Climate change and the global order
by Ronald J. Bee

A man rides riding a tricycle with plastic bottles to be recycled on a day of heavy pollution on December 1, 2015, in Beijing, China. China’s capital and many cities in the northern part of the country recorded the worst smog of the year with air quality devices in some areas unable to read such high levels of pollutants. (UNITAO ZHANG/GETTY IMAGES)

In the August 2019 Special Report of Scientific American, the lead story “Sea Change: The Contest to Control the Fast-Melting Arctic,” describes how nation-states have positioned themselves to exploit resources in the rapidly thawing north. Twelve years earlier on August 2, 2007, three Russian explorers descended 4,300 meters in a small submarine at the North Pole to claim new territory and planted a titanium national flag. When the submersible surfaced and the Russians boarded their nuclear-powered ice-breaker, President Vladimir Putin phoned the ship to offer his congratulations. While setting the flag amounted to a political stunt to bolster Russian morale during a worldwide recession, it also signaled a new era of competition between states more focused on acquiring national resources than cooperating to counter the international effects of climate change.

Since 2006, Russia and three additional Arctic coastal states—Norway, Denmark (because it owns Greenland), and Canada—have all filed overlapping claims to the seabed floor with the international Commission on the Limits of the Continental Shelf (CLCS). The CLCS facilitates the implementation of the UN Convention on the Law of the Sea, which establishes the outer limits of the continental shelf beyond 200 miles. The U.S., the fifth nation with arctic coastline, in Alaska, will present its pitch in 2022, expected to overlie

RONALD J. BEE is the Director of the Hansen Leadership Institute at the University of San Diego. He lectures in international relations at the Oxford Study Abroad Program in Oxford, UK, and has served as the co-director of the University of California Roger Revelle Program on Climate Science and Policy
Canada’s claims. On August 20, 2019, President Donald Trump cancelled a trip to Denmark because Danish Prime Minister Mette Frederiksen refused to discuss selling Greenland to the U.S.

As President Putin expands military bases across Russia’s long Arctic shoreline, the North Atlantic Treaty Organization (NATO) has responded by reinforcing its northern militaries, fearing that Russia might just take the seabed like it annexed Crimea, Ukraine, in 2014. In May 2019, U.S. Secretary of State Mike Pompeo, at an Arctic Council meeting in Finland, argued that Russia has acted aggressively and that China should be watched carefully, too, since it has helped finance Russia’s natural gas storage tanks in the Arctic. The meeting ended without a declaration of cooperation for the first time in 23 years, casting a black cloud over future boundary negotiations.

In a special issue of National Geographic, The Arctic is Heating Up, the magazine juxtaposes a “new cold war—as the ice melts, old rivals scramble for position” vs. “the carbon threat—thawing tundra will speed up global warming.” In 2018, 879 unique ships sailed into the Arctic sea, nearly a 60% increase from 2012. The thawing of the permafrost will expose vast pools of methane, the article argues, which “could pump billions of additional tons of methane and carbon dioxide into the atmosphere every year—a threat that has yet to be fully accounted for in climate models.”

Beyond geopolitics and the big Arctic thaw, what’s at stake economically? In 2008, a U.S. Geological Survey study opined that the thick sediment of the Arctic may hold 30% of the world’s undiscovered natural gas, 13% of its oil, valuable iron deposits and rare earth minerals. With the melting ice of the Arctic Ocean, shipping lanes could open up to tap into and exploit these resources.

On a global scale, the Arctic may represent a “canary in a coal mine” for the erosion of the global order’s attempts to contain climate change. Have national politics and economic nationalism poisoned international agreements to reduce global temperatures? Climate accords such as the Rio Climate Convention of 1992 and the Paris Climate Agreement of 2015 may have become as imperiled as the coastal populations threatened by the rising seas. Foreign Policy has argued that “Rising Tides Will Sink Global Order” and that “global warming will produce national extinctions and international insurgencies—and change everything you think you know about foreign policy.”

Are we really destined for such climate-induced chaos? A raucous December 2018 Conference of the Parties (COP) meeting in Katowice, Poland, says yes, we are, at least politically. Nations gathered to advance implementation of the Paris Climate Agreement, a task that did not happen. Why? Because of at least three reasons:

1. Oil and gas producers—the United States, Saudi Arabia, Kuwait and Russia—blocked recognition of the apocalyptic conclusions of the UN Intergovernmental Panel on Climate Change (IPCC) report which concluded that states must take “unprecedented” action to contain global greenhouse gas emissions. If emissions do not plateau within 12 years, scientists predict an increase of 1.5 degree Celsius in temperature, bringing with it catastrophic sea-level rise and other devastating effects;

2. Brazil, scheduled to host the next annual COP meeting, withdrew its sponsorship. Newly elected President Jair Bolsonaro, a climate change skeptic, and nick-named by some as “Trump of the Tropics,” cancelled the summit. His foreign minister, Ernesto Araujo, went so far as to call the movement to reduce global warming a “plot by Marxists to stifle the economic growth of capitalist democracies while lifting China”;

3. Poland and the U.S. went so far as to reaffirm their commitments to use coal to fuel their economies. China, the world’s third largest holder of coal deposits after the U.S. and Russia, under its International Belt and Road Initiative (BRI), has begun building more than 300 coal plants in places like Turkey, Vietnam, Indonesia, Bangladesh, Pakistan, Egypt, and the Philippines.

In the U.S., the polarization of domestic politics in an election year has clouded the climate debate. On February 7, 2019, Democratic Representative Alexandria Ocasio-Cortez (D-NY) and Senator Ed Markey (D-MA) introduced House Resolution 109 (HR 109), calling for the Federal Government to create a “Green New Deal” (GND) to overhaul if not eliminate the fossil fuel economy. The GND has two separate proposals: the “Green” plan on climate and energy aims to replace the energy grid with renewable fuels, a zero emissions transportation system, and retrofit all U.S. buildings to become non-carbon energy efficient; the “New Deal” plan calls for an extensive set of federal social programs including universal health coverage, a federally guaranteed jobs program, guaranteed housing, food security, and free college tuition. The New Deal portion also pays homage President Franklin D. Roosevelt’s depression-era program (1933–36) that invested heavily in public works projects, financial reforms, and regulations.

Regarding climate, HR 109 goes as far as to state, “A changing climate is causing sea levels to rise and an increase in wildfires, severe storms, droughts, and other extreme weather events that threaten human life, healthy communities, and critical infrastructure.” It argues further that “human activity is the dominant cause of climate change in the past century,” and that the United States, having emitted 20% of global greenhouse emissions through 2014, has a duty to “take a leading role in reducing emissions through economic transformation.”

The Trump administration has decried the GND, while endorsing the “fracking revolution” that has reestablished the U.S. as the leader in global oil and gas production, created more jobs,
and reenergized the American economy. Economic growth and more jobs, the president's argument goes, neither comes from federal programs nor handouts; it comes from the private sector and market-driven forces. He further asserts that the exorbitant cost of a GND would bankrupt the federal government. The American Action Forum, for example, estimated the cost of GND between 53 and 92 trillion dollars, without adding the cost of free college tuition.

The issue of climate change has become mired in an American clash of fears over the extremes of "socialism" vs. "capitalism." For Trump supporters, green new dealers just want to tax and spend, stifle economic growth, erode the American way of life, and end the lowest unemployment rate since the 1960s. The president would argue the GND represents more of a socialist movement masquerading as science. For the green new dealers, the president's energy policies represents yet another capitalist chapter where the wealthy keep getting wealthier while the backs of the poor while pollution destroys the planet. They would rebalance the scales of environmental and social degradation by having the U.S. overhaul its economic system, dump fossil fuels, and redistribute wealth.

One should not underestimate that such extreme political claims aim more to shake up the political climate and attract voters in the 2020 elections than to conduct an honest assessment of the longer-term consequences of global environmental degradation. In the process, Congress has become a stagnant pool passing very few laws. House democrats have spent more time on impeachment proceedings than on funding the federal government.

Such "politics as usual" at local and national levels has direct consequences for the conduct of foreign relations. When economic national interests line up against UN warnings about climate, the global order usually loses to shorter-term political-economic imperatives. Can national economies accommodate a diversity of renewable and non-renewable energy supplies? Or should they move forward solely with the fossil fuels that continue producing wealth and economic development? How long can the earth accommodate rising CO2 levels?

On September 23, 2019, UN Secretary General Antonio Guterees cast his vote by opening a "Climate Action Summit" to declare an international climate emergency. A summit document proclaimed, "Global emissions are reaching record levels and show no signs of peaking. The last four years were the hottest on record, and winter temperatures in the Arctic have risen by 3 degrees Celsius since 1990. Sea levels are rising, coral reefs are dying, and we are starting to see the life-threatening impact of climate change on health, through air pollution, heat waves, and risks to food security." Secretary General Guterees called on all leaders to arrive with "concrete, realistic plans" to reduce greenhouse gas emissions by 45% over the next decade and to achieve net-zero emissions by 2050.

Greta Thunberg, a 16-year-old Swedish climate activist, addressed the summit, chiding leaders to act: "You have stolen my dreams and my childhood with your empty words...Entire ecosystems are collapsing. We are in the beginning of a mass extinction and all you can talk about is money and fairy tales of eternal economic growth. How dare you!"

The climate summit targets have their origins in the 2015 Paris Agreement, which calls for global temperature target of below 2 degrees Celsius warming above preindustrial conditions. The accord requires each state commit to a "nationally determined contribution" (NDC) to achieve this goal. Parties must file annual progress reports on their pledged emission reductions—which so far have not been met.

On June 1, 2017, President Donald Trump announced his decision to withdraw from the Obama-era agreement, citing it "disadvantages the United States to the exclusive benefit of other countries, leaving American workers—who I love—and taxpayers to absorb the cost in terms of lost jobs, lower wages, shuttered factories, and vastly diminished economic production." Noting that China and India did not have to make reductions, the president claimed he would renegotiate the deal at a later date. That will have to wait until after the 2020 election. Under Article 28 of the Paris Climate Agreement, the U.S. cannot withdraw from the accord before November 4, 2020—one day after Americans go to the polls.
The science: a large-scale geophysical experiment

In 1957, Dr. Roger Revelle, Director of the Scripps Institution of Oceanography (SIO), and Dr. Hans Seuss at UC San Diego, published a study in the journal Tellus that suggested humankind, since the industrial age (1760–1840), had been transferring vast stores of carbon from the earth to the atmosphere via the burning of coal, oil, and gas. Our reliance on “fossil fuels” amounted to a “large-scale geophysical experiment of a kind that could not have happened in the past nor be reproduced in the future. Within a few centuries we are returning to the atmosphere and oceans the concentrated organic carbon stored in sedimentary rocks over hundreds of millions of years.”

This seminal article on climate change went on to conclude that “This experiment, if adequately documented, may yield a far-reaching insight into the processes determining weather and climate.” To document carbon’s natural processes and everyday human influences on climate, however, scientists would need to measure carbon dioxide (CO2)—the main carbon by-product of burning fossil fuels—in the atmosphere. Dr. Revelle worked with a colleague at SIO, Dr. Charles David Keeling, since 1956 to measure CO2 in the atmosphere in Mauna Loa Observatory, Hawaii. They chose Mauna Loa as a monitoring site because of its distance from major continents to calculate global averages, and its altitude above the inversion layer where most local effects exist.

Keeling ran the Scripps CO2 program until his death in 2005. Keeling’s son Ralph F. Keeling now runs the program at SIO with the National Oceanic and Atmospheric Association (NOAA). NOAA focuses on tracking the conditions of the oceans, major waterways and the atmosphere. The Keeling Curve, as now known, represents the longest continuous measurement of CO2 in the atmosphere. The jagged saw-tooth nature of the curve simply indicates natural growth cycles of plants (spring and fall). Plants grow via photosynthesis in the spring by absorbing CO2 from the atmosphere and levels then decline. Then plants die or leaves fall and decompose in the autumn releasing CO2 back into the atmosphere and levels then rise. The overall trend in CO2 increases also mirrors median temperature rise, thus raising the question to what degree have human activities on earth also contributed to rising CO2 and temperature levels.

The Global Change Research Act of 1990 mandated NOAA to conduct a U.S. Global Change Research Program (USGCRP) and to deliver a national assessment every four years to analyze the current trends in global change on a U.S. local, state, and national basis. In their Fourth National Climate Assessment, they concluded “Coastal communities and the ecosystems that support them are increasingly threatened by the impacts of climate change. Without significant reductions in global greenhouse gas emissions and regional adaptation measures, many coastal regions will be transformed by the later part of this century…many communities are expected to suffer financial impacts as chronic high-tide flooding leads to higher costs and lower property values.”

Globally, according to Jeff Goodell, a contributing editor at Rolling Stone and author of 2017 book The Water Will Come: Rising Seas, Sinking Cities, and the Remaking of the Civilized World, “about 145 million people live three feet or less above the current sea level. As the waters rise, millions of these people will be displaced, many of them in poor countries, creating generations of climate refugees that will make today’s Syrian refugee crisis look like a high school drama production.”

The term “global warming” first appeared in the 1975 paper in Science by Wallace Broecker entitled, “Climate Change: Are we on the Brink of Pronounced Global Warming?” Broecker asserted that by early in the 21st century, we “will have driven the mean planetary temperature beyond the limits experienced during the last 1000 years.” In 1979 a National Academy of Science Study first use the term “climate changes” to describe what will happen if carbon dioxide continues to increase in the atmosphere.

Today, in common parlance, on internet sites, and the news media often use the terms global warming and climate change interchangeably. Scientists prefer the term climate change. According to NASA, global warming means the increase in the earth’s average temperature due to rising levels of greenhouse gases. Climate change refers to a long-term change in the earth’s climate, or of a particular region on earth. Put another way, global warming indicates surface temperature increases, and climate change includes global warming and everything else that affects climate due to the increase of greenhouse gases.

Greenhouse gases trap heat in the atmosphere. They include carbon dioxide (82%), methane (10%), nitrous oxide (6%) and fluorinated gases (3%).

The global climate has always changed from pre-human history to the present day, as has the earth’s seasonal
carbon cycle that shuffles between the land, oceans, and sky. We had an ice age that began 2.4 million years ago and ended 11,500 thousand years ago. However, with our human population now approaching 8 billion people and growing, our continued reliance on the combustion engine in cars and trucks, use of fossil fuels to heat and cool buildings, keep the lights on, run factories let alone our myriad appliances, our cumulative “carbon footprint” logically has become much heavier.

Elizabeth Kolbert, award-winning science writer for the New Yorker, and author of The Sixth Extinction: An Unnatural History, has noted “Since the start of the industrial revolution, humans have burned through enough fossil fuels—coal, oil and natural gas—to add some 365 billion metric tons of carbon to the atmosphere. Deforestation has contributed another 180 billion tons. Each year we throw up another 9 billion tons or so, and amount that has been increasing by as much as six percent annually. As a result of all this, the concentration of carbon dioxide in the air today—a little over 400 parts per million—is higher than at any other point in the last eight hundred thousand years.”

Jeff Goodell explained the difficulty for humans to psychologically confront something that has not yet happened: “We have evolved to defend ourselves from a guy with a knife or an animal with big teeth, but we are not wired to make decisions about barely perceptible threats that gradually accelerate over time. We’re not so different from the proverbial frog that boils to death in a pot of slowly warming water.”

Not everyone, however, believes in eventual climate doomsday for frogs in pots or humans in sports utility vehicles. John Coleman has countered, “As the founder of the Weather Channel and a 30-year veteran TV news weatherman, I know a great deal about this topic. We meteorologists are well aware of how limited our ability is to predict the weather. Our predictions become dramatically less reliable as they extend out into the future. When we try to predict just a few weeks into the future our predictions become increasingly inaccurate. Yet the “climate change” establishment that now dominates the UN bureaucracy and our own government science establishment claims that they can predict the temperature of the Earth decades into the future. Their global warming scare is not driven by science; it is now being driven by politics.”

By 1988, the growing body of scientific data on climate change led to the creation of the Intergovernmental Panel on Climate Change (IPCC) by the World Meteorological Organization (WMO) and the United Nations Environmental Program (UNEP). The IPCC has assessed peer-reviewed and non-peer reviewed research published about climate change with an objective, scientifically based mandate to evaluate the natural, political and economic risks of increasing greenhouse gases. Its reports heavily influenced the passing of the Rio Climate Convention of

Paris Agreement of 2015
The main elements of the agreement, signed on December 12, 2015 in Paris, France, include:

- 195 countries signed a pledge to keep national temperature rise below 2 degrees Celsius (3.6 degrees Fahrenheit), and if possible, below 1.5 degrees Celsius (2.7 degrees Fahrenheit);
- All countries agree to reduce global greenhouse gas emissions to net zero as soon as possible in the second half of the century;
- The U.S. pledged to reduce global greenhouse gas emissions by 26% to 28% below 2005 levels by 2025;
- India aims to install 150 gigawatts of renewable energy by 2022;
- China will peak its CO2 emissions by 2030;
- Developed countries will provide $100 billion in climate finance by 2020;
- Countries should raise the ambition of their initial commitments over time to make sure we meet the goals of the Paris Agreement; and
- The Paris Agreement entered into force on November 4, 2016.

Secretary General António Guterres speaks at the Opening Ceremony of the 2019 Climate Action Summit. (ARIANA LINDQUIST/UN PHOTO)
Global Order Climate Talks 1992–2019

1992 THE RIO EARTH SUMMIT creates the UN Framework Convention on Climate Change (UNFCCC) which aims to prevent "dangerous" interference in the climate system. The UNFCCC does not legally bind signatories to reduce emissions but requires meetings called Conference of the Parties (COP) to happen. As of 2019, 197 countries have ratified the treaty, including the U.S.

1995 FIRST UNFCCC MEETING takes place in Berlin (COP1), which creates the "Berlin Mandate" that aims to set legally binding mandates and timetables upon signatories to reduce greenhouse gas emissions. The U.S. pushes back against these requirements.

1997 KYOTO PROTOCOL creates the first legally-binding climate treaty in Japan (COP3). It calls for reducing emissions to 5% below 1990 levels and sets up a monitoring system to track progress. The Protocol also creates a carbon market for countries to trade emissions and support sustainable development, a system known as "cap and trade." President Clinton signed the Kyoto Protocol in 1997 but the U.S. Senate refused to ratify it, citing potential damage to the U.S. economy.

2001 U.S. WITHDRAWS FROM TALKS ON KYOTO In March, George W. Bush ends U.S. negotiations on the Kyoto Protocol claiming the deal is not in America's economic interest.

2005 KYOTO ENTERS INTO EFFECT, notably without the U.S., the largest carbon emitter. It does cover an estimated 55% of global emissions.

2007 TALKS ON KYOTO 2.0 take place in Bali, Indonesia (COP13). An IPCC report claims that global warming is "most likely" caused by human activity.

2009 COPENHAGEN DISAPPOINTMENT in the Danish capital (COP15), where the parties only agree to a non-binding document. This Copenhagen Accord agrees that global temperatures should not increase by 2 degrees Celsius above pre-industrial levels.

2010 CANCUN (COP16) SETS TEMPERATURE TARGET at no more warming than 2 degrees Celsius, and establishes a $100 billion climate fund to assist developing countries to mitigate and adapt to climate change. As of 2019, countries have only submitted $3 billion to the fund.

2011 DURBAN, SOUTH AFRICA (COP17) Parties agree to draft a binding agreement by 2015 that will apply to both developed and developing countries.

2012 NO DEAL AT DOHA (COP18) to extend the Kyoto Protocol to 2020. The U.S. never signed on, Canada withdraws, and Japan and Russia decide to accept no new commitments. Those who remain account for only 15% of global emissions.

2015 PARIS (COP 21) CLIMATE AGREEMENT REACHED which requires all countries—developed and developing—to set emissions reductions goals. On April 1, 2016, the U.S. and China issue a joint statement that they would sign the Paris Agreement, doing so on April 22. The agreement goes into force on November 4, 2016, four days before the American election.

2017 On June 1, 2017, President Trump announces the U.S. withdrawal from the agreement citing its negative effects on the economy.

2018 RULES FOR PARIS AGREEMENT DECIDED in Katowice, Poland (COP24). A new IPCC report warns of devastating consequences including sea rise, stronger storms, and heatwaves by 2050. The meeting turns into a free-for-all with coal, oil, and gas-producing countries negating any progress.

2019 UN SECRETARY-GENERAL CALLS CLIMATE ACTION SUMMIT in New York in September. Antonio Guterres urges leaders to cut emissions by 40% by 2030 and reach carbon neutrality by 2050. On September 24, President Trump addresses the UN and asserts “The future does not belong to globalists, it belongs to patriots.”
Making Coal, Oil and Gas Great Again

On November 8, 2016, the election of Donald J. Trump brought with it a domestic political promise to cancel the Paris Climate Agreement in favor of reinvigorating the coal, oil, and gas sectors to create more jobs, U.S. energy independence, and American-based wealth.

Coal: The top five coal-producing states are Wyoming (40.2%), West Virginia (12.6%), Pennsylvania (6.6%), Illinois (6.6%), and Kentucky (5.2%). Secretary Clinton only won Illinois out of these five states. In her book about the campaign, What Happened, Clinton wrote that her biggest regret involved saying she would “put coal miners out of business.”

Oil: In 2018, about 68% of crude oil production came from five states: Texas (40.5%), North Dakota (11.5%), New Mexico (6.3%), Oklahoma (5%), and Alaska (4.5%). Of these five states, Mrs. Clinton only won New Mexico.

Gas: The top five state producers of natural gas are: Texas (23.7%), Pennsylvania (19%), Oklahoma (8.7%), Louisiana (7.4%), Ohio (6.2%) and Colorado (5.9%). Mrs. Clinton only won the state of Colorado on this list. According to the American Petroleum Institute (API), “The natural gas and oil industry is a critical part of the U.S. economy. In 2015, these energy resources supported 10.3 million jobs and contributed more than $1.3 trillion to the U.S. economy.” A July 2017 API Factsheet argued “Research shows that for every oil and gas job, an additional 2.7 jobs are supported elsewhere in the economy. These jobs make up 5.6% of the nation’s total employment.”

Fracking, also known as hydraulic fracturing, has been used as a technique to drill for oil for some 65 years. Today, the combination of hydraulic fracturing and new horizontal drilling technology is responsible for the surge in U.S. oil and natural gas production. Once an oil well is drilled, small perforations are made in the horizontal portion of the well pipe, through which a mix of 90% water, 9.5% sand and 0.5% additives is pumped at high pressure to create micro-fractures in the rock. Fracking permits the U.S. to tap vast oil and gas reserves previously locked away in shale and other rock formations. 95% of natural gas wells drilled in the next decade will require hydraulic fracturing.

In 2016, out of the top 12 state producers of coal, oil, and natural gas, Donald Trump won 75% of them. Since energy policy plays to his strong suit domestically, we can expect the 2020 campaign—no matter the Democratic candidate—to embrace keeping coal, oil, and natural gas production great. Knowing the stakes, leading coal, oil, and gas CEOs have contributed millions of dollars to Donald Trump’s 2020 reelection campaign.

The automobile industry will also play a role in November 2020. As of 2017, the American people drove 272.48 million vehicles. These include cars, motorcycles, trucks, buses and other vehicles. About 92% of American transportation fuel for vehicles now comes from fossil fuels. The automobile industry creates 9.9 million jobs coast-to-coast, or about 5.1% of American employment. According to the Auto Alliance, half of the companies on the Dow Jones industrial average depend on autos for revenue. Any disruption of the current automobile and parts industries, such as would happen under a Green New Deal, would have immediate effects on employment, manufacturing, and the American stock market. As of August 2019, stocks have gained 29% during the Trump presidency.

President Trump’s appointment of Exxon-Mobil CEO Rex Tillerson as Secretary of State (February 21, 2017, to March 31, 2018) clarified the new administration’s energy policy. Out of the gate, Tillerson received criticism for his leading a fossil fuels corporation that funded climate change skeptic groups, and for his ties with Russia’s state-owned Rosneft corporation that facilitates oil and gas drilling in the Arctic Ocean and Black Sea. While acknowledging “the risks of climate change are real and require serious action,” Tillerson also had stated that the potential solutions amount to “an engineering problem.”
Secretary of State Tillerson’s replacement, Mike Pompeo, has picked up the pro-U.S. energy development baton to promote U.S. interests abroad. On March 12, 2019, in a speech to the U.S. oil industry in Houston, Secretary Pompeo asserted that America’s newfound shale oil and natural gas abundance “strengthens our hand in foreign policy.” In calling upon oil producers to support Trump’s foreign policy against certain bad actors that produce oil, Pompeo noted the use of sanctions against Venezuela with the intent to hasten the demise of Nicolas Maduro, Iran for conducting state-sponsored terrorism in the Middle East, and Russia for its annexation of the Crimea and support of Russian separatists in Eastern Ukraine.

On September 10, 2019, the president refilled the UN ambassador slot with Kelly Craft. Ambassador Craft hails from Kentucky, and is married to Joe Craft, a billionaire coal-mining executive for Alliance Research Partners, the third largest coal producer in the Eastern U.S. The Crafts donated to the 2016 Trump campaign. Ambassador Craft will need to preside over the UN’s increasing concern over climate change, criticism of the U.S. government’s commitment to a fossil fuel economy, and, if President Trump gets re-elected, the U.S. withdrawal from the Paris Climate Agreement.

U.S. “energy dominance” backed by sanctions abroad and strong economic growth at home has become the operating Trump Doctrine for U.S. foreign relations. As such, any discussion of climate change that negates or reduces fossil fuel production logically undermines that strategy. Under this approach, the thawing of the Arctic just provides another opportunity to bolster U.S. energy independence and supremacy.

The Global Order: How Global, How Orderly?

Throughout history, world orders have come and gone with economic, political, and military change. Most global orders emerged from past catastrophic wars—not the possibility of catastrophic climate change that might occur 12–30 years in the future. Some milestones.

The Treaty of Westphalia (1648): A series of treaties that ends The Thirty Years War, a religious conflict fought between Catholics and Protestants in Central Europe’s Holy Roman Empire between 1618-48. Most political scientists say this treaty lays the foundations for the modern-day sovereign nation-state. Exhausted by war, pestilence, and economic destruction, the warring parties agreed to fix boundaries, and after that, inhabitants of a given country become subject to the laws of their respective state authority. Today in the world we have 195 nation-state authorities—also known as countries.

The Concert of Europe (1815): A system of conflict resolution that helps restore the monarchy Napoleon Bonaparte tried to overthrow in The Napoleonic Wars (1803-1815). Created at the Congress of Vienna, the Concert saw the great powers of Europe—Britain, France, Prussia, Russia, and Austria—transition from political chaos to a balanced peace that lasted for almost a hundred years. The five states maintain their power, opposed revolutionary movements, and restrained nationalism with what they called “the European balance of power.”

Bismarck’s European Alliance System (1871–1914) Germany became a modern, united country under Otto von Bismarck (1815–98) who secretly created complex alliances built on the balance of power. As Germany’s first Chancellor, he manipulated European rivalries to make Germany a world power, setting the stage for two world wars.

The League of Nations (1920–46) The brainchild of President Woodrow Wilson, the father of liberal internationalism. Wilson’s Fourteen Points, a statement of principles for peace he uses in the talks to end World War I, reflects an approach favoring self-determination, the spread of democracy, the spread of capitalism and support for collective security. The League becomes the first worldwide organization with a principle mission to maintain world peace. The U.S. Senate refuses to join the League largely because it resembles an “entangling alliance.” Wilson fails to impose his world view on the Senate and the allied powers, so the League fails to keep the peace, leading to World War II.

The United Nations (1945–now) President Franklin D. Roosevelt (FDR), former Assistant Secretary of the Navy under Wilson, revives the idea of global collective security with the United Nations (UN). Fifty nations signed the UN Charter which went into effect on October 24, 1945. The UN Security Council has five permanent members, the P-5, that hold veto power to prevent the adoption of any substantive resolution. The P-5 members: China (formerly the Republic of China), France, Russia (formerly the Soviet Union), the UK and the U.S. All five have use their veto power to protect and promote their national interests.

The Superpower Condominium (1945–91) The cold war sees two superpowers with opposing economic and political systems compete for power and influence, one communist, the USSR, and the other capitalist, the U.S. They fight in proxy wars (Korea 1950–53, Vietnam 1955–75, and Afghanistan 1979–89). They build alliances, the Warsaw Pact and the North Atlantic Treaty Organization, and nuclear arsenals. Nuclear deterrence almost fails during the Cuban Missile Crisis (October 16–28, 1962) when nuclear war became palpable. The two sides compromise, the USSR withdraws its missiles, leading to the limited test ban treaty and the nuclear nonproliferation treaty.

The New World Order (1990–2001) The fall of the Berlin Wall (November 9, 1989) marks the end of the
cold war. Not long after, Iraqi dictator Saddam Hussein invades Kuwait on August 2, 1990. On September 11, 1990, President George H.W. Bush announces to Congress that the U.S., its allies and the UN will go to war to evict Iraqi troops from Kuwait and create “A New World Order.” “The Crisis in the Persian Gulf, as grave as it is, also offers a rare opportunity to move forward toward a historic period of cooperation.”

The Global War on Terrorism (2001–now) Exactly 11 years later, on September 11, 2001, President George W. Bush faces the terrorist attacks of 9/11. With economic globalization and the blurring of state boundaries, non-state actors like Al-Qaeda present a threat to the global order of nation-states. Cooperation on counterterrorism increases. The UN authorizes Operation Enduring Freedom (October 7, 2001) against Afghanistan for harboring terrorist training sites. The American-led Operation Iraqi Freedom (March 20, 2003), however, does not receive UN approval as France and Russia threaten to use their veto.

The modern evolution of the global order has a mixed track record at achieving global consensus on matters of international security. Therefore, we should not feign surprise that larger nation states continue to view issues of climate change through the prism of their respective national interests. Looking through those lenses, international responses to past conflict have proven difficult so any attempt to prevent the future effects of global climate change requires new thinking. Compromises will need to occur between the extreme views of climate doomsday and environmental ignorance.

Can We Compromise on Climate?

Many approaches have emerged to tackle reducing the effects of climate change. No one proposal by itself will likely reduce emissions fast enough for those worried about climate catastrophe nor convince those who believe fossil fuels remain crucial to national greatness to reduce demand. Some current approaches include:

The Bottom Up Approach — In his book, The Thinking Person’s Guide to Climate Change, Robert Henson argues we must adopt first political and then technological solutions to tackle the possible negative consequences of climate change. Politically, the voluntary emissions goals set for nation-states by the Paris Agreement will be difficult to achieve. Yet other stakeholders — individuals, cities, and states — have heard the UN message and become proactive at reducing emissions.

“Smart cities” technology can help manage our environmental future. Smart cities are urban areas that use a variety of electronics, including the Internet of Things (IoT) sensors, to collect data and then manage assets, resources and services more efficiently. With 60% of the world population expected to live in cities by 2050, managing urban hubs will become key to managing emissions. In 2016, global smart city technology spending ran at $80 billion, and is expected to grow to $135 billion by 2021. A Smart Cities Council website has begun to share ideas for smart technology and data from 200 smart city projects.

Half of the 50 largest cities in the U.S. have adopted climate action plans. Twenty-three states plus the District of Columbia have adopted specific greenhouse gas reduction targets. The National Climate Assessment tracked these developments and acknowledged while adaptations and mitigations have expanded, however, “they do not yet approach the scale considered necessary to avoid substantial damages to the economy, environment, and human health over the coming decades.”

The U.S. only represents 4.29% of the world population and emits 15% of global greenhouse gases. China and India remain the largest countries in the world, each with over a billion people, with 37% of the global population. According to Forbes, China alone emits more carbon dioxide than the U.S. and Europe combined. For the bottom-up approach to work globally, it will require global adoption.

The Corporate Accountability Approach — One UK-based organization, the Carbon Disclosure Project (CDP), takes what it considers “a fresh angle to
investors of the climate implications of their fossil fuel holdings.

As Pedro Faria, Technical Director of CDP, asserts, “Climate Action is no longer defined by the direction given by policy makers—it is now a social movement commanded by both economic and ethical imperatives and supported by growing amounts of data.” This approach looks at working with—not just damning—the largest international corporate and state emitters to innovate ways to reduce the effects of climate change.

Some corporations have taken it to heart. According to the World Economic Forum, Apple’s operations now run on 100% renewables and they have committed to 100% recyclable materials along its entire supply-chain. Google has become the largest corporate buyer of renewable energy in the world.

**Market-Based Approach** — As Michael Bloomberg and Carl Pope argue in their book, *Climate of Hope*, “Enlightened beneficence is not going to solve the problem of climate change. Only when self-interest acts are also climate-friendly acts, will success be possible. In other words, reducing carbon must offer profit opportunities for us to win the battle against climate change.” They believe investors and consumers have begun looking at data more carefully for the environmental consequences before they invest and buy.

The Center for Climate and Energy Solutions believes a carbon tax strategy provides another market-based solution. “Market-based strategies help fight climate change by putting an explicit price on carbon emissions and spurring businesses to find cost-effective ways to reduce those emissions. The cost of climate impacts—such as higher sea levels, and more frequent and severe heat waves, droughts, wildfires, and downpours—are not reflected in the goods and services that emit greenhouse gases.” State and federal governments can and have also created tax incentives to install solar panels, and buy hybrid and electric cars.

Market-based approaches can work in democratic societies with liberal economic systems that welcome them and encourage innovation. Climate skeptics see a carbon tax as a regressive tax that will disadvantage the poor, stunt growth, and advantage illiberal countries that will not restrain their own coal, oil, and gas industries. Acceptance of market-based fixes may work in some countries, but on a global scale proves problematic.

**The Technological Approach** — The emergence of green technology looks to develop markets and create economies of scale for products that eliminate or reduce emissions. Green tech can include biomass, hydroelectric, geothermal, wind and solar (renewables), or cleaner coal and methane power generation with carbon dioxide capture and storage.

Nuclear power plants do not emit greenhouse gases. The United States, France, China, Russia, and South Korea have produced third generation nuclear reactors. While they have become safer, disastrous nuclear accidents with earlier generation plants at Chernobyl, Ukraine (1986) and Fukushima, Japan (2011) have doomed the chances of nuclear energy in many nations politically. France and China have no such concerns. Nuclear power is the main source of energy in France, and China hopes to produce 6% of its electricity via nuclear power by 2020.

The Nonproliferation Treaty (NPT) raises concerns about nuclear fuel from reactors getting diverted and re-
processed for nuclear weapons. Terrapower, a fourth-generation reactor company co-founded by Bill Gates, aims to fix both safety and proliferation worries. This “travelling wave reactor” breeds plutonium from uranium and then uses the plutonium as fuel, all contained with the reactor. The same fuel operates and generates electricity for decades. Earlier breeders required taking the plutonium off-site for reprocessing. China will build and operate the first of the Terrapower reactors by 2025.

Thorium reactors, another fourth-generation idea, would use thorium and uranium as the main fuel. Inside the reactor, the thorium converts to uranium-233 which fissions. The fuel lasts eight years, cannot melt down, cannot produce nuclear weapons, and is “walkaway safe” according to one of the U.S. companies, Thorcon, developing the technology. India has indicated it hopes to use thorium as its main nuclear fuel in the coming decades.

The Top-Down Approach — On September 22, 2019, the United Nations adopted a 10-year Climate Action Plan aimed at a 45% reduction in greenhouse gases and sourcing 80% of electricity from renewable energy sources by 2030. The plan incorporates nine independent tracks and workplans: mitigation, social and political drivers, industry transition, infrastructures, cities and local action, nature-based solutions, resilience and adaptation, and climate finance and carbon pricing. Now comes the hard part—inducing nation-states to cooperate to achieve these ambitious goals.

The global challenge of rising seas: politics at the water’s edge

Many environmentalists at home and abroad pin their hopes on the election of a new American President in 2020. This desire may fall flat in light of the strong U.S. economy fueled in part with many new jobs, low unemployment, and a strong stock market. Moreover, the United States, while still a key player, does not represent the entire global order, nor even one fifth of global greenhouse emissions. Nonetheless many American citizens and leaders at local and state levels have started hedging against climate change by adjusting their lifestyles to lighten their carbon footprints.

For most of modern history, protecting peace and security has dominated the global order’s agenda. Environmental issues requiring gradual lifestyle changes have been overshadowed by more immediate life and death imperatives. Deciding on who owns the Arctic, on how to adjust to rising seas, and developing new approaches and technologies to cope with climate change will require compromises both at home and abroad. Are we up to it?

Have we in fact become that caged canary destined to perish in our own coal mine, or can we unlock the cage by using creative innovation to continue promoting and prolonging human existence on this planet? In the epilogue of his 2019 book, The Ice at the End of the World, John Gertner wonders if “we seem disinclined to think too far—or too selflessly—as a species.” Overcoming this inherent human trait remains an international challenge.

In another time, May 1948, in the aftermath of World War II, U.S. Senator Arthur Vandenberg (R-MI), Chairman of the U.S. Senate Foreign Relations Committee, introduced a landmark resolution supporting the creation of collective security in Europe which led directly to the formation of NATO. Presidential elections also loomed in the background, and Vandenberg was a leading candidate for the GOP against Harry Truman. In asserting, “politics stop at the water’s edge.” Vandenberg worked with Truman to build bipartisan support on this key foreign policy issue in the Senate, and the resolution passed 82–13.

Now that the water’s edge is rising due to a melting Arctic, can Americans, let alone the global order, have the courage to work together and compromise on a foreign policy issue that treats the environment as seriously as a collective security agreement? Only time, and rising tides, will tell.

Kutubdia, in the Bay of Bengal, has roughly halved in size over the last 20 years as the waves overwhelm houses and fertile farmland. The island is prone to extreme weather, including cyclones and storm surges, which have increased in frequency in recent years. (FAIZ HOSAIN CHOWDHURY/PHOTOGRAPHY IMAGES)
discussion questions

1. The author presents a history of treaties, alliances, and international organizations working to establish a stable global order. Then, he notes that most progress occurred as a response to catastrophic wars. Do you think that progress on climate change is doomed to follow the same scenario? What climate change events might be enough to bring about change?

2. What are the potential international impacts of climate change in the absence of corrective action? What impacts have we experienced already?

3. Who are the stakeholders in the United States who will suffer if action is not taken to reduce climate change? Who are stakeholders who have an interest in not reducing greenhouse gases? What actions can be taken by government or non-governmental actions that might better align their interests? (Regulation, incentive for renewable energy, specifically adding greenhouse gases to environmental impact statements, taxes on carbon, education, funding of research, etc.)

4. Does the participation of the U.S. in the Paris Agreement make any difference to overall progress on climate change? Does it diminish the status of the U.S. to avoid participating with groups looking for solutions?

5. As the U.S. focuses inward, should it concentrate on mitigation of damage from climate change (as Miami is doing), slowing climate change (restricting emissions from coal and other plants as Obama-era regulations attempted), or developing new techniques for handling carbon emissions. How can all stakeholders in U.S. be encouraged to participate? (Federal, state and local governments; private sector; NGOs; schools; regulated companies such as utilities; and fossil fuel producers.) Will improvement be quicker with a top down or bottom up approach?

6. Is there an opportunity for economic gain and leadership for U.S. producers by developing and selling new technology to deal with climate change? Should the U.S. government be funding development of these technologies?

suggested readings


Goldstein, Joshua S. and Qvist, Staffan A. A Bright Future: How Some Countries Have Solved Climate Change and the Rest Can Follow. 288 pp. New York, NY: PublicAffairs, 2019. In this clear-sighted and compelling book, Joshua Goldstein and Staffan Qvist explain how clean energy quickly replaced fossil fuels in such places as Sweden, France, South Korea, and Ontario. Their people enjoyed prosperity and growing energy use in harmony with the natural environment.

Gore, Al. An Inconvenient Sequel: Truth to Power: Your Action Handbook to Learn the Science, Find your Voice, and Help Solve the Climate Crisis. 320 pp. Emmaus, PA: Rodale Press, 2017. The follow up to the #1 New York Times bestselling An Inconvenient Truth and companion to Vice President Al Gore’s new documentary, An Inconvenient Sequel: Truth to Power, this new book is a daring call to action. It exposes the reality of how humankind has hindered the destruction of our planet and delivers hope through groundbreaking information on what you can do now.


Don’t forget: Ballots start on page 98!!!

To access web links to these readings, as well as links to additional, shorter readings and suggested web sites,

GO TO www.fpa.org/great_decisions

and click on the topic under Resources, on the right-hand side of the page.