

# Presidential Leadership and the Challenge of Global Climate Change

by Joel A. Mintz

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## *Editors' Summary:*

Effective presidents can make significant progress in moving climate policy forward. Presidential scholarships suggest the next president should attract a top team of advisers, fashion a practical, workable program to address global warming, take the diplomatic initiative on the issue, coordinate his efforts with those of influential members of Congress, employ effective public persuasion, and carefully craft unilateral actions that will dramatize the climate change problem and take at least modest steps to alleviate it. While these steps may help the next president be effective at moving policy forward, there are still practical limits to presidential power that will limit the degree to which any president can tackle climate issues.

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The year 2008 appears likely to mark a turning point in the politics of global climate change within the United States. In contrast with the passivity that has characterized the current Administration's posture toward the incipient and potential future impact of climate disruption, President-elect Barack Obama has pledged to support actively legislation to cap and reduce the emissions of greenhouse gases (GHGs) which imperil the world's environment and the health and welfare of its inhabitants. In view of this, it seems appropriate to ask what kind of leadership our next president may reasonably be expected to provide on this critical issue, and what approaches he may most fruitfully pursue to secure policy change in this area.<sup>1</sup>

In the next section of this Article, I will provide a brief overview of recent, authoritative findings by leading scientists and groups of technical experts, with respect to the causes and the present and projected impacts of human GHG emissions on this planet's environment. In Part II, I will identify those facets of the climate change phenomenon that are unique in a political sense and the ways in which those characteristics of global warming present special challenges to a president's ability to lead, and I will briefly survey the writings of a selection of presidential scholars who have examined the ways in which American presidents can and do provide political leadership and influence national public policy. Finally, I will suggest the elements of what seems likely to be the most effective strategy for the next occupant of the White House to follow an effective new national policy in this realm.

## **I. Global Climate Disruption: The Objective Basis for Concern**

Scientific interest in the impacts of human-made gases on the earth's climate is not new.<sup>2</sup> Nonetheless, it was not until late in

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1. Throughout this Article I often refer to the president with the pronoun "he," since the next president will be male. In doing so, however, I do not mean to suggest that that incumbent's successor(s) will necessarily also be of the same gender.
  2. Scientific understanding of observed and potential changes in the earth's climate has its roots in the 19th century. In the 1820s, Joseph Fourier, a French physicist and mathematician, first likened the earth's atmosphere to a greenhouse that absorbs some of the energy reaching the planet as sunlight and prevents it from escaping directly back into space. Forty years later, Irish scientist John Tyndall tested the ability of various gases to absorb light. His laboratory experiments demonstrated that carbon dioxide (CO<sub>2</sub>) and water vapor were highly absorbent of infrared energy. In the 1890s, Svante Arrhenius, a Swedish chemist, took note of fossil evidence indicating that Asia, Europe, and North America had been affected by a great ice age approximately 12,000 years ago. Arrhenius postulated that a lengthy period of volcanic inactivity had led to a decrease in global CO<sub>2</sub> that had led to a substantial global cooling. Arrhenius' work was followed in the 1930s by that of Guy Steward Callendar, a British engineer who viewed human-produced greenhouse gases (GHGs) as a possible cause of global warming, which had already been detected from meteorological data.

The early, isolated insights of Fourier, Tyndall, Arrhenius, and Callendar were largely ignored, however, until the second half of the 20th century when Charles Keeling began to collect data on atmospheric levels of CO<sub>2</sub> in an observatory atop Mauna Loa in Hawaii. Keeling's meticulous readings, begun in 1958,

the 20th century that the pace of inquiry into human-induced climate disruption quickened and a consensus regarding its causes, impacts, and possible remedies began to develop.

In 1985 the discovery of the Antarctica ozone hole presented stark new evidence of the atmosphere's vulnerability to human influence.<sup>3</sup> In addition, record heat and drought in North America in the summer of 1988, accompanied by wildfires in the western United States, led to a wave of journalistic—and public—concern in Europe and the United States over global atmospheric trends.<sup>4</sup>

In the aftermath of these catalytic events, in 1989, the World Meteorological Organization and the United Nations Environment Programme established the Intergovernmental Panel on Climate Change (IPCC), a grouping of high-level scientists charged with providing an authoritative statement of the current state of scientific understanding of climate change. Beginning in 1990, this panel published a series of comprehensive reports that reflected the work of thousands of scientists. Those reports give voice to what is now a firm consensus within the scientific community as to the causes and impacts of climate disruption, and possible strategies that may be adopted in response to it.

The IPCC's findings, particularly as reflected in its 2007 report on impacts of climate change,<sup>5</sup> are stark and profoundly unsettling. The panel concluded "with high confidence" that many natural systems, including glaciers, permafrost zones, polar ecosystems lakes, rivers, and marine and freshwater and territorial ecological systems are already being affected by climate changes (particularly temperature increases) that result from human activities.<sup>6</sup> Moreover, the future impacts on the planet of global climate alterations that are projected by the IPCC—on freshwater resources, ecosystems, crop

productivity at lower latitudes, coastal systems and low-lying areas, industry, settlements, society, and health—are serious and worrisome. Drought-affected areas will likely increase in extent.<sup>7</sup> The resilience of many ecosystems will be exceeded this century.<sup>8</sup> Approximately 20-30% of the plant and animal species will be at increased risk of extinction.<sup>9</sup> Ocean waters will continue to acidify.<sup>10</sup> Crop productivity will decrease in seasonally dry and tropical regions.<sup>11</sup> Coastal erosion will increase.<sup>12</sup> Millions of people will be affected by floods every year due to sea-level rise and heavy precipitation events.<sup>13</sup> Industries, settlements, and societies will be increasingly vulnerable to extreme weather events, particularly those located in coastal and river floodplains.<sup>14</sup> And the health of millions of people, particularly those with a low adaptive capacity, will be negatively affected by projected climate change-related exposures.<sup>15</sup>

A recent report released by the U.S. Climate Change Science Program provides still further basis for concern close to home.<sup>16</sup> In a comprehensive assessment of the current state of knowledge concerning changes in weather and climate extremes in North America and U.S. territories, the report concludes the following:

In the future, with continued global warming, heat waves and heavy downpours are very likely to further increase in frequency and intensity. Substantial areas of North America are likely to have more frequent droughts of greater severity. Hurricane wind speeds, rainfall intensity, and storm surges are likely to increase. The strongest cold season storms are likely to become more frequent, with stronger winds and more extreme wave heights.<sup>17</sup>

In fact, the basic mechanism by which human activities affect the earth's climate is now reasonably well understood. Generally, 70% of incoming sunlight is absorbed by the earth's surface and by clouds and dust in the atmosphere, and approximately 30% of incoming solar radiation is reflected back into space. Under normal conditions, a healthy balance is thus maintained between incoming sunlight and infrared radiation which is returned to space—a balance that supports life on the planet.

The addition of human-generated GHGs (including carbon dioxide (CO<sub>2</sub>), methane, ozone, water vapor, nitrous oxide, and chlorofluorocarbons) alters this balance, however. These invisible, odorless gases mix and interact in the atmosphere. As they accumulate, they absorb infrared rays and radiate less energy to space than the earth normally would, causing the planet's atmosphere to heat up. This heating, in turn, gives rise

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showed a steady, long-term rise in CO<sub>2</sub> in the atmosphere, with dramatic annual fluctuations due to seasonal greening and wintering in the Northern Hemisphere; and soon thereafter, climatologists designed the first crude computer models of the earth's atmosphere which predicted significant increases in global temperature that would accompany a continuing rise in CO<sub>2</sub> concentrations.

For a concise description of the evolution of scientific investigations into climate change, see SPENCER WEART, *THE DISCOVERY OF GLOBAL WARMING* (2004). See also ROBERT HENSON, *THE ROUGH GUIDE TO CLIMATE CHANGE* 24-31 & 247-50 (2d ed. 2008).

3. Stratospheric ozone depletion is essentially a separate phenomenon from global warming. Ozone, a pollutant at ground level, serves a beneficial purpose in the lower stratosphere: intercepting ultraviolet light which can cause skin cancer, cataracts, and other harmful effects. In the mid-1980s, it was discovered that human emissions of chlorofluorocarbons (CFCs) and other gases were breaking down the stratospheric ozone layer over Antarctica and southern Chile. Since then international efforts to replace CFCs with less harmful refrigerants have made it likely that stratospheric ozone levels will gradually increase over the next few decades.

For a description of the ozone layer depletion problem and international agreements responding to it, see Joel A. Mintz, *Keeping Pandora's Box Shut: A Critical Assessment of the Montreal Protocol on Substances That Deplete the Ozone Layer*, *MIAMI INTER-AM. L. REV.*, Summer 1989, at 565 and Joel A. Mintz, *Progress Toward A Healthy Sky: An Assessment of the London Amendments to the Montreal Protocol on Substances That Deplete the Ozone Layer*, 16 *YALE J. INT'L L.* 571 (1991).

4. In 1988, the *New York Times* and the *Washington Post* ran a combined total of 40 stories on climate change. In contrast, those newspapers had together published fewer than 24 stories regarding the same topic over the preceding 4 years. HENSON, *supra* note 2, at 250.
5. IPCC, *CLIMATE CHANGE, 2007* (Cambridge Univ. Press 2007) (three volumes).
6. IPCC, *CLIMATE CHANGE, 2007: IMPACTS, ADAPTATION, AND VULNERABILITY* 8-9 (2007).

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7. *Id.* at 11, 186-87.

8. *Id.* at 11, 214-48.

9. *Id.* at 11, 239-44.

10. *Id.* at 11, 234-36.

11. *Id.* at 11, 282-93, 296-97.

12. *Id.* at 12, 322-36.

13. *Id.* at 12, 324-36.

14. *Id.*

15. *Id.* at 12, 407-15.

16. U.S. CLIMATE CHANGE SCIENCE PROGRAM, *WEATHER AND CLIMATE EXTREMES IN A CHANGING CLIMATE* (2008).

17. *Id.* at VII.

to a series of atmospheric adjustments (including increased evaporation of fresh and salt water and melting sea ice) that amplify the warming.<sup>18</sup>

Humans release GHGs in staggering quantities, from a variety of sources. The earth's atmosphere currently contains approximately 3,000 billion metric tons (or gigatons) of CO<sub>2</sub>. Moreover, as of 2006, human beings were adding approximately 31 gigatons of CO<sub>2</sub> to the atmosphere per year—approximately 10,000 pounds annually for each living person on the planet. This is more than twice the total amount of CO<sub>2</sub> emitted in 1970.<sup>19</sup> The lion's share of these emissions come from industry and buildings such as homes and offices. Transportation and agriculture account for nearly all of the rest of these releases.<sup>20</sup>

Unfortunately, CO<sub>2</sub> that is emitted to the atmosphere dissipates slowly. Forty-five percent of the carbon released annually by human activities remains in the atmosphere, well-mixed and spread across the globe. This gas remains aloft for a century or more, although some individual molecules may cycle out more quickly.<sup>21</sup>

Establishing which nations are responsible for what proportion of global climate disruption is a difficult task, since national population and per capita emission levels vary considerably, as do the extent to which different countries are contributing to global warming by deforestation (which reduces the earth's capacity to absorb CO<sub>2</sub>). Nonetheless, reliable data indicates that the United States (which represents only 5% of the world's population) generates fully 20% of annual global GHG emissions.<sup>22</sup> Thus, although climate disruption is clearly a planetwide problem requiring a global solution, to be successful any such solution must certainly include the full and effective participation of the United States. Whether that participation will take place, however—and if so, what form it will take—are presently open questions that will be resolved, in no small part, within the American political system, a system in which the president of the United States plays a critical role.

## II. Presidential Leadership in the Climate Crisis: Toward A Pragmatic Strategy

What characteristics of global climate disruption make it more or less amenable to a solution at the White House level? Clearly, the growing peril of global climate disruption will pose a challenge to the next U.S. president that is as unique as it will be daunting. Most collective threats to the nation, such as dangers posed by foreign enemies, economic collapse, or natural disasters, present dramatically imminent risks. In contrast, while its effects are already being felt in the United States and around the world, global climate change is a more gradual, long-term phenomenon. Its precise timing remains

uncertain. And its most severe impact may not be felt until later in this century and thereafter, well after the next president will have left office.

The climate crisis is politically unique in several other ways as well. In contrast to a number of earlier environmental problems, global climate disruption stems from the release of gases that are odorless and invisible. It is thus a more intangible, abstract danger, one that may be difficult for members of the public to perceive as truly perilous.

Secondly, GHGs are emitted from many sources in the United States: industry, buildings, transportation, and agriculture. Their reduction will therefore require changes in behavior in a number of sectors of the U.S. economy, changes that will affect the lives of millions of Americans.

Third, global climate disruption is a worldwide problem. As we have seen, the United States is a major contributor of GHGs, and any diminution of the dangers those gases cause must unquestionably include a decrease in this country's GHG emissions. At the same time, however, unilateral improvement in the environmental performance of the United States in this area will not be sufficient. Success in stabilizing the world's climate will also depend upon reductions of GHG releases in other nations as well.

And fourth, the United States is almost certain to face other very significant problems as the new president assumes office. A flagging economy, the continuing wars in Afghanistan and Iraq, the need to provide Americans with affordable health care, and the decline in U.S. prestige and influence around the world are all salient issues which are likely to pre-occupy the next president. They will certainly compete with global warming for his time and attention in the months and years ahead.

In light of these facts, what steps can our next president take to provide effective leadership in the climate crisis? The writings of some political scientists appear to provide useful insights.

Perhaps the most prominent and incisive work with respect to U.S. presidential leadership was done by Richard E. Neustadt in his classic volume, *Presidential Power: The Politics of Leadership*, published in 1960.<sup>23</sup> As three knowledgeable experts recently observed: "Political scientists still consider *Presidential Power* as the seminal book on the American Presidency—the one that still influences not only their thinking and research about presidential power, but also that of presidents and their advisers who have come to learn directly or indirectly about Neustadt's advice. . . ." <sup>24</sup>

In this book, Neustadt emphasized the shared powers of the presidency. His primary thesis was that the power of the president is the power to persuade others that it is in their own best interest to cooperate with him. Presidents succeed in gaining influence by shrewd bargaining, by the exercise of good timing, by persistence, and by adroit interpersonal manipulation. They must have the will to accumulate power, sensitivity to the views and feelings of others, effectiveness at forging com-

18. For a straightforward explanation of this process, see HENSON, *supra* note 2, at 22-27 and JOHN HOUGHTON, *GLOBAL WARMING: THE COMPLETE BRIEFING* (3d ed. 2004).

19. HENSON, *supra* note 2, at 33-34.

20. *Id.* at 36, 38.

21. *Id.* at 34.

22. *Id.* at 38-42.

23. RICHARD E. NEUSTADT, *PRESIDENTIAL POWERS: THE POLITICS OF LEADERSHIP* (John Wiley & Sons 1960).

24. ROBERT SHAPIRO ET AL. EDS., *PRESIDENTIAL POWER: FORGING THE PRESIDENCY FOR THE 21ST CENTURY* (2000).

promises, and an ability to acquire information from multiple sources. In Neustadt's words:

[A]dequate or not, a [p]resident's own choices are the only means *in his own hands* of guarding his own prospects for effective influence. He can draw power from continuing relationships in the degree that he can capitalize upon the needs of others for the [p]residency's status and authority. He helps himself to do so, though, by nothing save ability to recognize the preconditions and the chance advantages and to proceed accordingly in the course of choice-making that comes his way.<sup>25</sup>

Others who have studied the political leadership potential of the presidency, have focused on the extent to which the president may use unilateral powers—by employing Executive Orders, presidential proclamations, and other directives—to advance policy goals. In a compelling study, William Howell and Douglas Kriner closely examined four case studies from the presidency of George W. Bush that illustrate both the potential and the limitations of unilateral presidential actions. They concluded that President Bush's employment of unilateral powers did indeed yield genuine influence over public policy, enabling him to “materially redirect public policy in ways not possible in a strictly legislative setting, using only those powers enumerated in the Constitution.”<sup>26</sup> For example, in 2001 President Bush issued a military order granting sole authority over the detention, trial, and punishment of suspected terrorists to himself and the Secretary of Defense; and in 2003, without congressional authorization, he dispatched a limited number of U.S. troops to stem a crisis in Liberia.

Even though unilateral actions by one president may always be reversed by another, Howell and Kriner find that at least under certain conditions, they can continue to have a lasting influence on policy after an administration has relinquished power. Moreover, they observed:

[I]f recent political history is any indication of future trends, presidents will have continued reason to rely upon unilateral directives to advance their policy agenda[s]. As majority parties retain control of the House and Senate by the slimmest of margins, as multiple veto points and collective actions problems litter the legislative process with opportunities for failure, and as members of Congress and judges remain reticent to take on the president, abundant opportunities and incentives for presidents to exercise their unilateral powers remain. To be sure, presidents must proceed with caution, scaling back some initiatives and abandoning others altogether, especially when political opposition is strong and mobilized. . . . But in an era where political gridlock is commonplace and judicial deference the norm, presidents can be expected to regularly strike out on their own.<sup>27</sup>

Another optimistic presidential scholar has examined the efficacy of presidential attempts to influence public opinion in order to secure congressional support for their policy preferences. In *Going Public: New Strategies of Presidential Leadership*,<sup>28</sup> Samuel Kernel describes the tendency of recent presidents to rely on a strategy of “going public” as a way of changing the climate of public sentiment on particular issues. Kernel notes the increasing popularity of this approach in a time when American politics has been more ideologically polarized, and attempts at compromise and bargaining have been less likely to succeed. His work appears to suggest that open attempts at public persuasion may be a successful technique on the hands of a skillful, verbally gifted president.<sup>29</sup>

In light of this, what can our next president do to influence U.S. policy with respect to climate change? One initial step, which must be initiated even before a new president takes office, is for the president to assemble a team of advisors who combine a sophisticated understanding of climate

25. Neustadt's model has had its staunch defenders. One of these is Matthew Dickinson who, in a recent book chapter, forcefully argues that Neustadt's views can be married to those of many new institutionalist writers, who focus on the role of structure and hierarchy as a determinant of presidential success. See Matthew J. Dickinson, *The Politics of Persuasion: A Bargaining Model of Presidential Power*, in BERT A. ROCKMAN & RICHARD W. WATERMAN, *PRESIDENTIAL LEADERSHIP: THE VORTEX OF POWER* (2008).

Neustadt's theory has also been subjected to criticism. Some scholars have contended that Neustadt understated both the formal powers of the president and the president's symbolic authority. See, e.g., FRED GREENSTEIN, *THE HIDDEN-HAND PRESIDENCY: EISENHOWER AS LEADER* (1982); RICHARD PIOUS, *THE AMERICAN PRESIDENCY* (1989); and Lyn Ragsdale, *Personal Power and Presidents*, in *FORGING THE PRESIDENCY FOR THE 21ST CENTURY*, *supra* note 24; PHILLIP J. COOPER, *BY ORDER OF THE PRESIDENT: THE USE AND ABUSE OF EXECUTIVE DIRECT ACTION* (2002); WILLIAM HOWELL, *POWER WITHOUT PERSUASION* (2003). Neustadt has also been accused of ignoring how the presidency as an institution molds the exercise of presidential power, see Larry Jacobs & Robert Shapiro, *Conclusion: Presidential Power, Institutions, and Democracy*, in *FORGING THE PRESIDENCY FOR THE 21ST CENTURY*, *supra* note 24, and KEN MAYER, *WITH THE STROKE OF A PEN* (2001), and of creating a model of limited historical applicability because his writing focused on mid-20th-century presidents who operate in a different political environment from their more recent successors. See STEPHEN SKOWRONEK, *THE POLITICS PRESIDENTS MAKE* (1993).

The reader may assay these critiques for himself or herself. Whether one agrees with or disagrees with Neustadt's hypotheses, however, the originality and central importance of his paradigm of presidential leadership appears beyond dispute.

26. William Howell & Douglas Kriner, *Power Without Persuasion: Identifying Executive Influence*, in *THE VORTEX OF POWER*, *supra* note 25

27. *Id.* at 134-35.

28. SAMUEL KERNEL, *GOING PUBLIC: NEW STRATEGIES OF PRESIDENTIAL LEADERSHIP* (1997).

29. Kernel's conclusions have also been questioned. See, e.g., George Edwards III, *Impediments to Presidential Leadership: The Limitations of the Permanent Campaign and Going Public Strategies*, in *VORTEX OF POWER*, *supra* note 25 (concluding that presidents not only fail to create new political capital by going public but also decrease their chances of success in bringing about public policy when they employ that strategy); Jeffrey E. Cohen, *Presidential Leadership in an Age of New Media*, in *VORTEX OF POWER*, *supra* note 25 (as a result of changes in, and public attitudes toward, the news media, presidential use of the “bully pulpit” has become increasingly difficult from the 1980s on).

Other students of presidential leadership also deemphasize the important of president's persuasive abilities and bargaining skills. See, e.g., THOMAS E. CRONIN & MICHAEL A. GENOVESE, *THE PARADOXES OF THE AMERICAN PRESIDENCY* (2004) (arguing that although some presidents have a high level of political opportunity most do not, and that policy innovations more often come from the efforts of catalytic individuals like civil rights workers, environmental protectionists, and tax revolt champions than from the actions of presidents). See also Charles M. Cameron & Jee-Kwong Park, *A Primer on the President's Legislative Program*, in *VORTEX OF POWER*, *supra* note 25 (suggesting that the extent to which a president is likely to succeed in obtaining congressional approval for his or her legislative proposals is contingent upon whether the president's political party commands a majority in Congress, the extent of presidential popularity, the presence or absence of ideological distance between the views of the president and congressional leaders, and the relative simplicity or complexity of the president's proposals); Richard Fleisher et al., *Which Presidents Are Uncommonly Successful in Congress*, in *VORTEX OF POWER*, *supra* note 25 (presidential success in Congress is mostly determined by whether political conditions are favorable or unfavorable, especially on which party has control of Congress).

change issues with a pragmatic sense of American politics. The president's advisers, including high-visibility appointees (such as the Administrator of the U.S. Environmental Protection Agency and the Chair of the Council on Environmental Quality) and lower level White House staff "insiders," must have the ability to teach others about climate change by translating technical scientific findings into language that a generalist president and other non-scientists can fully understand. Where relied upon, these advisers must also be able to function as the president's public face on climate change issues, lobbying for congressional support of the president's proposals on those matters and explaining his views in public and private meetings with a diverse array of constituents.

In addition to surrounding himself with a savvy and trustworthy group of climate policy experts, the president must develop a sound policy approach with respect to climate disruption. Although the precise details of such an approach are beyond the scope of this Article, the new president's climate change program must certainly include overall goals for reducing U.S. GHG emissions, a tight yet feasible timetable for accomplishing those goals, a workable and equitable set of mechanisms for decreasing emission levels in all affected sectors of the economy, and a set of measures for mitigating all effects of climate disruption which are either already ongoing or practically unavoidable. The president's approach must be realistic, rooted in the most recent science, as cost effective as possible, politically acceptable to a wide range of stakeholders (from environmental organizations to industrialists) and sellable to the mass public.

Whether or not the new president should introduce his climate change plan as a formal legislative proposal is a strategic question best resolved on the basis of the political conditions that will exist at the start of his term of office. As Charles Cameron and Jee-Kwong Park and Richard Fleisher and colleagues have suggested, the partisan makeup of the next Congress will undoubtedly be a key factor. Other factors will include the level of support that will exist for climate change legislation within that Congress, the extent to which congressional leaders (or individual members of Congress) will be prepared to take the initiative in drafting climate change legislation, and the likelihood that a presidential proposal will provide a basis for compromise in the event that both houses of Congress pass climate change bills that diverge on key points. Ideally, the new president and his team will identify and consult extensively with those members of Congress who will be most critical to the passage of any climate change legislation to obtain their buy-in on his proposals.

Third, in addition to developing a position with respect to domestic climate change policy, the next president must develop a foreign policy position with regard to climate disruption that complements and is consistent with his domestic plan. The president's advisory team must include experienced diplomats with a sound grasp of both global climatic science and international politics. He and his team must negotiate effective international understandings that take account both the seriousness of the climate crisis and the challenges facing other nations (including those with developing economies) in

combating it. He must do this without sacrificing the national interests of the United States and he must assure that whatever international agreements he reaches are sufficiently clear and "saleable" that they win and maintain the support of both the mass public and Congress.

Fourth, the president must make climate change policy a matter of priority for his administration. This will require both focus and fortitude. As noted, the United States (and its new president) will face a plethora of problems. The president must be careful not to designate too many issues as top priorities, for fear that his political influence will be spread too thin. Inasmuch as the beneficial results of climate change policies may well not be realized until after he leaves the White House, the president may well be tempted to place climate change matter on the proverbial back burner. Such a stance, however, would likely assure that climate disruption will have a low priority for the next president's entire term in office. Given the gradual nature of the global warming peril, and the continuing uncertainty over the future timing of most severe impacts, there is almost always a likelihood that some other issue will seem more politically urgent. The president must thus be willing to take the long view by intensively focusing his own limited time and resources on climate change matters. And he must persuade many others (within and outside the political system—as well as inside this country and well beyond its borders) to follow his example.

Fifth, consistent with Kernel's conclusions, to be successful in leading the United States to an effective climate change policy the next president must engage in an effort to educate the American public further with regard to the threat posed by climate disruption. He must gain their support both for his domestic and his international policy preferences in this area, a task that will undoubtedly be challenging. As we have seen, some learned observers have noted the obstacles that presidents face in an age of decentralized, competitive, entertainment-oriented news media, a time when it is particularly difficult to attract and retain public attention. Moreover, the new president's chore will undoubtedly be made all the more difficult in a context where, as noted, the problem to be solved involves the atmospheric release of gases that cannot be seen, smelled, or measured without instrumentation, and where the future timing of climate disruption cannot be predicted.

Nevertheless, it is noteworthy that the next president will not be beginning a public persuasion effort with no foundation. Since the 1980s, climate disruption has already received considerable attention in the news media which has, for the most part, been quite supportive of efforts to limit the emission of GHGs. Many Americans are already familiar with and concerned about the climate change phenomenon, and Congress has given serious consideration to climate change legislation in its last session. In that context, efforts by a new administration to explain a need for sound policies in this area may well succeed. That will be particularly the case if the president's messages are well timed, eloquently presented, based on a firm scientific consensus, and followed up by a persistent set of signals that the administration views climate change as a matter demanding priority attention and urgent action.

Finally, consistent with the findings of Howell and Kriner, the next president must make effective use of his unilateral powers. As we have seen, a recent study has found that those powers have previously been utilized in an effective manner. The federal government is an immense institution which has a significant overall impact on the environment. The next president can have a direct, beneficial impact on the global climate by fashioning (and following through on) a set of Executive Orders that will reduce the footprint of federal GHG releases. For example, the president can issue orders requiring federal agencies to make use of their government powers in ways that can create demand for green goods and sources. He can require that agency automobile fleets purchase electric- or hydrogen-powered vehicles, and that new and newly renovated federal buildings meet high performance standards for sustainability and energy conservation. The president may also require federal agencies to reduce their emissions by a significant percentage and to purchase food for consumption in federal facilities that comes from locally grown sources and that is not produced by animals which emit methane. Moreover, the president can order that federal agencies include in all environmental impact statements (EIS) that they issue a description of the vulnerability to climate change of any proposed or ongoing action which is the subject of the EIS along with a disclosure of all GHG emissions that may result from such an action.

Beyond this, the next president may take other unilateral actions that relate to climate disruption. For instance, he may convene White House conferences of climatologists to spotlight new developments in climate change science; and he may issue presidential awards to individuals who devise new means in which technology may be used or modified to decrease the emission of GHGs.

By themselves, none of those unilateral presidential actions is likely to stem the dangers posed by global climate disruption. Nonetheless, several of them will contribute to such a result to at least a certain degree. Even more significantly perhaps, to the extent that they supplement the other presidential actions and approaches suggested above, unilateral measures by the president will provide tangible evidence that the White House does indeed view global climate disruption as a matter that deserves priority attention.

### III. Conclusion

Global climate disruption is a multifaceted long-term problem of immense gravity that will pose a particular challenge to the next incumbent of the White House. Because the United States contributes a significant proportion of the GHGs released to the atmosphere, any effective solution to this problem will require reductions in our nation's GHG emissions. At the same time, however, since the GHGs released from the country create only a part of the problem, the solution must also involve the cooperation of many other nations.

The actions and attitudes of the next president may well be an important determinant of the future direction of U.S. policy with respect to this issue. If he truly wishes to, the next president may make a significant contribution toward lessening the peril that global climate change poses (and will pose) to the resources, ecosystems, food supply, economy, and human health of this nation and the rest of the world. He will be best able to do that by attracting a top team of advisers, by fashioning a practical, workable program to address global warming, by taking the diplomatic initiative on the issue, by skillfully coordinating his efforts with those of influential members of Congress, by effective public persuasion, and by carefully crafting unilateral actions that will dramatize the climate change problem and take at least modest steps to alleviate it. The work of a number of well-regarded presidential scholars clearly endorses the notion that the president's persuasive powers, political acumen, and sense of strategy can indeed furnish the means to provide policy leadership when the circumstances are favorable.

At the same time however, those concerned with the very significant threats posed by global climate disruption will do well to remain cautious and realistic. While presidents are sometimes able to shape political circumstances, they are not always their masters. The election of a president with more proactive policies regarding climate change may well provide a reason for hope. Nonetheless, it seems a poor reason to abstain from building broad-based grass-roots coalitions that will work for changes in our nation's policy regarding global climate change on the basis of well-founded and widely accepted scientific findings. The election of a new president may be necessary to effect a needed transformation in the climate disruption policies of the United States. It seems unlikely to be sufficient.