

challenges and winning public and congressional support for his economic policies. Even the best substantive policy made in a vacuum without consideration of communication and politics is unlikely to survive. The NEC process is where these political realities and public communication challenges intersect with the development of policy. Legislative and messaging strategy should be developed along with the policy positions themselves.

However, if political considerations simply drive the policy process, as appears to have happened during the Bush administration, then the NEC and other policy councils serve little serious purpose. A commitment to the deliberative process of the NEC and its sister policy councils is a commitment to serving the best interests of the country and its citizens. Of course, political considerations must be brought to bear in weighing the range of options available and the best strategy for achieving the public interest, but strengthening a party's hold on power should not ever become the object of governance. The culture and traditions of the NEC, if supported by the new president and his chief of staff, offer a mechanism to get this balance right in economic policy.

National Energy Council

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Both nationally and globally, we are on a trajectory for energy use and greenhouse gas emissions that is incompatible with the preservation of a safe and livable world. World primary energy use and carbon dioxide emissions are expected to grow 55 percent to 57 percent between 2005 and 2030, including around 75 percent in developing countries. American CO₂ emissions, on a business-as-usual path, are expected to increase 25 percent between 2006 and 2030.¹ At the same time, leading scientists estimate that to avoid the worst risks of climate change, the world will have to *reduce* emissions by at least 50 percent as compared to now, with some estimating the needed reduction to be more than 80 percent.

The scope of this challenge is immense. Many leading climate scientists say we need to limit the increase in global average temperature to 2° Celsius above

pre-industrial times, or about 1.2°C (2.2°F) above current temperature. In a February 2007 statement to U.N. Secretary General Ban Ki-moon and the U.N. Commission on Sustainable Development, Harvard's John Holdren, a pre-eminent climate scientist, said that "if the build-up of greenhouse gases pushes the global average surface temperature past 2–2.5°C above the pre-industrial level, the danger of intolerable and unmanageable impacts of climate change on human well-being becomes very high."² And James Hansen, the noted physicist at the NASA Goddard Institute, whose June 1988 Senate testimony helped put global warming on the map, testified in June 2008 that allowing temperature to increase even to 2°C above pre-industrial levels would be "a recipe for global disaster."³

The scale of needed change is formidable. In a noted article, Stephen Pacala and Robert Socolow of Princeton University describe a variety of major energy initiatives or "wedges," any seven of which, in combination, could hold global emissions to today's level in 50 years.⁴ This is a level of reduction most scientists would regard as quite inadequate, but even this would require a massive effort. The wedges include, for example, increasing the fuel efficiency of 2 billion cars from 30 miles per gallon to 60 mpg; improving the efficiency of buildings and appliances enough to cut their CO₂ emissions by 25 percent; introducing carbon capture-and-storage capabilities at the equivalent of 1,600 large (500 megawatt) power plants; and a huge increase in the use of renewable fuels like wind, solar, and biomass to produce electricity.

The Intergovernmental Panel on Climate Change, the U.N. body of over 2,000 scientists that shared the 2007 Nobel Peace Prize, estimates in its fourth assessment report that holding emissions in 2050 to a level between 30 percent below and 5 percent above 2000 levels would correspond to an increase in global average temperature of 2.8–3.2° C above pre-industrial levels—well above what scientists regard as plausibly safe. To hold temperatures to 2.4–2.8° C above pre-industrial levels, the IPCC estimates that emissions in 2050 would need to be reduced between 30 and 60 percent below 2000 levels; a temperature range of 2.0–2.4° C would require a reduction between 50 and 85 percent below 2000 levels.

Solving the energy and climate challenge will require interrelated policy efforts at home and abroad. Our capacity to enact a robust, mandatory domestic program will depend in part on the energy and climate programs that other major emitters of greenhouse gases are implementing, while our capacity to achieve meaningful agreements for global reductions will depend in part on the scope and ambition of our domestic program. And there will be tricky

issues of tactics and sequencing as a new president works to make breakthrough progress on both fronts.

Recommendations

The president-elect should nominate the new energy team early, shortly after the national security team and the economic team, signaling the importance of this issue. This new team would form the core of a new White House National Energy Council, which would include the secretaries of most cabinet agencies and the heads of the Council on Environmental Quality, the National Economic Council, and National Security Council, and would be led by a national energy advisor with stature comparable to the national security advisor and the national economic advisor.

Transforming the energy base of the economy will demand top-level participation across the executive branch. It will require the concerted engagement of the president, and the kind of single-minded attention that only a fully empowered national energy advisor and council can bring. The National Energy Council would serve as the new president's agent in driving both policy and strategic options with respect to energy and climate change. At the first cabinet meeting, the president should make clear the centrality of this issue and the authority of his new national energy advisor.

The National Energy Council should have a lean staff. We would propose a deputy; two policy experts to cover the range of domestic policy issues; a technology research, development, and deployment expert; a financial and business expert focused on public-private partnerships, designing the right incentives for the private sector, etc.; a scientist; an economist; an international expert focused on climate diplomacy; a congressional liaison; and an advisor on press and communications. Most of this staff could be dual-hatted with other White House offices such as NSC, NEC, CEQ, OSTP.

To guide our federal investment decisions, which are now uncoordinated, the new president should establish an interagency Energy Innovation Council to develop an integrated, multiyear national energy research, development, and deployment strategy. We cannot transition to a low-carbon economy without enormous technological innovation. Technologies on the shelf can get us started, but we will need a host of new discoveries and refinements to get us where we need to go. Against this reality, the federal government's investment in energy R&D—around \$2 billion last year—is woefully inadequate, only a third of what it spent 25 years ago. By contrast, the government spends \$28 billion on medical research and \$75 billion on military research.

The new president should also create a quasi-public entity—an Energy Technology Corporation—dedicated to managing large-scale energy demonstration projects in low- or no-carbon technologies. Historically, the government's efforts to support the late-stage demonstration projects essential to commercialization have foundered because they have not been done in a manner seen as financially credible to investors and the private sector.

The new president will also need to mobilize the public and the political establishment to support the low-carbon transformation of our economy. He will need to use the bully pulpit, his schedule, and the full reach of his administration to do this. Working with the national energy advisor, the new president should convey a set of core messages to the public, beginning with the fact that the science is clear: global warming poses an enormous, growing threat to the health and safety of our world and that of our children. The fight against climate change and the fight against our dependence on foreign oil is the same fight—we must take on these twin threats together.

The new president should also make clear that failing to take strong action will do great damage to our economy, national security, environment, and well-being, conveying the message that this is a national imperative, beyond political parties. Finally, he should explain that the transformation to a low-carbon economy represents a huge opportunity to create millions of jobs and lead in the development of new clean technologies, and that this is a global problem so we must ensure our competitors do their fair share.

In his inaugural address, the president should highlight the urgency and opportunity of these challenges, underscoring his belief that the low-carbon transformation is essential to building a successful economy in the 21st century. To this end, he should announce a 100-day pledge to introduce energy and climate legislation. In his State of the Union address, he should again underscore the essential nature of this priority. And in the early weeks of the new administration, he should make a major address devoted to this issue.

The president should also convene a series of meetings with key players in the first weeks of his administration. These should include a National Energy Conference with business and financial leaders, labor leaders, farmers, scientists, public health experts, national security experts, environmentalists, leaders from the faith community, and others. He should also establish an ongoing advisory council of such leaders. The president should also meet with governors and mayors who have been the leaders on climate change during the past seven years, as well as with congressional leaders, underscoring this energy transformation must be a genuine collaboration to succeed.

The new national energy advisor should also begin working with a core

group of leading scientists with the credibility and skill to deliver a message about the dire threat we face and the scientific urgency of action. This group should promote our economic and technological capacity to meet this challenge if we have the political courage to act. Business and other leaders should be deployed as well.

The president should also request the National Academy of Sciences to report back promptly with its view of a tolerable range of warming and greenhouse gas concentration limits. The IPCC has done related work, but the National Academy of Sciences speaks with an authoritative voice to an American audience that will only support aggressive action if it appreciates the dangers. The academy should review its conclusions every few years in light of new facts on the ground and new science.

The president should also take several key executive actions (all discussed in more detail in the Environmental Protection Agency and Department of Energy chapters of this book) promptly after assuming office. First and foremost, he should direct EPA to consider the so-called California waiver so that the state can set its own tailpipe emissions standards. He then should ask the agency to: establish a low-carbon fuel standard; issue performance standards for power plants; establish the regulatory framework for carbon capture-and-storage systems (in league with DOE); and announce strong federal measures to sharply boost both energy efficiency in the government's operations and the use of renewable energy.

Finally, the president will have to take swift action to reengage internationally. With 80 percent of emissions released outside the United States, climate change cannot be solved without global action. Moreover, approximately 40 percent of energy-related CO₂ emissions come from developing countries now, and 55 percent will come from such countries by 2030.

The international community is now focusing on negotiating a new climate change agreement that will bring both the United States and key developing countries into the fold. The stated intention is to conclude such an agreement in Copenhagen in December 2009. This calendar leaves little time for a new president to confirm his team and develop substantive and tactical ideas. At the same time, there are high hopes for a committed new approach by the United States, and it will be important not to undercut those hopes. There will thus be tricky issues to handle, both of substance and of diplomacy.

While it isn't possible at this early stage to spell out the elements of a new global agreement, certain core principles should guide a new president. He will need to negotiate with a clear sense of what science tells us must be done to re-

duce emissions, and what the implications of that are both for developed and major developing countries. He must understand that real progress internationally won't be possible without a strong, mandatory U.S. program at home. He must be flexible with regard to the kinds of commitments that countries make, as long as the scale of the commitments is significant enough. And he must bear in mind that a new global agreement must be the beginning, not the end, of international collaboration.

Following any agreement, there will be an urgent need for active partnerships to develop, transfer, finance, and commercialize low-carbon technologies in ways that are beneficial to developing and developed countries alike. Early on, the new president should deliver a major climate change speech with a global audience in mind, making clear his understanding of the scale of the problem, his plan to implement a far-reaching program at home, and his commitment to working cooperatively with other countries. The new president needs to convey a sense of responsibility, humility, and determination.

Within its first weeks, a new administration should conduct targeted bilateral diplomacy with key nations such as Great Britain, France, Germany, Japan, China, India, and Brazil. It will be imperative to convey the message that it is a new day in the United States and that we are once again ready to engage vigorously on this issue. The United States should anchor its climate diplomacy in a core group of major emitting nations, both developed and developing. A small group process can be conducive to honest, forthright, substantive discussion. The group should be understood as a jointly owned process, akin to the Group of Eight industrialized democracies, rather than as a U.S. undertaking.

The new president will also need to devote special attention to China, without whom significant global progress on climate change is impossible, both for substantive and political reasons. China has now surpassed us as the largest emitting nation. We need to work with China on a new energy and climate change partnership, involving other allies such as the European Union and Japan where appropriate. Understandings reached bilaterally or in a core group will need to be brought back into the U.N. process itself, which will ultimately need to accept and adopt a new global accord.