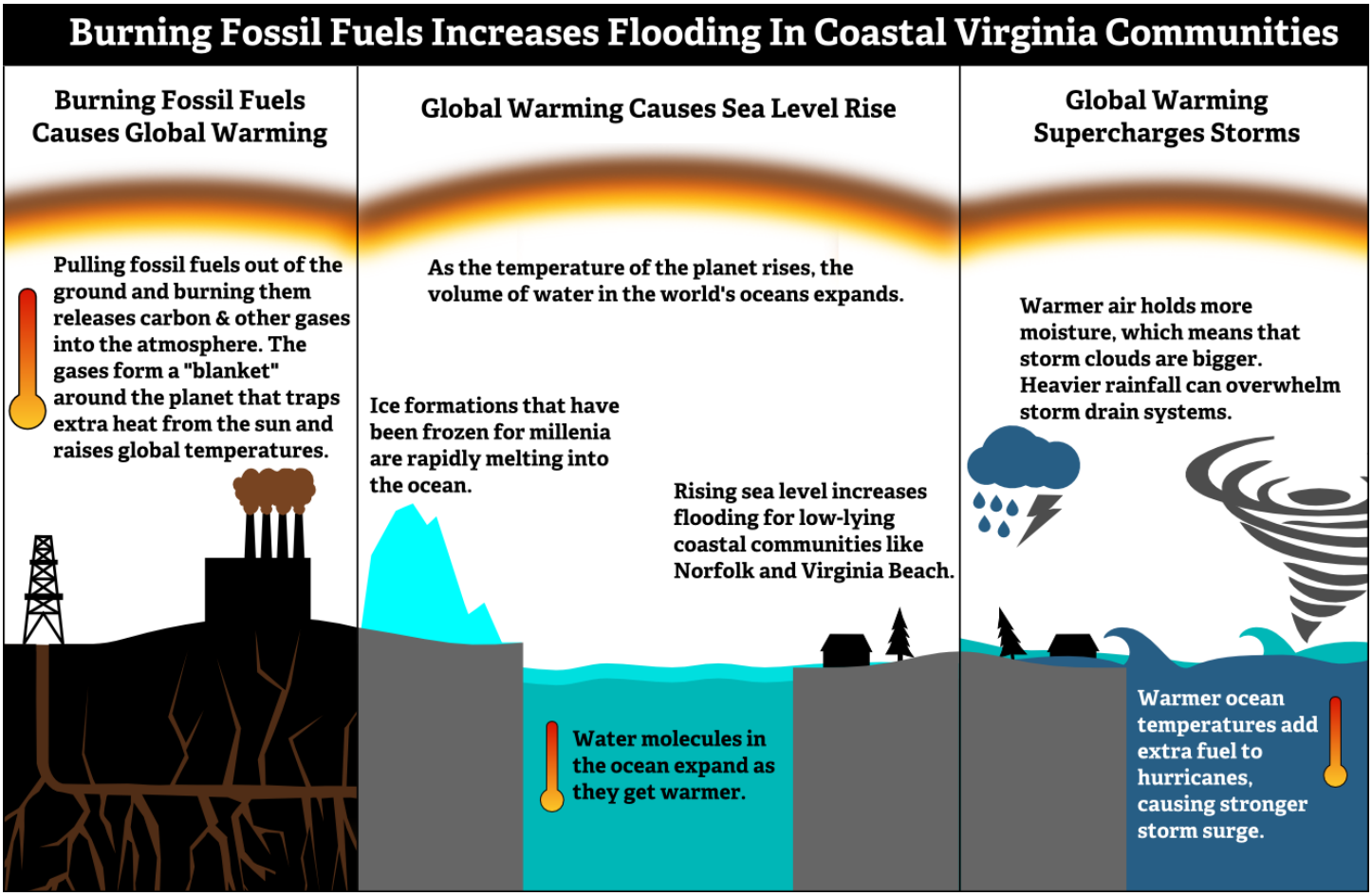
Climate Change & Flooding in Hampton Roads

The facts on how fossil fuel use causes sea level rise and stronger storms

The Norfolk-Virginia Beach region has prospered from its unique coastal configuration. The region is home to the largest U.S. Naval station in the world and the deepest shipping channels on the east coast. Unfortunately, when many of the local coastal areas were developed, people were not aware that the water around them was rising and the land sinking. But now the rise of the oceans along with storms supercharged by climate change are impacting homeowners, local businesses and even Naval Station Norfolk.

Virginia has a lot to lose from climate change impacts. But the good news is we also have the resources to be a part of the solution.



According to 97% of the world's climate science experts, carbon and other greenhouse gases (GHGs) released by human activities are causing the planet to warm. As these gases have accumulated over the years, they've created a "blanket" around the planet that traps too much heat from the sun and raises global temperatures. A huge amount of these GHGs are emitted by electricity generation power plants that burn fossil fuels from their energy.

Here in Virginia, the #1 greenhouse gas polluter by far is Dominion Virginia Power, our top electric utility. The company burns huge amounts of fossil fuels—coal, natural gas and oil—to generate electricity. While lawmakers in other states have required power companies to start shifting toward clean energy, Virginia's leaders have allowed Dominion to build bigger and bigger fossil fuel power plants.

Global Warming Increases Flooding in Coastal Virginia by Causing…

Global Sea Level Rise

Global Sea Level Rise: The warming of the planet causes the global sea level to rise in two ways: (1) as water molecules in the world's oceans warm, their volume expands and, (2) as glaciers and ice sheets melt, they add more water to the ocean.

Local Sea Level Rise: The local sea level in Hampton Roads is rising even faster than the global sea level. The land under Hampton Roads is actually sinking, due to a natural process called subsidence, making the area one of the most vulnerable in the U.S. to the effects of sea level rise.

Impacts in Virginia: The global average sea level has risen more than 6 inches in the last century. But the local sea level at the Sewells Point tide gauge has risen at one of the fastest rates in the nation—over a foot in the past 80 years. The higher the water is in the ocean and bay areas, the more likely it is to flood homes, businesses and roads.

The Impacts of Inaction: Global sea level rise is now accelerating, with seas rising at a rate of about 1 inch each decade. And scientists now estimate that each additional decade of fossil fuel burning is "locking in" about another foot of sea level rise for the future. Scientists from William & Mary's Virginia Institute of Marine Science have estimated that sea level in Virginia will be 1.5 feet higher within the next 20 to 50 years.

Supercharged Storms

Heavier Rain: The heaviest rain and snowstorms are getting more severe. As the atmosphere warms, it holds more moisture, like a water balloon getting bigger as it gets filled. So it rains less often as the balloon gets fuller and fuller, but when it does and the balloon bursts, even more water pours down. This is a big factor in our flooding problem, since our storm water systems weren't built to handle such heavy storms.

Supercharged Hurricanes: Substantial evidence indicates that warming is likely responsible for the recent increasing intensity of Atlantic hurricanes. That's because the temperature of ocean water and the air over it is one of the main factors in how intense a tropical storm or hurricane becomes. Warmer temperatures add strength to these already destructive storms.

Impacts in Virginia: In 2003, Hurricane Isabel hit Virginia as a category 2 hurricane and dissipated to category 1 as it moved inland. Even though the eye of the storm didn't hit Hampton Roads, Isabel caused an estimated $5.5 billion of damage to the region. Historically, no category 4 or 5 hurricane has ever made landfall in Virginia but climate change is making it more likely that eventually, one will do so.

The Impacts of Inaction: If global warming continues on its current trajectory, the intensity of the heaviest rain and snow storms is expected to increase another 40% in the U.S. in coming years. That means more flash floods. Plus, scientists expect that the most intense hurricanes will become more and more frequent in coming decades if carbon pollution continues to fill our atmosphere.

We must keep most fossil fuel reserves in the ground in Virginia and worldwide

For decades, scientists have been warning us about the effects we would see from the burning of fossil fuels. Now we're finally seeing the consequences and in many cases, the changes are worse than predicted. And the polluting we do today is "locking in" warming and its impacts for the future. So the longer we wait to address our fossil fuel addiction, the more change will be locked in for our children and grandchildren.

According to scientists, there's still time to curb the effects of climate change, but not much. If we want to avoid locking in so much temperature rise that catastrophic effects will be unavoidable, we have to keep at least 80% of the world's known fossil fuel reserves in the ground, according to climate and energy experts. We can't continue on with business-as-usual, ignoring the growing reality of the climate change crisis. We owe it to our kids and grandkids to address the problem before it spins out of control.

TAKE ACTION

Go to www.chesapeakeclimate.org/virginia to urge our leaders to move us away from fossil fuels and toward clean energy.