



Bet on the Wrong Horse

U.S. Economy	Nature of Disruptions	Role of U.S. Federal Government	Global Mobility
Weak	Traditional	Substantial	Fluid



Summary

A period of extreme seasonal conditions, major weather events, and droughts drove widespread acceptance within the U.S. that dramatic climate changes were occurring, and human activity was the cause. The U.S. invested aggressively in renewable energy sources and climate engineering, and tightened environmental regulations at all levels of government. Other nations were far more tentative in their approach to climate change, and the U.S. struggled to develop wide support for a global cap and trade system. Now, new research confirms that climate change has not continued and strongly suggests the causes were not anthropogenic. Many speculate as to whether the U.S. has bet on the wrong horse. This bet has led to improvements in pollution and spurred research and development that has cast off positive second-order innovations. But, the U.S. economy is bobbing in and out of recessions. The U.S. social climate is, for certain, changing. Some within the U.S. who were once fast-paced and driven are opting for simpler lives as prospects for high financial rewards seem to be fading. The best opportunities appear to be more abundant abroad.



UNCLASSIFIED

Narrator: Welcome to a special PBS podcast: The Inevitable That Never Occurred: Climate Change and America's Response.

Years ago, a consensus formed among climate scientists that the average temperature of the earth was warming at an increasing rate, and that warming was deemed by a majority of climate scientists to be the result of human activity, specifically the release of carbon into the atmosphere via the burning of fossil fuels, the destruction of forests, and agriculture-related emissions.

The correlation seemed quite exact: ice core samples from Antarctica stretching back 800,000 years showed what appeared to be a lockstep correlation between rising levels of CO₂ and methane in the atmosphere, and higher temperatures. And in 2006, these samples seemed to indicate that CO₂ levels had never exceeded 300 parts per million in all that time. But from 1960 to 2010, these levels had increased from 300 ppm to almost 400ppm, and no end seemed in sight.

Increasingly strange weather patterns accompanied these increases. A large number of severe storms pummeled the United States, in a seemingly relentless and unending onslaught. Arctic sea ice virtually disappeared at the end of northern summers. Plants, animals and insects migrated farther and farther towards the poles and to higher elevations, while Arctic "charismatic megafauna" (e.g., polar bears and walruses) appeared to be facing extinction within a short period of time. Both droughts and floods became far more common, with water supplies strained in the American Southwest and, less predictably, in the Southeast. Sea levels rose at an accelerating rate, threatening beaches, ports, homes, and other shore infrastructure.

At the same time, Americans were growing weary of being dependent upon energy supplies from a collection of unstable and in some cases downright hostile political regimes. After a particularly galling summer of super-high gasoline prices, record-setting heat, and threats from Persian Gulf suppliers either to cut us off or to attack U.S. interests or the U.S. itself, a political consensus formed around the related (but hardly identical) goals of energy independence, reduction of emissions, reduction of pollution, and the creation of new, "greener" sources of energy.

That consensus held for a long time, for various reasons. A series of oil price spikes kept conservatives on board with the development of new sources of energy. Liberals seemed happy with the large amount of government spending, research, and infrastructure investment that went along with the policy. Moderates liked the cleaner air and water and the idea that America was number one in something. Polls tell us that most Americans still are happy with the green investments of the government over the past few decades. But another view is emerging, a more jaundiced view of the massive investment the United States has made in green technology, hardened infrastructure, new power plants and fuel cells, non-carbon-based energy sources and the like. This view is propounded by people such as Professor Michael Faraday of the University of Arizona.

Faraday: The plain fact is that the vast majority of the investment made by the United States government to prepare for or counteract so-called global warming has been, by any reasonable measure, wasted.



UNCLASSIFIED

Interviewer: Wasted?

Faraday: Yes. We would have been much better off staying with bad old fossil fuels, as it turns out, as our competitors such as China and India have done. They have zoomed right past us as we built up this incredible infrastructure for a future that essentially has not occurred.

Narrator: Faraday may have a point. Until recently, experts on climate expected the Arctic to continue its rapid warming until millions of square miles of permafrost melted, kicking climate change into even higher gear, as long-frozen caches of methane were released into the atmosphere. In addition, many were predicting at least seasonal shipping through the Russian Northern Sea Route, if not the more problematic Northwest Passage across Canada.

Needless to say, none of these things have happened. On many measures, the observed climate change has either stalled or even, in some cases, reversed itself. The Arctic appears to be in the process of re-freezing, and animal populations thought to be on the verge of extinction are rebounding nicely. We asked Professor Benjamin Thompson, a long-time supporter of the idea of human-caused global warming, how this was possible.

Thompson: Well, we simply do not know. Perhaps the greenhouse gas-curbing initiatives and investments in the U.S. has a positive effect. We were on a clear path to a complete meltdown of the Arctic and catastrophic sea level rises. We felt we understood the mechanism involved, the greenhouse effect, in which more and more carbon compounds in the atmosphere held more and more of the sun's heat in. There simply did not seem to be any countervailing force that could possibly forestall what we were dreading.

Narrator: And yet, something did happen.

Thompson: Something did happen. And what that something is, we just don't know. We were right about the mechanism of the greenhouse effect. Human activity was without any doubt causing the planet to warm. And then something big happened to stop that process. I expect to spend the rest of my life trying to find out what it was; I don't necessarily expect to find out before I die.

[Switch scene]

Faraday: Nonsense. Simply nonsense. They thought they knew it all, and they were simply wrong. The science of climate was and still is in its infancy, and they could not possibly make these preposterously certain statements about exactly what was causing the upward trend in temperature. It is a complex, chaotic, nonlinear system, and they should have had more respect for that fact.

Narrator: [standing outside] Well, this is one argument we are not going to solve here. Suffice it to say, however, that an awful lot of your tax dollars went into preparing for, adapting to, even attempting to forestall this supposed human-caused global climate change. By some estimates some \$10 trillion, roughly the equivalent of half a year's economic output for the entire United States back when these efforts began, has been spent over the years on clean energy technology and on hardening our coasts against an incursion from the seas that simply never arrived. I am



UNCLASSIFIED

standing here on a huge berm built by the Army Corps of Engineers a decade ago at great expense. Now members of Congress are debating whether to spend the money necessary to maintain this berm, which was meant to protect a vitally important port on the southeastern Atlantic coast.

It's just one small part of the vast expenditure across the entire country, in all economic sectors, that was meant to wean us off of fossil fuels and protect us from the consequences of our previous alleged heedlessness. Some called it common sense; others sneered at it as "religion" or a "hoax"; everyone calls it hugely expensive.

David Kingman: Whatever its actual merits from a scientific perspective, I believe that it was, at the time, a quite necessary investment in restarting a near-moribund economy.

David Kingman is Emeritus Professor of Economics and International Affairs at the Woodrow Wilson Center at Princeton University.

Kingman: Look, we did not get out of the Depression by means of FDR's recovery programs; they were far too small. We only got out of the Depression because of World War II. We needed government spending on that scale to pull us out of that lost decade. Fortunately for us, the climate change thing came along at the right moment to allow that similar kind of gigantic government spending we needed to pull the U.S. economy out of the ditch.

Narrator: Others, however, disagree.

Joan Osborne: There is no way to look at the climate change boondoggle as anything but a massive diversion of resources away from the private sector just at the moment when we should have been responding to the challenge of the rising Asian powers.

Joan Osborne is emeritus adjunct professor of history and economics at New York University's Stern School of Business.

Osborne: To take trillions of dollars away from the free market and invest it in completely unproductive things cannot help but have a hugely negative effect on the U.S. economy. We hamstrung ourselves and enriched other countries by forcing our companies into a misbegotten cap and trade system that no one was ever going to really abide by except for us. We now have spent monstrous sums on moving giant piles of rock and dirt to our coasts to prevent a rise in sea level that was not supposed to take place for decades at best, and now appears that it will not take place at all. We have 50 hardened ports in this country now, at a cost that might have saved Social Security as originally intended, or have provided Medicare coverage prior to the age of 72. Now these ports are prepared for a 10,000-year storm surge, when 500 would have been more than enough. Meanwhile unemployment remains well above 7% and GDP growth is below 2%. If that's not a waste of money, it will do until a real waste shows up.

Narrator: But others believe that this is not a fair characterization.

Kingman: There are many secondary positive effects of the investment we have made as a nation in clean energy, green infrastructure, and pollution reduction. We are far less vulnerable



UNCLASSIFIED

to swings in petroleum prices than we used to be, which is a really good thing, because with our military downsized and pulled closer to home, we no longer can ensure energy supplies from traditional oil exporters. As for being protected against a 10,000-year storm, the Netherlands holds to that standard, and we should recall that only a short while ago, in historical terms, we were seeing 500- and 1,000-year events occurring fairly often. Who is to say that we will not go back to a similar situation in the near future? The fact is the infrastructure was overdue to be hardened. The Cascadia Subduction zone was overdue for a 500-year event. That earthquake/tsunami combination would have ruined the coast and ports along the Pacific Northwest. So the investment had to be made.

And let's look at those coastal investments. We have super-safe oil platforms offshore now. We've phased out of the really dangerous deep-water offshore drilling that polluted our ocean resources so badly. We've got brand-new power-plant technologies for ships. There's a lot more short sea shipping and ferries taking trucks and cars off the roads. It's true that our ports are not optimized to take advantage of the very latest and efficient, although higher-polluting, Asian technology to increase throughput to these incredible levels. But if we've learned anything over the past few decades, it's that mere turnover, mere GDP growth for the sake of GDP growth, should not be the be-all and end-all.

We also have done a great job protecting our natural resources. Our fisheries are the best-preserved in the world and we have developed a significant advantage in the eco-tourism area. Our increased national wealth in these areas may not show up in the GDP statistics the way an unsustainable fish catch might, but can anyone seriously argue that we as a nation are worse off investing in preserving our environment rather than doing what the Asians have done, exploiting their fisheries to near-extinction in some cases? Our national balance sheet is far more solid in non-monetary ways than those of many countries that appear to the shortsighted to be doing "better" than we are. From a certain perspective, in my opinion, those countries are the ones headed for a fall. We are like the solid value investors who took a beating before the great meltdown of the late 2000s. We may look bad now, but we may look a lot better after the crash.

Narrator: But most economists have come to the painful conclusion that the net economic benefit to the nation of the huge infrastructure, research, and other investments, along with the increased regulatory burden on business, has been highly negative. They point to lagging U.S. productivity and GDP growth, persistently high unemployment rates by historical standards, and the decline of Wall Street as the financial center of the world. They say the ever-growing "openness" of the governments and cultures of China, Russia, and the Middle East has made it easier for people and businesses to expand to wherever their interests take them. Corporations, they say, have reduced their presence in the United States as taxes and regulations have increased. Some of America's best and brightest have chosen to pursue education or careers in other countries where they might have a more prosperous future. And they point out the relentless rise of Asian countries, and the fact that China and India seem to have gained a great deal of power and influence just as the U.S. seems to have receded in importance.

Osborne: There's no possible answer to those who argue that the big payoff is just around the corner. They can say that forever, and we can't prove they are wrong. But to quote their



UNCLASSIFIED

favorite economist, John Maynard Keynes, “In the long run, we are all dead.” The average American lives and dies in the short term. A lot of American kids will never get to go to college or own a home or have any other part of the American dream while we sit around waiting for these onerous regulations and job-killing government expenditures to stop crowding out private sector investment. To paraphrase Everett Dirksen, “A trillion here, a trillion there, pretty soon you’re talking about real money.” We’ve hollowed out our economy through these misinvestments, and we have to pay it all back now, and how? Well, first, we have to stop digging.

Narrator: But the political mood of the nation does not seem to have quite caught up to these economic realities. Polls continue to show a majority of Americans do not want the tight pollution regulations loosened, and they do not want to go back to the “bad old days” of gas-guzzling cars, the Navy permanently stationed in the Persian Gulf, and an economy being held hostage to wildly fluctuating gas prices. (Paradoxically, lower oil prices and the vacuum left by the U.S. military have made the Middle East more stable, as long-delayed political and economic reforms demanded by potential foreign investors have finally been introduced by formerly reluctant regimes as a way of forestalling popular unrest.)

Support for addressing climate change and moving off the carbon economy crossed all previous political boundaries. There is a new commitment to community that has been accentuated by the economic and fiscal difficulties of the nation. The percentage of multigenerational households has grown substantially. Americans forced off the “fast track” by downsizing and offshoring of jobs have come to see some positives in their plight. Many people speak of “stopping to smell the roses,” achieving contentment and a sense of reconnection to their families, neighborhoods, and fellow citizens. The greater equality in income and wealth that has accompanied the economic slowdown has contributed to a general perception that “we’re all in this together.” And a “green” outlook is thoroughly intertwined with this new American mindset.

All this said, discontent is undeniably rising as economic prospects have been blighted, jobs continue to stream overseas, and opportunity is seen to have decreased. The smartest young people – at least those who have not decided to concentrate on climate or environmental or other “green” technologies – continue to leave for the “browner pastures” of Asia, where they can be assured of well-paid careers.

Against all U.S. federal government insistence, the price of oil continues its gradual decline, and the cost of alternative energy sources is far from achieving competitiveness even with the obsolete original higher target cost of yesteryear. Maybe worst of all, other nations that refused to follow America’s lead into a “green future” seem to be doing much better than we are. This is particularly true in the realm of cyber-security, where the United States has gradually lost its lead position due to the government focus on massively funding “greener” investments. And other nations that have flouted some international environmental standards and agreements when it was convenient for them now, gallingly, seem to have far more influence in international forums relative to the United States.

Climate change demonstrably has stalled, if not reversed. Economic growth rates in Asian countries have greatly exceeded ours for a substantial amount of time now. Oil supplies seem



UNCLASSIFIED

to be in a glut. We as a nation are no longer the unquestioned leader of the world; the days of being a “hyperpower” are long behind us. The old “red” faction – pro-business, anti-regulation, decrying “big government” – is feeling its oats once again, after a long stretch in the wilderness. The winds of change – ecological, economic, political – seem to be shifting in America.



UNCLASSIFIED

Characteristics Matrix

U.S. Economy	Weak
Nature of Disruptions	Traditional
Role of U.S. Federal Government	Substantial
Global Mobility	Fluid

Background

A long string of extreme seasonal conditions, major weather events, and droughts prompted widespread acceptance that dramatic climate changes were occurring, and human activity was the cause. The frequency and intensity of natural disasters, domestic fish stocks on the edge of collapse, and aged and battered infrastructure began to overwhelm a government that had downsized in response to mounting debt. This prompted aggressive action in the U.S. in the form of vigorous investment in renewable energy sources and climate engineering, tighter environmental regulations at all levels of government, and the pursuit of a cap and trade program. Whereas there was widespread acceptance of the greening of America, that's not to say everyone was equally onboard. But, once a pervasive feel of political inevitability was achieved, and green technology seemed to be causing an economic boomlet of sorts, the naysayers were quieted. This activity has expanded the role of the U.S. federal government.

Other nations were far more tentative in their approach to climate change, and the U.S. struggled to develop wide support for a global cap and trade system. Recent numerous sources of data suggest that climate change has at least stalled, if it has not in fact reversed, and far too quickly to be the result of the U.S.'s efforts to address it. Now, with new data that suggests that climate change has not continued, a world around the U.S. that has willfully lagged behind the U.S.'s green initiatives, and expensive green investments that have not achieved expected payoffs, the naysayers are getting some traction. Questions about the bet on global warming are, well, heating up, and there are suggestions that the U.S. has bet on the wrong horse.

There is a lot of debate over why climate change seems to have stopped or reversed, but the most common belief is that the reversal catalyst was not man-made. Massive investment in green technologies by the U.S. government, and U.S. commercial sectors are now being second-guessed.

Some green investments have provided returns in areas related to pollution control and sustainable resources (wind farms, tidal power, ocean energy sources, hydro, etc.) for some fortuitous firms and investors. But, the losers outnumber the winners, new money is not going into this frontier, and the market caps of companies heavily

This scenario is part of a set of five scenarios, and does not represent a U.S. Coast Guard forecast of the future in any way. This is only a hypothetical environment for developing and testing strategic concepts.



UNCLASSIFIED

invested in green technologies are falling precipitously.

Yet the majority of Americans still support many aspects of the green agenda. Part of this is mere inertia; part of it seems to be happiness with lower pollution and a “cleaner America.”

Global Stability & Conflict

Globally, geo-political conflict is at a low – conflicts and tensions that do exist are viewed as manageable, with little danger of intensifying. China, as it continues to thrive economically, exports stability in return for resources. China and India – both experiencing lasting economic growth – have each found satisfactory positions in the global market without spurring serious trade frictions or military conflict. The rise of these economic powers and their need for consumer markets and resource supplies have worked to prevent the emergence of new failed or failing states in Africa and the Middle East. There are some regional conflicts in remote areas (Central Asia, interior South America, Sub-Saharan Africa), but they are not significant. The U.S. military is under budget restrictions and downsizing. It continues to be perceived as the leading military globally, but others are catching up. The U.S. is engaged in disaster response and humanitarian assistance overseas.

Key Global Actors (*states and non-states*)

India, China, Southeast Asia, Europe, and the U.S. are major players. The U.S. has lost its preeminent position. Its military advantage is eroding somewhat; economically it is amidst the pack of top tier economies in terms of size and influence. But, it is beginning to be perceived as a less desirable market relative to China and India, as marketers focus far more attention on perceived future growth markets.

The UN has lost a great deal of power relative to the rising nations of Asia.

Status of Haves & Have-Nots

Within the U.S., wealth distribution has flattened due to the weak economy. The top of the economic pyramid is moving down, while the bottom is not moving up. Meanwhile, some of the most talented and economically advantaged have shifted out of the U.S. in pursuit of opportunities abroad.

Entitlements have been chipped away. Green investment has not paid off; the financial sector is weaker, housing is weaker. There are fewer ultra-rich people (they are invested in Chinese and Indian markets, and often live elsewhere to avoid taxes and regulation).

Terrorism/Extremists

Al Qaeda shifts, due to lack of success with high-fatality attacks on large targets, to smaller, more frequent, more random, low-fatality attacks on transportation systems and shopping areas. After the shock of the initial attacks, and passage of time, this became more “the new normal,” with less impact on business and everyday life. Also, the focus of attacks is currently gradually shifting away from the U.S. towards Europe and, increasingly, Asian countries. Extensive intrusive security is now an accepted part of life. The more random, frequent attacks by Al Qaeda were generated by a belief that green technology was a plot to cut off the Middle East. However, the frequency



UNCLASSIFIED

of attacks has been abating as the importance of the U.S. to the Middle East fades.

WMD/E

North Korea is still a nuclear power, but more under Chinese thumb and less of a worry.

Russia has turned inward, and with decent control and oversight of nuclear weapons, is not seen as a nuclear threat.

Iran has a nuclear arsenal similar in size to Pakistan's. U.S. sanctions have been ineffective. Iran has close ties to China.

Pakistan is fairly stable. Lack of U.S. presence in Pakistan and Afghanistan (and the rest of the Middle East), replaced by Chinese influence in Pakistan, tends to stabilize the Pakistani rivalry with India.

Black market: Fairly cooperative global governance on this topic, with U.S. less of the lead; low threat perceived from WMD/E.

Global Crime

Intellectual property theft – of green technologies, especially, but also green tech offshoots and other technologies – and other forms of industrial espionage, are concerns to the U.S. Loopholes are exploited in environmental regulations in the U.S. Environmental crimes also include marketing of faux green technology and products that falsely claim to comply with environmental standards.

Human trafficking has spiked in Asia and Africa, particularly women illegally smuggled into China.

Within more affluent, developed, monitored communities, crime is trending downward. A new communitarian ethos in the U.S. has also acted to lower crime there overall.

There is some civil disobedience on the part of an emerging anti-green movement.

Global Markets
(products, services, financial flows)

Pharmaceuticals are doing well and the U.S. continues to be one of the leaders in this sector, though German and Japanese firms are very competitive, and some big pharma has moved offshore to aggressively pursue higher growth markets. Big construction has been supported globally by infrastructure upgrades. The U.S. is the clear global leader in most areas of environmental-related products and technology and has promoted export of environmental products and expertise. Limited global interest has, however, constrained this market. The U.S. auto market is helped by being first movers on green cars. Korea and India control the economy car markets and Japan and China compete with European manufacturing in the luxury car market. One of the Big Three goes under due to relative inability to export its cars overseas.

We're being outcompeted in foreign markets because safety and environmental standards are looser in foreign markets.

The U.S. military industrial complex has shrunk considerably from its highest levels of



UNCLASSIFIED

the early 2010s.

Global Trade

Global trade has continually risen. The U.S. has not kept up with improvements to transportation infrastructure outside of having spent a fair portion of their infrastructure budget on environmental and climate protection.

Trade through the Suez Canal has rocketed with the growth of India and China and the sound EU economy. Seasonal trade routes through the Arctic are not viable and are no longer anticipated.

Energy

Fossil fuel prices had been on a roller coaster, influenced by taxes on fossil fuels and green energy pushed by regulation in the U.S.; some alternative energy breakthroughs (though no “magic bullet”); conservation technologies; and a retreat from Arctic exploration. The price of crude oil is relatively low, however, hovering around \$50 per barrel.

All new cars manufactured in the U.S. must be hybrid or zero emission. The only straight gas cars are classic cars. Corporate Average Fuel Economy (CAFE) standards have gone way up. Gas tax and incentives to get rid of gas-guzzlers and carbon-emitters has pushed gasoline prices even higher than European levels. There is a shift toward electric cars in the U.S., with battery technology imported from Asia. Biofuels, solar, wind, and other alternatives are also subsidized.

Huge advances have been made in the area of battery technology – led by Asian countries trying to sell into the U.S. market – leading to far more resilient residential and commercial power schemes using local solar and wind power sources.

Transmission grid infrastructural upgrades are part of an ambitious national project that has soaked up vast amounts of money and political capital at the federal, state, and municipal levels of government, and sparked feverish merger and acquisition activity in the commercial sector and heated town hall and zoning commission debates. But robust inter-regional transmission lines have been constructed allowing for more fluid sharing of renewable energy from areas of abundant production to those with little natural generation capacity.

Of course the U.S. still has plenty of coal, but regulation makes it prohibitive to export and the market for it is diminishing, as the Chinese finally take up breathing as a hobby after years of dirty industrial development. Development of new nuclear power plants in the U.S. finally broke free from the NIMBY-ism stranglehold, supported by the growing sentiment for reducing greenhouse gas emissions and backed by a federal loan guarantee program for new nuclear plant development. Nuclear power has also made significant inroads replacing coal in fueling the Chinese manufacturing engine, and the Chinese have developed new “clean” coal-fired power plants.

China gets their oil primarily from the Middle East, Africa, and Indonesia. China and India have happily embraced new technologies that yield efficiencies in the production and use of carbon-based energy, but are motivated far more by life-cycle



UNCLASSIFIED

cost savings than the potential environmental impacts. Nevertheless, this has helped temper the demand for carbon-based energy as these economies expanded.

Overall the U.S. energy supply portfolio is increasingly reliant upon renewable sources and has achieved energy security; it is not yet fully energy independent.

Natural Resources

The U.S. is being ecologically responsible, but few others are. The land rush for resources across the globe is (partially) ameliorated by conservation and sustainability regulations and movements in the U.S.

Acidification of oceans has stalled and the melting of the Arctic has reversed, causing early allies of the U.S. in combating “global warming” to fall away one by one.

Many major fish stocks in the U.S. EEZ are on a path towards thriving again. Stocks around the globe are uneven. Local European fish stocks are healthy or stable, while migratory species are still strained or depleted. Some fish stocks have demonstrated unanticipated resilience.

Environmentalism in general has lost luster due to lack of predicted catastrophe. Scientists say, “Our models say it should be getting warmer!” Climate change skeptics seem to have “won” the argument.

Methane hydrates were successfully exploited for clean-burning, economical fossil fuel when oil prices were high, but relatively low fossil fuel prices have since restricted their use. Chinese clean coal technology has lowered pressure on energy resources as well.

There has been much more (and more successful) exploration for minerals, with reasonably good global governance (driven largely by China and India) managing the competition. Fresh water is not a crisis globally, but there have been regional concerns around the world (including in the Southwestern and Southeastern U.S.).

Environment

A decade-long cycle of bitterly cold winters and hot summers, major weather disruptions including a Category 3 hurricane that hit New York City, and droughts prompted wide-spread acceptance that anthropogenic (human-caused) dramatic climate changes were occurring. New data suggests the previous climate-warming trend has in fact stopped. Expected coastal erosion and rapid sea-level rise has not come to pass. Species migration due to climate change has more or less ceased.

The green bets by and large have not paid off with respect to climate change. But they have paid some dividends in the form of pollution reduction, the development of sustainable resources, and reduced dependency upon historically unstable geographies. Air quality has either improved or remained stable in places around the globe previously besieged by particulate pollution. Meanwhile, there is a feeling among some that the U.S. government has overregulated and overinvested in the environmental area (e.g., ambitious spending on carbon sequestration technology and projects).



UNCLASSIFIED

Climate & Weather

Climate change did not occur as expected. Arctic sea ice is coming back. The first two decades of the century had lots of extreme weather, leading some to believe that climate change was coming and would not reverse; this caused major U.S. government investment in green technologies. Climate change stalled and may be reversing now.

The U.S. attempt at a cap and trade system for the most part has failed as few other countries made a whole-hearted attempt to join the U.S.

There are still natural disasters, but the public seems inured to them, and sea level rise and Arctic melting have leveled off or reversed.

Natural & Accidental Disasters

Early on, a Category 3 hurricane hits New York, lending credence to global warming advocates. A number of other weather events led the majority of the U.S. public to accept that climate change was real and human-caused.

The U.S. has invested a great deal to harden coastal infrastructure against expected severe weather and sea level rise.

A Russian Arctic drilling accident/spill years ago shut down drilling in the U.S.-controlled portion of the Arctic.

Demographics

There is still a border control issue in the U.S. – a lot of pressure on the borders. The U.S. economy is weak, but an even weaker Mexican economy is prompting migration in the U.S., particularly of lower-skilled laborers. Migration is needed, as the U.S. birth rate is just below replacement level.

Many people moved away from the ocean shoreline due to the string of severe hurricanes and storm surges that hit U.S. coasts.

There is a noticeable trend of movement to inner-ring suburbs from the exurbs, as people seek cheaper, shorter commutes.

Globally, outside of the U.S., urbanization and move toward coastal areas has continued.

Migrant Flows

Lots of illegal migration, much of it to booming Asian economies.

Significant pressure on the border from low-skilled people from Mexico to the U.S., as Mexico's economy struggles. Higher-skilled people are going to Asia or Europe.

Human Health Issues (*physical health and policies*)

Reduction of frequency of extraordinary end-of-life procedures helps keep Medicare costs in check. ("Back to nature.")

People have over the past few decades begun to eat local and be more concerned about their diets, and government policies/regulation support this mass movement. (More expensive, stresses the economy, but has good health effects.)



UNCLASSIFIED

Healthier, more conscious lifestyle is more common. Local-sourced food. “Michael Pollan World.” People taking more proactive stance toward their health.

Use of homeopathy and natural medicines increases. People are taking care of Grandma at home due to multi-generational homes, as well as economic necessity caused by cutbacks in Social Security and Medicare.

Education

Higher education is among the many government-supported elements of U.S. society that took a back seat to addressing the environment. It is now suffering due to funding constraints. There had been a lot of funding in U.S. environmental science, engineering, green technology scholarships. But now the U.S. has a lot of green-oriented infrastructure that is vastly underutilized, and the talent pool for environmental technical skills is outpacing demand. There is also a brain drain of technologists to other countries where non-green jobs have been available all along.

Meanwhile, basic research and engineering and math and science assets have been used for many non-specifically-green purposes (fisheries management, e.g.).

Fee-for-service is making its way into public education, for tutoring, AP courses, more advanced learning.

Green infrastructure building ends after awhile and does not come back – there are many castoff workers with skills that appear irrelevant now.

Media

“Red, blue and green” for a long period replaced “red versus blue” in the political media, as the consensus on doing something about climate change crossed all political boundaries. But the old “red” coalition is on the rise again, as big government appears to have overreached.

The customization of media outlets has proceeded to the individual level, making the old-style Hollywood blockbuster (or the old-style bestselling book) more difficult to achieve. But there is a thriving community-oriented localized media culture, and far more diversity in content and worldview as one moves across the U.S.

Privacy concerns start to assert themselves, with government regulation keeping spam away. There is a move away from virtual communications.

There is an appetite for trusted information sources – reality checks on the partisan news. These rapidly develop reputations as biased, and give way to others in turn.

Worldwide, in developing countries, they seem to be going through a mid-20th century U.S. blockbuster-film and mass-audience phase. Much national pride is expressed in Chinese and Indian media.

Religion, Beliefs, Values, Ideology

Global tolerance is increasing because the world is booming, on the whole. Within U.S. communities, there is more tolerance; outside of one’s community, there can be distrust and division (especially against “immigrants who want to take our jobs”). Big government regulation and green spending is beginning to be discredited. Some



UNCLASSIFIED

influential evangelists originally sided with the greens to save the earth. Also, some labor movements were against green regulation because it was “job-killing.” People have over the past few decades begun to eat local and be more concerned about their diets, and government policies/regulation support this mass movement. (It is more expensive, and stresses the economy further, but it has had good health effects.) But there is a growing backlash against regulation and “green stuff,” and this is the big ideological divide.

Nature of Business
(entrepreneurism, government-business relationship, workforce)

There is a growing rift between government and business in the U.S – but there is reliance by big business on government for green technology money. Some industries are benefitting from government favoritism. There is limited domestic venture capital. Opportunities are generally elsewhere; there is a slow but steady brain drain out of the U.S. Wall Street is no longer *the* leading financial center. Cutting-edge technologies are pioneered elsewhere (except for green tech). Entrepreneurs take “failed” green technologies and redirect them, recouping some of the losses.

Business organizations are divided between large dominant companies and floundering smaller ones. Workforce: people in their prime working and earning years are volunteering (or being volunteered) to take the slow lane, with more work-life balance. Unemployment is higher than long-term historical averages, at 7%. At a community level, people are more concerned with wellness and quality of life. There are far more multigenerational families, with smaller gross carbon footprints, and more interdependence between and within families.

Information Management

Agent-based software is used to do eco-system management. The U.S. has developed ever more sophisticated control systems, initially for energy management, but increasingly they are applied elsewhere.

Information technology leadership, however, has moved to Asia, Europe, and Brazil.

Areas of Technological Innovation

There is significant innovation in the U.S. in green technology – including transmission grid infrastructure – with some spinoff technologies successfully exploited, often by overseas actors. Asian-pioneered battery technology has become essential to the green power grid here. Technology breakthroughs providing efficiency gains in fossil fuel power generation and conservation have been decent sellers globally.

Chinese and Indian scientists and engineers generally choose to go home to innovate.

Other areas of innovation: military (U.S.); information technology (India); nanotechnology, biotechnology (overseas, mostly, for non-green applications); transport infrastructure technology (China, except for green technologies). The U.S. is not investing as much in non-green technology.

The U.S. and to a lesser extent Asia, Europe, and Brazil lead in green technology for transportation.



UNCLASSIFIED

Cyber Security

While awareness never fell off dramatically, U.S. attention and funding for cyber security has not kept up with some other players in the developed world, and even some rogue actors. Despite impressive advances in information management, cyber security at many U.S. commercial concerns has been insufficient to fully protect them from the rest of the world's advances in offensive cyber capabilities. This is becoming an increasing problem that has spread into government networks.

U.S. Economy

The economy is strained by the fiscal drag from Baby Boom retirements. The government over-invested in negative-ROI green technologies. The economy is not in a depression, but simply lagging the rest of the world. "Eurosclerosis" has come to America.

Overregulation has hurt the economy – it has been apparently often unnecessary, and has pushed investment offshore. Some U.S. companies struggling to survive have a temptation to purchase materials that are not compliant with environmentally friendly practices. They make a risk-reward calculation involving the risk of exposure of these practices, the resultant scorn of society, and legal exposure, versus the reward of cheaper cost of goods sold.

There is enough capital invested to keep the economy going, and pay for reduced Baby Boomer entitlements. The massive spending on "green" is said by some to have spurred the economy out of its early-century rut, thereby helping to prevent an outright depression, but others think it has created a protracted malaise.

The U.S. economy is muddling through, relatively weak and lethargic, with periods of very low growth and cyclical recessions. Overregulation has hurt the economy. Much of the economy remains focused on sectors pushed by government policy – green technology and green infrastructure. Demand has generally been generated by government, not the private sector. The private sector can't make high profits in the U.S., so it focuses on overseas markets.

Pharmaceuticals are doing well. Big construction is doing well (infrastructure). Much innovation is now coming out of Asia. There is a non-green-expertise brain drain out of the U.S. One of the reasons the green investments were a bad bet was that the world apparently is not past peak oil.

Advances in battery technology and manufacturing economies of scale have reduced the price of many electric car models to less than \$20,000. However, the cost of electricity drives the total cost of ownership much higher. The U.S. is buying corn chairs for \$20; the rest of world is buying plastic chairs for \$2. The U.S. is regulating materials, usage. We may be looking at switching costs to get back to old dirty technologies, but we are not doing it yet. The country is still emotionally committed to being green. China is building large manufacturing products, cars, e.g., that can be modularized to fit the U.S. market (different powertrain, e.g.). We have bet our future on green (as we bet on TARP). The fiscal situation is a big drag on the U.S. economy. The U.S. is seen as a repeat of the Japan of the 1990s. Some spinoff technologies from green investment do catch on. Interest rates are fairly high in the



UNCLASSIFIED

U.S. (partly to cover inflation from printing money).

Eco-tourism has thrived as a niche specialty in the U.S., and an upside of onerous green regulation.

U.S. Political Climate *(global opinion of U.S.; relative Federal-State power)*

The political will to aggressively pursue a green-based economy remains, though it is flagging. The political spectrum became Red, Blue, and Green. Then consensus support for “green” crossed traditional party, regional and philosophical lines. The green movement became so implicitly embraced that, like most successful movements and revolutions, it seeped into the fabric of U.S. life and was accepted as a fundamental influencer in business and politics.

Now both political parties have vested interest in continuation of green investment. However, anti-green sentiment is rising into a backlash. Some political figures are beginning to distance themselves from strong environmental positions.

“Couldn’t have happened to a nicer guy” is the attitude about the U.S. among other countries. They don’t think about us much anymore – we are seen as past our prime. There is an emerging debate about the entrenched green movement and missed opportunities. Anti-immigration feeling is coming back as economic opportunity has declined. Sentiment on states’ rights has re-emerged along with the backlash against big federal government. People are fighting over a smaller pie. (Intergenerational choices – extraordinary care to extend life is passed up; grandparents doing it for the kids.)

U.S. Fiscal Status

Baby boom retirements, entitlements are still a drag on the economy. The elderly have suffered as retirement age has risen and benefits have been cut to keep the economy on a viable footing. We have raised some taxes (congestion fees, gas taxes, energy consumption taxes), we’ve converted to fee-for-service (where government – federal, state, or local – is squeezed), we’ve incentivized green investment and development, and raised the retirement age. There is a lot of pressure on federal government discretionary spending. The same horizontal percentage cuts are applied across government to allow spending on green technologies and infrastructure. Government policy keeps the momentum going toward green, while the rest of world stays on conventional energy. Some say “the green tech bubble has burst.” We haven’t invested as much in soft infrastructure (education, etc.), as we have in hard green infrastructure.

The U.S. Navy is increasingly engaged in new inshore and disaster response missions, and support to civil authorities.

States that generate a surplus of energy through sustainable means are reaping huge revenue receipts. The federal coffers are collecting a share from use of inter-regional transmission lines.

U.S. Social Climate *(including*

There are winners and losers in this society. Those who were in the right place with the right technologies and government connections benefited. Those who were not

This scenario is part of a set of five scenarios, and does not represent a U.S. Coast Guard forecast of the future in any way. This is only a hypothetical environment for developing and testing strategic concepts.



UNCLASSIFIED

family; wellness; levels of equality across races, ethnicities, and genders; adoption and reactions to technology innovations)

have fallen behind. “You made our bed, and now I have to sleep in it?”

Everyday American life is not all harsh, however. Many American households are moving to a more traditional, family-focused, community-focused lifestyle. People are redefining success. Big McMansions have been turned into McCondos. There are more multigenerational homes. Tax benefits support caring for parents to compensate for cuts in elderly medical and nursing home benefits. Social and geographical mobility has dropped drastically. But IT makes distance work more possible. People are more invested in local communities.

People are both drawn to this more traditional, slow-paced approach and driven to it. The millennial generation has gotten fed up with the disconnected “virtual” life; yet it has allowed their social networks to be more far-flung, connections to distant family to be maintained, and it has leveraged the ability to monitor elderly relatives.

There is a dystopian aspect to this – the government-subsidized boarding house with 500 people in it, for people who cannot live in a multigenerational home.

There is no big shift to urban living, but people have moved inward to inner-ring suburbs. There is more mass transit, a lower carbon footprint, people are moving in from the exurbs. Energy costs are high in the U.S. (due to taxes on petroleum-based energy). There has been a resurgence of the mainstream religions accompanying hard times. Disasters have tended to push people together.

Status of Entitlement Programs

No grand bargain on entitlements for the Baby Boom; death by a thousand cuts. The retirement age is raised, benefits cut - nibbled away, but still there. We are still paying for the pig in the python. Social Security has been ratcheted back towards what FDR intended. It is means-tested, and it has cut off ancillary benefits that had been added to it over the decades. The retirement age has been raised to 72. Unemployment benefits have been whittled away. There is mandatory workfare. We have not eliminated any entire programs, but have trimmed many, and some severely – there are still many man-hours and people needed to manage programs. Benefits vary across the states.

Transportation Infrastructure (offshore, EEZ)

the transportation infrastructure picture is mixed.

The U.S. began to replace its aging infrastructure with a new climate-hardened infrastructure designed to be as carbon-neutral and resilient against sea-level rise and heavy weather as possible. These changes to legacy designs were more expensive to build and operate. Combined with a weak economy and behind-schedule deferred maintenance, the network of U.S. transportation infrastructure is more commonly than not an image of decay, with sporadic pictures of state-of-the-art green facilities.

New green building codes cause some facilities not to be rebuilt due to cost.

There is an increase in use of short-sea shipping, offshore lightering, and hub-and-spoke distribution design due to environmental concerns, regulation, and tax breaks.

The U.S. has optimized one part of the intermodal system (resilient green coastal



UNCLASSIFIED

facilities), leaving the system as a whole suboptimal. There are many traffic tie-ups, work-arounds, infrastructure haves and have-nots.

Taxes are applied on people who want to drive into city centers.

Canada

Canada follows the U.S. to a lesser extent in green development, but since they have huge resources, they follow a two-prong approach and promote sustainable development of resources (oil, minerals, hydroelectric power, water, the Arctic).

Mexico

Mexico is struggling to meet the environmental standards of the U.S. for integration with U.S. economy. Subsectors of Mexican economy are well integrated with the U.S., but overall, the effect has been bad on the Mexican economy.

There is a lot of pressure on the borders due to lack of opportunity in Mexico. The drug trade is on the rise due to stumbles of the U.S. economy.

**Central America
& the Caribbean**

The Caribbean was battered by frequent storms early on. As the weather resumed more normal patterns, the slower growth in the U.S. hurt the tourist trade, and more and more focus has shifted to attracting European and Asian tourists.

Drug trafficking has continued unabated but illegal immigration flows have slowed due to lack of funds.

Ecotourism is a big business. Cuba, Costa Rica, Panama, and Nicaragua are booming eco-tourism sites. Green cruise ships become commonplace.

Central America and Caribbean become (low-cost, low-environmental-regulation) transit hubs for freight, etc.

South America

Brazil has expanded offshore oil and is supplying much of U.S. needs, displacing some of the OPEC nations, as well as supplying Europe. Brazil's development is still impressive, but has slowed a bit from the go-go times of the early 2000s.

Venezuela's oil exports to U.S. have dropped, harming development.

The region as a whole is having a hard time achieving a globally competitive economic model because of lack of political stability, lack of investment in soft infrastructure (rule of law, education, etc.). But Asian countries do invest in Latin America, keeping it economically viable.

Europe
(including Russia)

The EU is doing well relative to the U.S., not having invested nearly as much in the green area as the U.S. (They joined the U.S. in the green movement, but did not jump into the "American green bubble," as the more cynical among them call it, the way the U.S. did.) They have a broader economic and industrial portfolio than the U.S.

Turkey is in the EU, which strengthens Europe's economic and political power position.



UNCLASSIFIED

NATO treaty still exists, but the organization is skeleton at best. U.S. troops levels in Europe represent only a superficial presence.

Russia is suffering from relatively low oil prices, but there is no significant movement toward alternative energy sources outside of the U.S. The Northern Sea Route is impeded by ice – Russia bet on that, and high oil prices, and lost. There is an internal ethnic issue going on, but it is manageable so far. Some ethnic cleansing is taking place to maintain ethnic Russian supremacy. Russia is a marginalized global actor. It has turned inward; oil and gas revenues keep it going, but just barely. There is a lot of outmigration to China.

China

Authoritarian state-run capitalism continues to work. There are no big bumps in the road for them; no military rivalry with India or other Asian states.

China has continued to grow rapidly. Pollution, which reached a critical point in the late teens, has finally begun to abate, partly with the help of technology developed in the U.S. (and, some would say, stolen by the Chinese).

There are many interests in Africa, Latin America, Middle East. The PLA Navy has been built up a bit to protect sea lanes. China takes the long view on Taiwan, increasing investment and other links, waiting patiently for Taiwan to fall into their hands.

China has become a target of terrorism to some extent, centered in Uighur Muslim minority population. China takes over some of the Middle Eastern stabilization work from the U.S., as its dependence on petroleum increases.

India

India is booming. A middle class has fully emerged.

The Indian Navy patrols the Indian Ocean more now that the U.S. Navy's presence has receded a bit.

There is a complementarity between Chinese and Indian economic models that keeps them from harsh competition. Chinese steadiness of government investment and ability to make huge large-scale moves vs. Indian political gridlock; Indian educational superiority and entrepreneurial creativity vs. Chinese rote learning. Inter-Asian trade is huge.

Northern Asia

North Korea has a coup; the new pro-Chinese regime moderates its *modus operandi*, and there is no further talk of reunification. Still some (but fewer) American troops remain in South Korea.

Japan increases its economic trade with and investment in China. Japanese automakers alter their environmental specs to continue being the largest automaker in the U.S.

The U.S. is gone from Okinawa. The security temperature has declined markedly in North Asia. U.S.-Japanese mutual defense treaties are still in place, but we don't run



UNCLASSIFIED

joint exercises anymore.

Southeast Asia

Southeast Asia was hit by bad weather (typhoons, altered monsoons) early, but are now back to something like normal by end state. The Ring of Fire has also been active, with volcanoes and typhoons.

Economically, the region is booming with India and China investing and trading. Australian extraction industries and agriculture benefit from massive growth. Australia economically is much more aligned with Asia than with the U.S. or Europe. Though they have substantive ecological challenges of their own, Australia is sympathetic and supportive of environmental causes to the extent that their trade relations are not hindered.

Africa

Oil prices are lower, hurting Nigeria and eastern African oil exporters, but helping importing countries.

Asian investment has spurred a lot of development and some low-end manufacturing. South Africa is one hub of this development; Ghana is another. Trade is picking up across the continent, and rule of law is improved in most places.

U.S. government picked some struggling countries early on for investment in solar and other green infrastructure, propelling them ahead of their neighbors and producing pockets of goodwill toward the U.S.

A lot of smuggling is going on between well-off and less-well-off areas of Africa. Piracy, though still around, is not a huge issue.

Population growth is huge, straining resources, environment, and development. There is huge migration from less developed to more developed parts of Africa, and huge urbanization.

Middle East

Relatively low oil prices and a population explosion have paradoxically caused political and economic reform in the Middle East. U.S. overall consumption of oil is down, and Brazil is fulfilling more U.S. needs than ever (expanded off-shore oil). Chinese and Indian demands have maintained Middle Eastern oil economies. However, the ambiguous economic case for a gradual global transition to renewable energy forms has prompted improvements in political transparency and social freedoms in previously undemocratic Middle Eastern regimes such as Saudi Arabia in efforts to attract foreign talent and investment and diversify its economy.

India and China now have a huge stake in the Middle East. The U.S. has started to pull back.

Turkey is much stronger, a key interface between Europe and the Muslim world.

Iranian regime continues in place, in name, anyway, with closer ties to China and continued economic development. Iran has a nuclear arsenal similar in size to Pakistan's. U.S. sanctions are ineffective.



UNCLASSIFIED

Israel and Palestine remain a problem, but are not in crisis.

Polar Regions

The curve of melting ice has leveled off, and multi-year ice is gradually increasing after historic low ice years. The polar bear and walrus populations are rebounding.

Planned and active resource extraction in the Arctic is retreating. While the Russians – and to a lesser extent the Canadians – allowed massive Arctic investment, the U.S. made development in the U.S. Arctic EEZ prohibitively expensive through strict environmental regulations.

Nothing has really changed in Antarctica; almost all ice shelves are stable. There is strong agreement to continue the Antarctic Treaty.
