be worse than the one before. Unhealthy air from wildfire smoke, heat waves, droughts, floods and more intense storms are more common because of climate change. The good news is that every degree of warming we prevent by reducing our emissions will reduce the chances these extremes get even worse, so combating greenhouse gas emissions remains a top priority.

However, we also need to be prepared to support communities grappling with unnatural, extreme events. For example, in the case of wildfire, this means new considerations about building in fire prone areas, increased awareness and education about fire dangers and preparedness, and putting beneficial fire back on the landscape in ways that promote

healthy habitats and reduce fire risk. We also need to be aware that wildfire smoke has damaging health impacts, especially on children and vulnerable populations, so minimizing smoke exposure is critical.

Stempel: Coastal communities are seeing real impacts now. We're talking about athletic fields turning into marshes, sewer systems that are failing, beaches becoming too small to sit on, or water infiltrating into water supply systems and causing treatment failures. These things affect people's lives and livelihoods in profound ways, and often stress budgets and our capacity to respond to disasters when they do happen.

Addressing these impacts involves tradeoffs. Saving the beach that drives the tourist economy may mean letting it migrate inland and having to move buildings. The best thing we can do for communities is to help them connect the dots and understand how local impacts are connected to larger changes so they can weigh the tradeoffs and make smart decisions. For instance, increasing rainwater infiltration may help reduce the impact of saltwater intrusion contaminating drinking water wells and solve both a drainage problem and a water treatment problem.

Who is at risk of being displaced by disasters resulting from climate change? How can communities prepare to handle climate refugees when disasters happen?

Stempel: Anyone can be displaced. We often don't talk enough about the diversity of people who are displaced because people with enough resources may assimilate into new communities and secure better housing than people with less resources. Those most vulnerable to getting stuck in portable temporary housing or becoming unhoused are those people who are already economically disadvantaged or in substandard housing.

The best thing we can do pre- or post-disaster is help people find secure housing and transportation that allows them to apply their skills and talents to thrive. Being productive and contributing to communities can also be a very important part of psychological health and healing after disaster. It would be even better if we could keep communities of faith or neighborhoods together when they are displaced. Fundamentally, this means we invest in housing and transportation now and create policies that make building or converting existing buildings to housing practical.

What solutions can we pursue today to mitigate risks and adapt to the effects of climate change?

Smithwick: Talk about it. We know that most people care about what's happening, but they aren't talking about it with their friends and neighbors. It's time to engage in these conversations so that we can identify ways to support our communities. And the good news is that we do have solutions. Cutting edge advancements in batteries, renewable energy technologies, resilient building design, sustainable materials, climate finance and more are being developed right now.

Deployment of the solutions, at the scale needed to address the challenge, is the real issue and this will take an "all hands-on deck" approach. Recent incentives, such as the Inflation Reduction Act and related investments in community-focused research and application are examples of how resources can be redirected to support climate innovation and resilience.

Stempel: We need to talk to one another. In my work on coastal adaptation, I meet many people who are seeing and experiencing climate impacts now. Even if they think differently than I do, they can see the tangible effects of climate change. This opens people to conversations that until recently were unthinkable. My perception is that there is a

growing majority of people who are prepared to act in some way, but the fear of being attacked or ostracized by a social group still holds them back from speaking.

We need to make reasonable people feel comfortable enough to engage. Those of us promoting adaptation and mitigation need to be open to the idea that the solutions we might prefer may not be the best for a particular community, just as communities need to come to terms with the fact that universal protection is not feasible or advisable. Nothing substantial can happen until we make space for a meaningful conversation and listen to one another.

Provided by Pennsylvania State University

Citation: Q&A: Climate, weather and energy in the 2024 presidential election (2024, August 27) retrieved 27 August 2024 from <https://phys.org/news/2024-08-qa-climate-weather-energy-presidential.html>

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