



Cornell University  
ILR School

Cornell University ILR School  
**DigitalCommons@ILR**

---

Buffalo Commons

Centers, Institutes, Programs

---

3-17-2011

## What Climate Change Means for Buffalo

Sam Magavern

Follow this and additional works at: <https://digitalcommons.ilr.cornell.edu/buffalocommons>

Thank you for downloading an article from DigitalCommons@ILR.

**Support this valuable resource today!**

---

This Article is brought to you for free and open access by the Centers, Institutes, Programs at DigitalCommons@ILR. It has been accepted for inclusion in Buffalo Commons by an authorized administrator of DigitalCommons@ILR. For more information, please contact [catherwood-dig@cornell.edu](mailto:catherwood-dig@cornell.edu).

If you have a disability and are having trouble accessing information on this website or need materials in an alternate format, contact [web-accessibility@cornell.edu](mailto:web-accessibility@cornell.edu) for assistance.

---

## What Climate Change Means for Buffalo

### Abstract

Why should state and local governments respond to a problem with so many national and international ramifications? As we have seen, Buffalo and New York have much to lose from climate change, and much to gain from preventing it. Moreover, it is clearer than ever that states and localities will have to lead the way. In the past two years, the Democrats have failed to pass meaningful climate change legislation despite controlling the Presidency, Senate, and House. The chances are even more remote with a Republican Congress, including many members who deny that climate change is occurring, that it is man-made, or that it is dangerous. Only when a critical mass of states and localities are limiting carbon emissions and promoting green technology, energy, and development will national solutions become possible. And only by using states and localities as the “laboratories of democracy,” where different solutions are tested, will we arrive at national and international policies that truly work.

### Keywords

Buffalo, Environment, Air Pollution/Climate Change/Energy, Policy Brief, PPG, PDF

## What Climate Change Means for Buffalo

Sam Magavern  
March 17, 2011

### A Catastrophic Threat

President Bill Clinton has called climate change “the greatest challenge of our era.”<sup>1</sup> We have already heated the globe significantly, with 19 of the 20 warmest years in the last 150 occurring since 1980, and all five of the warmest occurring after 1998.<sup>2</sup> The average temperature in the United States is expected to rise between 5.4 and 12.6 degrees Fahrenheit by 2100.<sup>3</sup>

Global warming poses many dire threats such as floods, droughts, heat waves, and mass extinctions. For brevity’s sake, this brief will focus on two. The first is sea level rise. In 2007, the International Panel on Climate Change (IPCC) projected a rise of 7 to 23 inches by 2080-2099, but the IPCC noted that it was not including the effects of glacial, Arctic, and Antarctic melt.<sup>4</sup> One leading climatologist predicts a rise of 2.5 to 6.5 feet by 2100 under business as usual, while another predicts that a five degree temperature rise over the next 100 years will lead to an 80 foot rise in sea levels.<sup>5</sup>

The problem is the vast amount of ice locked up on land masses in Greenland and Antarctica. Greenland’s ice is melting twice as fast as previously thought; a full melt-off of its ice would cause sea levels to rise 23 feet.<sup>6</sup> Rapid melt-offs and sea level rises have happened before: some 14,500 years ago, sea levels rose by 65 feet in about 400 years, with temperatures only 3 to 5 degrees

higher than ours.<sup>7</sup> Around the world, people live near coasts. In the United States, 54 percent of the population lives near the ocean.<sup>8</sup> Imagine a world in which New York, Los Angeles, Miami, Boston, San Francisco, Atlanta, New Orleans, and Seattle are partially or fully under water.



Another deeply alarming possibility is that global heating will spiral out of control in a feedback loop that is impossible to reverse. We may be very close to some profoundly dangerous tipping points. As snow and ice melt, the earth reflects back less sunlight and

absorbs more – thus causing higher temperatures, which in turn cause more snow and ice to melt. As oceans heat up, they will absorb less of our carbon and emit more – potentially turning from a carbon sink into a carbon source. Similarly, if Amazon rain forests and peat bogs in Borneo and elsewhere dry up and burn, huge carbon sinks will turn into carbon sources. As permafrost in Siberia, Canada, and other parts of the far north melts, it is starting to release huge amounts of methane and carbon – the methane release from Siberia alone may be equal to half of the United State’s total greenhouse gas emissions.<sup>9</sup>

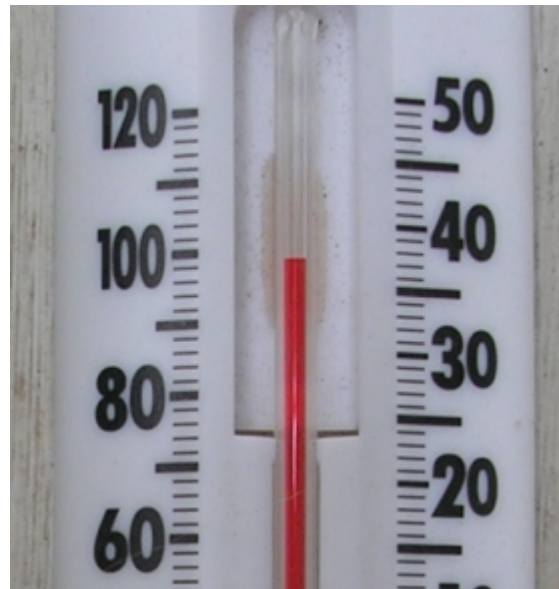
According to perhaps the world’s leading expert on climate change, climatologist James Hansen, if we burn all reserves of oil, gas, and coal, there is a substantial chance that a runaway greenhouse effect would destroy all life on the planet, and, Hansen says, “If we also burn the tar sands and tar shale, I believe the Venus syndrome is a dead certainty.”<sup>10</sup>

### **What Buffalo Can Expect**

Buffalo may be a cold, non-coastal city, but it is not insulated from the effects of climate change. Under a “middle” emissions scenario, in which the world takes some action to stem warming, we can expect temperatures in Western New York to rise 3 to 5.5 degrees by the 2050s, and 4.5 to 8.5 degrees by the 2080s.<sup>11</sup> Under a “business-as-usual” scenario, by 2070-2099 Buffalo may have 48 days per year over 90 degrees and 14 days over 100 degrees.<sup>12</sup>

While warmer winters offer some advantages to Buffalo, unfortunately, the disadvantages of global warming far outweigh the advantages. Ironically, heat waves pose a particular threat to cold weather cities because air conditioned homes are far less common. Thus, the 2003 heat wave in Europe killed over 50,000 people, and the 1995 heat wave in Chicago killed over 700.<sup>13</sup>

The problem is not just heat stress, but the decrease in air quality that comes with hotter weather. Under a business as usual scenario, Buffalo will have four times as many poor air quality days by 2077-2099, and even under a low emissions scenario, Buffalo will have 150 percent times as many.<sup>14</sup>



In general, our weather will become more extreme. Higher air temperatures will drive increased evaporation and precipitation: in other words, longer periods of dryness and drought punctuated by heavier rain storms and more flash floods – which increase pollutants in the water supply, inundate waste water treatment plants, and wreak other damage to buildings, crops, and infrastructure.<sup>15</sup>

The Great Lakes region may get drier, leading to lower water levels in Lake Erie and the Niagara River and posing problems for shipping, hydropower, and businesses that depend on their location by the water. Great Lakes water levels reached near-historic lows in 2008, possibly because of the global warming that has already occurred.<sup>16</sup>

Local winter recreation will be hit hard. New York has more ski areas than any other state, hosting 4 million visitors per year and

employing 10,000 people; this entire industry may well collapse.<sup>17</sup> New York's \$3 billion per year snowmobiling industry may see its average season length shrink to ten days by late century under a high emissions scenario and 24 days under a low emissions scenario.<sup>18</sup>

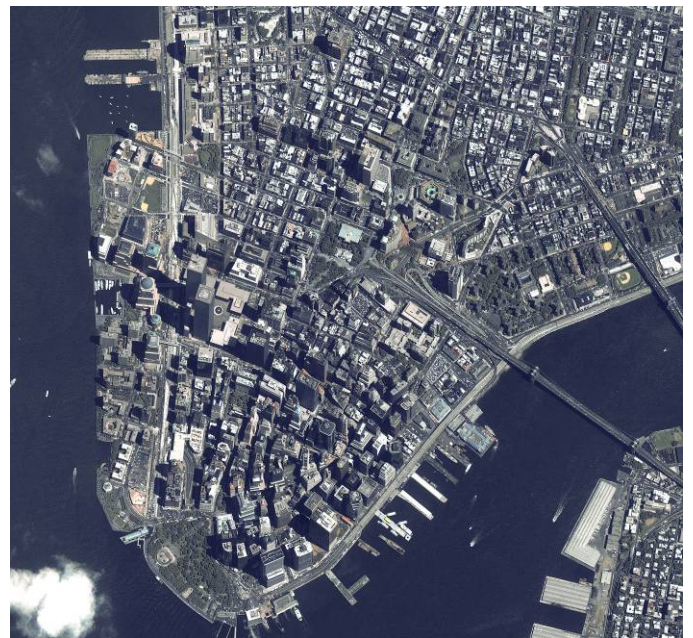
Western New York's farmers may find enhanced opportunities to grow warmer weather crops, such as peaches and European wine grapes, but traditional crops such as apples, Concord grapes, sweet corn, and cabbage will face difficulties from the heat, agricultural pests, and invasive species such as kudzu. Dairy farming, which produces \$1.9 billion of revenue in New York each year, will suffer significantly from heat stress to the cows.<sup>19</sup>

The direct effects of global warming on the Buffalo region are daunting enough. But the indirect effects will be greater. Buffalo will not do well if the nation as a whole is reeling, and, in today's global economy, the United States will not do well if the world is reeling. If the world has to devote a huge portion of its resources to protecting its coastlines, repairing cities and infrastructure after storm surges, relocating climate refugees, feeding the victims and droughts, and quelling wars and disturbances brought on by new conditions, the world's economy, and the nation's economy, cannot thrive.

More immediately, Buffalo cannot thrive if New York City and its environs are slowly getting swallowed by the sea, with frequent floods that destroy infrastructure, residential areas, and commercial areas. The fiscal health of Erie County and the City of Buffalo depend on the fiscal health of the State, which in turn depends on the fiscal health of its economic engine, New York City. Recall what happened to Buffalo in the wake of the attack on the Twin Towers in 2001. New York City and the State of New York were plunged into a fiscal crisis.

Facing a sudden drop in revenue from New York City, combined with an onslaught of costs in repairing damage from the attacks, the State froze its level of aid to Buffalo for three years. It was this freezing of aid, not any fiscal mismanagement by the City, that led to a fiscal crisis. But that fiscal crisis in turn led the State to appoint a control board to oversee the City's finances and freeze its wages.<sup>20</sup>

The City of Buffalo receives about one fourth of its revenue from the State. In difficult times, the City and County's costs increase, while their revenues from property and sales taxes stagnate or decline, and they need State and federal help all the more. Perhaps the greatest impact on Buffalo from climate change will come from its damage to New York City and other parts of the country, and the strain that puts on State and federal budgets.



### **Buffalo Gains from Green Urbanism**

Buffalo has much to lose from climate change, but Buffalo has much to gain from efforts to fight climate change. The Buffalo metro region, which has about a million residents, has a fairly stable, diverse economy. The unemployment rate for 2009



(8.4 percent) was substantially lower than the national average (9.3 percent).<sup>21</sup> The poverty rate for 2008 (13.3 percent) was identical to the national average. Education levels are high, with only 11.3 percent of those over age 24 lacking a high school diploma, compared to a national average of 17 percent.<sup>22</sup>

But when we look at the City of Buffalo itself, and its 270,000 residents, the picture is dramatically different, with a poverty rate hovering around 30 percent and one of the highest rates of vacant and abandoned housing in the nation. In other words, the Buffalo region is unusual not in its overall economic distress, but in its sharp urban/suburban inequality, which overlaps with dramatic racial disparities (Buffalo's metro region is the eight most segregated in the nation).<sup>23</sup>

One key to addressing this segregation by race and income, and all the social problems that it causes, is to reverse the decades of flight from the city to the suburbs and exurbs and incentivize a return to denser, more urban living. This return to density happens to be one of the most crucial elements in fighting climate change. To understand the role of density, it is helpful to consider the densest U.S. city of all, New York City.

New York City residents generate the least greenhouse gasses of any U.S. City – only 30 percent of the national average.<sup>24</sup> Why? Because of its density, which requires and encourages its residents to live in smaller homes, often within multi-residential buildings, and to travel shorter distances, using public transit, walking, and biking. In Manhattan, with a density of 67,000 people per square mile (800 times the national average and 30 times that of Los Angeles), 82 percent of commuters go to work via public transit, biking or walking.<sup>25</sup> It's not that Manhattanites are more virtuous or more

poor (far from it!); it's simply that they are more dense.

Obviously, Buffalo will never be Manhattan. But if our federal, state, county, and regional governments got serious about climate change, and began promoting urban living instead of sprawl, Buffalo would see a remarkable renaissance. For the environment, a renascent Buffalo would be a triple win. First, we would stop harming the environment by converting greenfields into developments and driving ever more miles to get home. Second, we would stop wasting the buildings and infrastructure in Buffalo that we are currently demolishing and landfilling at an astonishing rate. And third, we would dramatically lower our emissions by living, working, shopping, and playing in closer proximity.



### **The Case for State and Local Action**

Why should state and local governments respond to a problem with so many national and international ramifications? As we have seen, Buffalo and New York have much to lose from climate change, and much to gain from preventing it. Moreover, it is clearer than ever that states and localities will have to lead the way. In the past two years, the

Democrats have failed to pass meaningful climate change legislation despite controlling the Presidency, Senate, and House. The chances are even more remote with a Republican Congress, including many members who deny that climate change is occurring, that it is man-made, or that it is dangerous.

Only when a critical mass of states and localities are limiting carbon emissions and promoting green technology, energy, and development will national solutions become possible. And only by using states and localities as the “laboratories of democracy,” where different solutions are tested, will we arrive at national and international policies that truly work.

---

<sup>1</sup> Anthony Giddens, *The Politics of Climate Change* (Polity 2009)

<sup>2</sup> Fred Pearce, *With Speed and Violence* (Beacon, 2007), p. 11

<sup>3</sup> Pew Center on Global Climate Change, “Climate Change 101”

<sup>4</sup> Robert Henson, *The Rough Guide to Climate Change* (Rough Guides, 2008), p. 111

<sup>5</sup> Pew Center on Global Climate Change, “Climate Change 101” and Henson, p. 117

<sup>6</sup> Henson, p. 88, and Pew Center, “Climate Change 101”

<sup>7</sup> Fred Pearce, *With Speed and Violence* (Beacon, 2007), pp. 57-8

<sup>8</sup> Pew Center on Global Climate Change, “Climate Change 101”

<sup>9</sup> Fred Pearce, *With Speed and Violence* (Beacon, 2007), pp. 66, 69, 79, 85

<sup>10</sup> James Hansen, *Storms of My Grandchildren* (Bloomsbury, 2009), p. 236

<sup>11</sup> New York State Climate Action Council Interim Report (2010), p. 2-11

<sup>12</sup> Union of Concerned Scientists, “Confronting Climate Change in the Northeast: New York,” p. 4

<sup>13</sup> Henson, pp. 48, 51

<sup>14</sup> Union of Concerned Scientists, “Confronting Climate Change in the Northeast: New York,” p. 4

<sup>15</sup> New York State Climate Action Council Interim Report (2010), p. 2-23

<sup>16</sup> “Declining Water Levels In The Great Lakes May Signal Global Warming,”

<http://www.sciencedaily.com/releases/2007/12/071230093533.htm>

<sup>17</sup> Union of Concerned Scientists, “Confronting Climate Change in the Northeast: New York,” p. 7

<sup>18</sup> Union of Concerned Scientists, “Confronting Climate Change in the Northeast: New York,” p. 7

<sup>19</sup> Union of Concerned Scientists, “Confronting Climate Change in the Northeast: New York,” p. 5

<sup>20</sup> See Partnership for the Public Good, “The Control Boards” (2008)

<sup>21</sup> U.S. Bureau of Labor Statistics, NYS Dept of Labor

<sup>22</sup> Census data from 2008 American Community Survey

<sup>23</sup> Harvard School of Public Health, [www.diversitydata.org](http://www.diversitydata.org)

<sup>24</sup> David Owen, *Green Metropolis* (Riverhead 2009), p. 3

<sup>25</sup> Owen, pp. 2,3