

# THE CAUSE

## FOSSIL FUELS

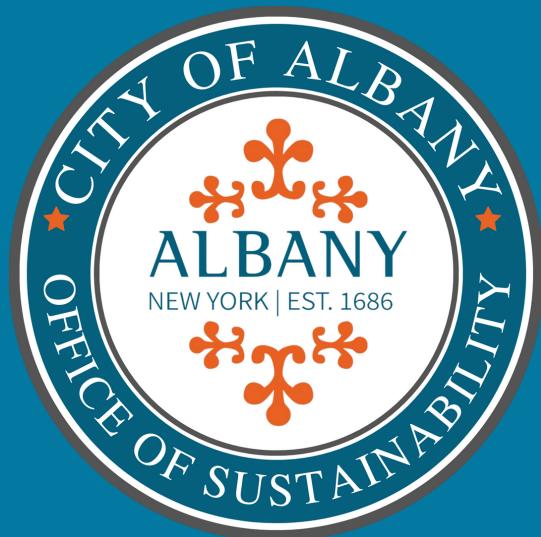
Scientists agree that climate change is being caused overwhelmingly by greenhouse gases from the burning of fossil fuels. There are other factors as well: land use changes, methane from livestock, and refrigerants (for example) create greenhouse gases, as well.

## HOW DO WE KNOW?

Tens of thousands of scientists have gathered vast amounts of evidence that the climate is being altered by human activity. That evidence is collected in reports by the UN's Intergovernmental Panel on Climate Change (IPCC), which are available online.

## ISN'T CLIMATE CHANGE NATURAL?

While the Earth does warm and cool naturally, the speed and scale of observed warming is beyond anything seen in the natural world.



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## What is CLIMATE CHANGE?



# THE BASICS

## WHAT IS THE GREENHOUSE EFFECT?

Energy from the sun is reflected by the Earth as heat. Some of that heat is trapped by the atmosphere, like a greenhouse or a blanket. This happens naturally. The thickness of this blanket of greenhouse gases changes naturally, but only very slowly.

The more greenhouse gases we add to the atmosphere - by burning fossil fuels for instance - the more heat is trapped, and the hotter our world gets. Humanity is pouring greenhouse gases into the atmosphere much faster than anything in nature ever has.

## IS THE CLIMATE CHANGING?

Yes. Global temperatures have risen about 2 degrees Fahrenheit since the 1800's due mainly to the burning of fossil fuels. This added heat is changing the climate.

## THE MAIN GREENHOUSE GASES:

- Water vapor, the most common GHG;
- Carbon Dioxide from fossil fuels;
- Methane from natural gas, etc.;
- Nitrous Oxide from fertilizers, etc.



## The Science

### They Can't Even Predict the Weather Tomorrow!

Climate is the long term average weather, including its variability over time. For example, we can't tell when a specific storm will come, but we do know that storms will get more powerful due to climate change.

### I've Heard That Scientists are Unsure Climate Change is Real.

While there may be uncertainty about specific aspects of climate change, scientists are in overwhelming agreement that climate change is real and caused by humanity, mostly from the burning of fossil fuels.

### Is Recent Extreme Weather Caused By Climate Change?

It's impossible to say whether a particular storm or drought is caused by climate change, but we can say with confidence that storms, heat waves, droughts, and other impacts are stronger or last longer because of climate change.

## The Impact

### Extreme Heat

Temperatures have already risen 2.2 degrees Fahrenheit since pre-industrial times, and could rise by as much as 15 degrees Fahrenheit by 2100. Extreme heat exacerbates heart and lung disease, increases violent crime, causes droughts and expanding deserts and more.

### Disease

Heat can cause heatstroke, heart attacks, strokes, respiratory illness and more violent crime. As climate zones shift north, diseases will spread to new territory, such as malaria possibly moving into the northeast.

### Storms, Flooding, and Sea Level

The number and severity of storms will increase, alternating with periods of drought. Sea level will rise. By 2100 the Hudson could be 6 feet higher and we could have up to 35% more precipitation. Severe flooding will be more common.

### Food Insecurity

Extreme heat slows plant growth. By 2050, wheat and corn harvests may decline up to 20%. At the same time, more evaporation means deserts will expand, reducing farmland.

### Mass Migration

Due to sea level rise, desertification, heat, and disease, millions more people are expected to migrate this century. They will flee north, trying to escape the heat of the tropics and the lack of food, jobs, and other necessities.

For specific projects or opportunities to get involved, visit the City's website.

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