

2040 A: Minimize Our Carbon Footprint

Summary: The region is a model of low carbon footprint rural living in harmony with nature.

Context: Significant global progress has been made in reducing emissions and making clean energy affordable at scale. The key step was putting a high price on carbon. In response, people everywhere changed how and where they live to lower their carbon footprint. The auto industry exceeded the EPA CAFE standards. There is broad-based engagement that climate change is the defining issue of the age. Climate change is no longer a political third rail.

Impacts: Fossil fuels are costly. Our growing season is extended. Extreme weather hurt the smaller towns more than the larger ones, who have more resources to rebuild for resilience. The younger generation is seriously engaged in saving the planet they will inherit.

Responses: For both economic and environmental reasons, the region chose to do its part, lowering emissions significantly. Although our small numbers mean that the impact on the atmosphere is small, our impact on political and public opinion is large. We did not ignore this. Doing nothing was a choice we didn't make.

Our actions were amplified by actively participating in broader efforts in the northern forest area and NY State. We were leaders in communicating the threat and articulating paths forward to the population at large, including farmers, hunters and tourists. Our broadly based efforts attract planners from around the nation and the world trying to emulate our success story.

We aggressively and broadly adopted clean energy (solar, wind, biomass, geothermal). Solar farms were widely implemented to give everyone a chance to use the power of the sun. We are a leader in demonstrating the effectiveness of NY's Clean Energy strategy. Heating is a mixture of biomass and electric. Widespread deployment of charging stations helped with adoption of electric cars and attracted visitors with electric cars. Electric vehicles rented here were many visitors' first experience with the technology. Aesthetic issues no longer derail clean energy projects, which is seen as essential to saving the landscape we love. The visibility of green energy projects are badges of honor, not blights on the landscape, and teaching opportunities for tourists.

The big change was in the structure of our communities. We could no longer afford to live so spread out. Resilience and economic development investments were concentrated in the larger hamlets and villages. Many small towns faded further. Many more people now live and work in the same community or else they telecommute. Communities were designed to be pedestrian, bike and elderly friendly. Many built district heating arrangements. They attracted people from the smaller towns and elsewhere who wanted to live this clean green lifestyle. Young people could live here without owning a car. Backcountry, carbon-intensive living is now expensive and socially rejected, like smoking. The total population does not change much.

We also worked to increase the carbon storage of the private lands through optimal forestry. Every woodlot owner came to see their forest differently, as their personal contribution to carbon storage. Priority one is forest health. Some unused farm lands were planted in trees. Ecosystem services payments now come to private land owners and to the State when it adds to the Forest Preserve. Our tourism infrastructure is greener than ever and focused on communicating the value of nature. Farmers proactively adapted to the changing climate, planting new crops and increasing yields, too.

2040 B: Prepare for the Worst

Summary: Obvious signs of damaging climate change coupled with delayed and insufficient global response led the region to prioritize investments in resilience and rally for global policy change.

Context: More than half the countries of the world, including the US, missed their emissions reduction targets. It is now clear in 2040 that average temperature will rise by at least 5°C and CO² levels will exceed 600ppm in 25 years to come. Major weather events, droughts and fires trigger significant national migration from south to north and from water's edge to high ground.

Impacts: Climate change has done real damage to the region both ecologically and economically. We begin to worry that the long-term picture is large-scale destruction of the landscape we love. The winter tourism economy is already severely reduced and shrinking. Traditional food production like apples and maple syrup are diminished. There are more, and worse, ice storms, floods, forest fires and destructive invasive species. Warming accompanied by repeated freeze/thaw cycles caused serious agricultural damage. Loss of snow cover coupled with deep freezes damages fine root systems, killing trees. Bad droughts in the summers challenged agriculture and hydro power facilities. In response to disasters elsewhere, new people have moved here in pulses, putting strain on infrastructure and housing. New infectious diseases like West Nile virus and tick-borne illnesses are an issue in the warm weather.

Responses: We invested heavily in infrastructure resilience, seriously hardening roads and bridges, communications and power networks, and emergency response capabilities. State policies call for rebuilding better after each disaster with an eye to the long-term changes. Wireless communications systems (cell and emergency response) are ubiquitous. More redundant and decentralized power systems are critical with so much bad weather. We piloted and deployed distributed clean power and microgrid technology and prepared for more air conditioning. Local government focused on emergency preparedness and improving resilience. Clinics and hospitals prepared to recognize and treat new diseases. Investment in resilience created many new local jobs. Resilience became the new self-reliance.

Private land use policies changed to keep development away from flood plains and other dangerous areas. We worked as best we could to protect our natural resources. We have established quarantine procedures with all necessary permits in place to strike quickly against invasives upon their arrival. Remediation work in lakes and wetlands also was a source of new jobs.

Mitigation still has lukewarm support in the region since whatever we would accomplish would have negligible influence on global emissions. Adaptation and resilience use most available funding.

The Adirondack region is really a victim in all this. It did not cause it and it can't do anything to stop it. Seeing a bleak future, Adirondackers have engaged strongly in national and international efforts at systemic solutions to emissions reduction. Images of devastated forests and fouled waters motivated the network of influential people connected by generations of family to the region to lobby governments and contribute to foundations. They saw this as the only way to prevent a real catastrophe. Leaders here invented the idea of protected wilderness for the planet, and they invoked that same kind of statesmanship in this battle to save the planet.

2040 C: The Hyper-Green Human Refuge

Summary: Our protected landscape has been resilient to the worst effects of climate change and the region actually experienced something of a boom.

Context: Climate change is part of a larger set of environmental concerns that have fairly broad public support. Protection of nature and social and economic justice issues are major concerns of most religions. The southern tier of the US was much more harmed by climate change than the north.

Impacts: Climate change has been relatively kind to the region. Longer, warmer spring, summer and fall seasons more than made up for a shorter winter. We still have snow but fewer snow cover days. We continue to have plenty of water. The forest is remarkably resilient. Sure, the balance of species has changed, but it is a fine destination for hunters, fishers and hikers. The milder climate made the region attractive to retirees, tourists and people fleeing the sweltering south. Heating bills have gone down. There was significant in-migration, including more businesses and farmers pushed northward by the climate. Certainly many long-term residents and visitors experience the changes as a loss, but the many new immigrants think it is a delightful place to live. They like a little bit of winter. The problems are real (e.g., more infectious diseases) but they can be dealt with (as more southerly regions have dealt with them historically) and are more than balanced by positive changes.

Responses: We doubled down on our commitment to environmental protection and living sustainably, reinforcing our green brand. Climate change is embedded in planning and policy processes - part of a broader environmental ethic. It isn't really front and center, just one of many environmental issues that include water quality protection and forest restoration. We continue to increase our recycling and composting. We banned plastic bags and cups. We increased our shared transport options and they began to be used. Visible clean energy projects were welcomed and brought new jobs.

Our recreational offerings shifted to nearly year-round golf, fishing, canoeing, hiking, etc. Winter sports venues invested in green refrigeration and ways to use their sites at other times of the year. We played up the wellness aspect of our region as a destination, a place to rejuvenate and re-experience nature.

Farmers have moved in as well. They have been able to shift crop and animal varieties to even increase production, while reducing their environmental impact. The wines of the region are getting pretty good.

As in-migration picked up, the year-round economy improved as well. Fewer people go south in the winter any longer. We anticipated the boom and set land use policies to enable more housing but not to the detriment of the Forest Preserve or the back country. We invested in water treatment widely to protect our waters while supporting more people and businesses. Our broadband infrastructure enabled people with jobs in less habitable states to live here and work there. Most new residents moved to the hamlets not the backcountry.

Area churches deeply engaged with environmental issues. Ethical, moral and spiritual engagement with environmental protection proved to be much more effective than scientific reports and angry political movements.

Today we mourn the loss of the Everglades and the more fragile western forests, but celebrate the role of this region in providing a sanctuary where humans and nature adapt and sustain each other.

2040 D: The Climate Change Laboratory

Summary: Great science that engaged the public and policy makers has been our big contribution.

Context: The actual way climate change plays out at the local level continues to evolve, is not well understood and is still hard to model. There has been strong funding for research into the science, policy and sociology of climate change. Science-based stewardship of large landscapes is a key theme.

Impacts: With our varied topography and large intact forest, climate change has been experienced very unevenly across the region. It's not just blanket warming as in the middle of the country. There has been a net increase in biodiversity. Our different elevations, soils and microclimates created many refugia where the large-scale changes in climate are dampened and existing species held on, albeit with smaller populations and more limited ranges. Other species migrated in, finding cooler and/or wetter habitats. It is a changing landscape, for sure, and not a preserved 19th century forest. We are seeing things we love go away like ice meadows, alpine ecosystems and trout in many lakes, but the changes have not been catastrophic. There are many more students and researchers in the region.

Responses: We realized that science, well communicated and connected with policy, was our best contribution. Similar to how the Adirondack lakes became a national icon that helped to rally action against the harmful effects of acid rain, it's our regional science that helped galvanize action to stop these harmful climate changes. Our strict and long-standing land protection regime made the region a unique control site to study how unmanaged natural ecosystems respond to changing climate. We sought funding to expand monitoring and experimentation, much of it coming from the region's robust philanthropic community. We mined the valuable data in our old growth forests, sediments and bogs about past climate, and documented fading ecosystems. We also studied evolving public opinion.

Many universities established climate change research programs using the region's forests and wetlands as their laboratory, analyzing their role in mitigating emissions, and how the flora and fauna adapt. Studies verified that biomass is a legitimate form of mitigation and other research supported valuation of the ecosystem services provided. We downscaled climate models to the regional level and used them to guide planning and policy, working closely with local government. Research into power efficiency and resilience has been a focus area, as well as new clean energy technologies from micro-hydro to advanced biofuels. Genetic research focused on adapting critical crops to the new climate and maximizing carbon storage in the soil. Research into tick-borne diseases generated new treatments.

We were also a laboratory for land use policy, experimenting with protection and restoration strategies, especially after major storm disturbances. We strengthened and extended wildlife corridors within the Park and to neighboring regions. We aggressively kept out invasive species and invested heavily in water treatment and storm water management. Some particularly sensitive areas are now off-limits to human recreation, including hunting and fishing. Much of the Forest Preserve remains unmanaged, but a portion is actively managed to understand in detail how the differences play out.

A winning strategy was to start numerous citizen science projects to extend the measurements, many organized by area schools. These turned out to be great ways to engage residents, especially young people and the active retired. Our scientists are good at communicating their insights to the population at large. We engaged with many regional science groups. We participated in NY State mitigation efforts but didn't try to take the lead as our small numbers make our contribution relatively insignificant.

2040 E: Don't Panic

Summary: We made sensible “no regrets” investments but did not overreact. We learned as events unfolded and avoided over-investing and making inappropriate choices.

Context: Climate continued to change in fairly gradual ways and no tipping points were passed. Clean energy continued to improve in terms of cost, efficiency and shorter pay back periods. The business sector pursued many opportunities in efficiency, fuel switching and resilience. Population migrations have not been a big issue across the country. If you live in air conditioned comfort, you can handle more days over 100°. Lessened precipitation was managed by tapping off shore and deep aquifers.

Impacts: There have been many changes in the forests and wildlife, some of it kind of ugly. But ecosystems have always changed and pests have routinely come through the region. Things are different but not terrible. There are storms and damage, but the land and waters recover, often remarkably quickly. Humans and nature turned out to be more resilient than once feared.

Responses: We did what made sense economically. After years of unmet commitments by cities, states and nations to various reduction targets, lower energy costs are what finally drove fuel switching and energy efficiency projects. Investments that made power and communication networks more reliable were beneficial and got done as money became available. Investments in more resilient infrastructure came after a big storm, not proactively. When the old firehouse was destroyed, then you built a new one on high ground. There were no programs to aggressively move facilities out of 100 year flood zones in anticipation of floods, for example. Changing insurance rates and updated FEMA policies guide rebuilding.

We took advantage of grant programs that came our way to improve infrastructure and pilot new technologies. Continuing limits on property and sales taxes made it hard for communities to make major investments in either mitigation or adaptation without outside assistance. There were many other problems to work on - investments in education and health care were at least as important as investments in clean energy and resilience. Typically, projects were justified on the co-benefits like cost savings, higher reliability, public health benefits, etc.

The wild forest was left unmanaged. We limited harvesting of private land for wood energy and don't export pellets from the region. The tourism industry coped in various ways as they always have. We still worry that out-of-control 'response' projects will do more damage than climate change itself, not to mention costing money we don't have.

The general population here had an intuitive understanding that the climate was changing. They really couldn't miss the changes. Since people here are more connected with the outdoors and nature, they experienced it firsthand. So there was no big political fight. People were kind of turned off by the prophets of doom and scientists that stressed the most extreme scenarios in their models. There has been no huge change in how we live or how we recreate.

2040 F: Reaching a Regional Tipping Point

Summary: The region has been severely impacted and there is significant depopulation.

Context: The world's political systems were not able to muster a sufficient reduction in GHG emissions to prevent damaging warming and eventual sea-level rise. Fossil fuel companies have been selling fuels at record low prices in an effort to monetize their holdings before it is too late. This severely undermines fuel switching efforts and lengthens payback periods for clean energy investments. The weather is getting really bad.

Impacts: There has been extensive damage to the forest due to ice storms, floods, fires, blow downs, pests, pathogens and invasive species infestations. Lots of dead trees rotted and emitted huge amounts of methane, cancelling out the value of our forest lands as a carbon sink. Smoldering, hard to extinguish fires, formerly seen only in places like Indonesia, dumped enormous volumes of CO₂ and black soot into the sky. Air quality is frequently bad. Community infrastructure has been routinely devastated. It has been hard for small, poorer towns and small businesses to recover and many people moved to larger towns or cities to reduce their vulnerability. Back country living became increasingly difficult, expensive and less attractive. Tourism is also down as the waters were increasingly fouled and recreational infrastructure was slow to be repaired. In these dire times, the Park is a luxury that NY State can't really afford and voter support is waning. Huge costs for recovery and adaptation in the bigger cities drained dollars away from this increasingly depopulated region. Our already fragile communities are on the brink of collapse as fewer and fewer people want to live here.

Responses: Over the last 25 years lots of programs have been started but none really took a major bite out of our GHG emissions from buildings and transportation. When changes required major investments or behavior changes, they just didn't happen.

Town leaders found it hard to plan and prioritize adaptation efforts since there was so much confusion about what the local impacts would be. First, they were told it would be warmer and wetter, then colder and drier, etc. So decisions and major efforts were postponed.

Financially attractive energy projects got done but then subsidies dried up and progress slowed. When it was a question of going into debt, projects didn't happen. A large segment of the population didn't want to get rid of their old wood stoves or make an investment that pays back over 20 years. And our region's efforts at mitigation weren't going to solve the problem anyway.

There is a growing sense of panic but now it's too late. We've passed a tipping point for our communities and decline seems unstoppable. There is a pervasive feeling that our best days are behind us.