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# The Carter Administration and the Evolution of American Nuclear Nonproliferation Policy, 1977–1981

In the wake of India's May 1998 decision to resume nuclear testing for the first time since 1974, as well as arch-rival Pakistan's subsequent response, the attention of the world again has focused on nuclear nonproliferation policy as a means of maintaining stability in politically troubled regions of the world.[1] The 1990s proved to be an uncertain time for nonproliferation policy.[2] Pakistan acquired nuclear capabilities.[3] Iraq displayed its well-known intransigence by refusing to allow International Atomic Energy Agency (IAEA) arms inspectors access to facilities suspected of manufacturing nuclear weapons.[4] North Korea maintained a nuclear weapons program despite opposition from many Western nations.[5] Troubling questions about nuclear holdings persisted in Argentina, Brazil, and South Africa.[6] New nuclear powers were created in Belarus, Kazakhstan, Russia, and Ukraine after the disintegration of the Soviet Union.[7] Even the renewal of the Treaty on the Non-Proliferation of Nuclear Weapons in 1995 failed to assuage the concerns of Western powers fearful of aggressive measures undertaken by rogue nuclear proliferants.[8]

Although its importance has varied depending on other developments on the world stage, the nonproliferation issue has never completely disappeared from foreign policy calculations. Every American president since the end of World War II has had to reassess nuclear deterrence policies to a greater or lesser extent; as a result, American nonproliferation policy has undergone enormous

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changes from 1945 to the present.[9] Beginning at the end of World War II until about 1960, the United States sought to prevent the Soviet Union and its satellites from developing nuclear weapons while simultaneously encouraging U.S. allies to develop defensive nuclear capabilities. For their part, the Soviets pursued a similar policy with countries of the Warsaw Pact. After France tested a nuclear bomb, the Superpowers changed their strategies and pursued strict nonproliferation policies after 1960.[10] Prior to the development of the first international nonproliferation agreement—the Nuclear Nonproliferation Treaty (NPT), signed by the Johnson administration in 1968 and ratified under the Nixon administration two years later—nonproliferation generally was a secondary geopolitical issue.[11] Since the NPT was adopted, and especially since the Carter administration came to power in 1977, it has assumed center stage at crucial points in our history.[12]

Although many specific policies developed during the 1970s have been modified since that time, the current framework for thinking about nonproliferation and its linkage to the domestic nuclear industry began during the Carter administration; for that reason, the thirty-ninth president's policies are especially relevant to the present. Initiatives to limit the spread of nuclear weapons had been debated since at least the Truman administration, but Carter changed the tenor of the debate. He came to the White House as a new era was dawning. The Cold War was not yet over, but the new president was looking to a future when the strategic arms race should be halted because it exacerbated tensions in an already tense stalemate between the United States and its allies and the Soviet Union and its satellite states.[13]

A series of domestic and international events highlighted the dangers of nuclear weapons during that decade. Congress ratified the 1968 NPT in 1970, but it remained on the periphery of the Nixon administration's foreign policy agenda in light of other, more pressing Cold War concerns. In May 1974, the analysis changed when India tested a nuclear device, thereby dramatically demonstrating the power exercised by any nation that possessed nuclear technology, including the technology necessary to extract plutonium from spent nuclear fuel.[14] In effect, India served notice to the United States that nuclear nonproliferation was no longer a tangential foreign policy issue.[15]

A month after the Indian incident, President Richard M. Nixon visited Egyptian President Anwar Sadat in the Middle East and announced a plan to provide Egypt and Israel with nuclear reactor technology that could be used, among other things, to manufacture weapons. Foreign policy experts feared that President Nixon's plan would lead to the spread of nuclear weapons technology throughout the world.[16] A 1977 study undertaken by the Mitre Corporation confirmed this fear when it linked the development of domestic nuclear energy technology with the potential for increased terrorist activity.[17]

By the 1970s, nuclear weapons proliferation had become one of the most visible national security problems of the Cold War era.[18] Anxious to fulfill his campaign promises to pursue a course of action that would halt the spread of nuclear weapons and genuinely concerned about the issue, President Carter took steps to increase the salience of nonproliferation issues. His decision to postpone the U.S. liquid metal fast breeder reactor program, support the 1978 Nuclear Non-Proliferation Act (NNPA), and ban spent nuclear fuel reprocessing represented a marked change in U.S. nuclear policy, and it still holds repercussions for present-day American nuclear policy.[19]

## Politicization of the Nonproliferation Issue: The 1976 Presidential Campaign

Former Georgia Governor Jimmy Carter was the sole candidate seeking the 1976 presidential nomination who addressed nuclear issues as an integral component of his energy policy. A former member of Admiral Hyman Rickover's nuclear navy, Carter understood the issue as few candidates did.[20] The key to his strategy for capturing the Democratic nomination, and later the White House, was twofold. First, he portrayed himself as a populist outsider who would not succumb to "Potomac Fever" in his quest for political power. He would rise above the fray of partisan politics and restore a sense of honor and integrity in public service in the aftermath of the Watergate scandal. He also emphasized his understanding of complex technical problems facing the nation, especially in the areas of energy policy and international human rights in foreign affairs.[21]

Carter walked a fine line in crafting his energy policy. To bolster his credibility with representatives of the blossoming environmental movement, early in the campaign he announced his opposition to reprocessing spent fuel rods, a procedure that separates uranium from plutonium for reuse. The candidate recognized that reprocessed weapons-grade plutonium could be used to increase the number of nuclear weapons throughout the world.[22] In announcing his opposition to spent-fuel reprocessing, Carter attempted to have his cake and eat it too. He could promise antinuclear environmentalists that his administration would take steps to control global nuclear weapons proliferation while simultaneously assuring the nuclear industry that he was not opposed to relying on commercial nuclear reactors to meet the nation's energy needs.[23]

Had nuclear energy merely been a component of his energy policy, Carter probably would not have been as willing to emphasize nuclear issues as he appeared to be during the campaign. Because his fear of nuclear weapons proliferation was inextricably intertwined with his view of human rights, however, Carter was willing to invest time and attention in distinguishing his principled stance from the position of realpolitik advocated by Nixon and Kissinger.[24] As commentator Robert A. Strong observed, "Human rights for Jimmy Carter was much more than a convenient campaign issue in 1976. It had deep roots in his personal experiences and his early political career. It had a central place in his world view."[25]

Be that as it may, Carter's commitment to limiting nuclear weapons as a central component of his energy and human rights policies also was politically useful in 1976. Presidents Nixon and Ford generally approached domestic nuclear energy reprocessing and nuclear nonproliferation issues separately, but candidate Carter chose to link them together as untenable threats to American national security interests.[26] One of his earliest official statements on the subject came during a speech at the United Nations on 13 May 1976, before he secured the Democratic presidential nomination. Entitled "Nuclear Energy and the New World Order," the speech addressed the reprocessing issue in unequivocal terms.

"There is a fearsome prospect that the spread of nuclear reactors will mean the spread of nuclear weapons to many nations," Carter observed. He argued that halting nuclear proliferation was one of the most important issues facing world leaders in the latter half of the twentieth century. He also predicted that if the United States and other Western, industrialized nations did not act swiftly and decisively, "by 1990, the developing nations alone will produce enough plutonium in their reactors to build 3,000 Hiroshima-size bombs a year—the equivalent of 100,000 bombs a year—about half of it outside of the United States."[27]

The candidate's nonproliferation policy received widespread praise from the environmental community and served as an effective, high-profile issue for the campaign. Moreover, his tough campaign rhetoric demonstrated a sophisticated understanding of the issues. In all of his major policy pronouncements, Carter stressed the linkage between nuclear technology exports and nuclear nonproliferation. This was a masterful stroke for a candidate seeking to distinguish himself from the competition both in the areas of energy policy and human rights.[28] Until President Ford abruptly changed positions late in the 1976 presidential campaign, Carter's predecessors spoke of nonproliferation as predominantly an international problem amenable to international solutions. By arguing that the United States potentially could curtail global weapons proliferation by limiting or even prohibiting nuclear technology transfers, Carter began to bridge the gap between American foreign policy on nuclear weapons and American domestic policy on nuclear technology such as spent-fuel reprocessing.[29]

The United Nations address was not the first indication that Carter intended to appropriate the nuclear issue as a campaign tool. The day before that speech, Townsend M. Belser Jr., an attorney in Columbia, South Carolina, and a Carter-for-President supporter, wrote a letter to Dr. John W. Gofman, a professor in the Division of Medical Physics at the University of California at Berkeley and a member of the Committee for Nuclear Responsibility. In the letter, Belser outlined the reasons why Dr. Gofman, a renowned opponent of nuclear power and U.S. foreign policy on weapons nonproliferation, should support Carter's 1976 presidential bid.

"Although I cannot represent that Carter is totally against nuclear power, I feel that he has serious reservations about its widescale proliferation and will give careful consideration to the concerns of responsible scientists," Belser wrote. "I realize, of course, that Carter does not stand for everything that the anti-nuclear movement might wish. However, he is the only candidate with a chance of winning who will at least listen to both sides and factor the concerns of environmentalists into the decision-making process."[30]

More important than his campaign correspondence, Carter's interest in nuclear policy was reported in the popular press, a welcomed development for a dark-horse candidate seeking to establish his legitimacy. On 25 May 1976, an article in the *Christian Science Monitor* noted that Carter was considering America's foreign and domestic nuclear policies in tandem. The article observed that "a

Carter White House would call for a complete international ban on the sale of uranium enrichment or reprocessing plants, from which weapons-grade plutonium can be extracted."[31]

Later, after Carter had won the election, a *Los Angeles Times* editorial entitled "Nuclear Waffle?" explained that one of the keys to the candidate's victory was his decisive stance on nuclear nonproliferation. Ironically, Carter was given credit for championing policies that already had begun to change during the Ford administration. The key distinction was that President Ford appeared to vacillate apparently because he had no fixed, well-developed nuclear policy. Carter, however, seemed much more certain of his position. The editorial concluded that "President Ford made it as plain as he could in his October 28 nuclear-policy statement: The U.S. government will no longer proceed on the assumption that plutonium will be recovered from spent nuclear fuel and reused in power reactors. If a program for the use of plutonium as reactor fuel goes forward, it should be part of an international program designed to avoid the further spread of nuclear weapons. Unfortunately, Washington's nuclear-energy bureaucracy preferred not to get the president's message. The Energy Research and Development Administration has persuaded White House budget officials to back a proposal for expenditure of $12 million for purposes at odds with the October policy statement."[32] The *Los Angeles Times* editorial made a valid assessment. Despite his best efforts, President Ford could not convince the public that he had formulated a clear, consistent policy aimed at halting nuclear weapons proliferation. Even when he took decisive action to end spent fuel reprocessing, President Ford was viewed as weak and, therefore, a poor leader.[33]

Nuclear energy policy, absent a crisis to galvanize public attention, generally does not receive widespread media coverage. Yet the media reported on the issue, and some citizens took notice of Carter's antireprocessing policy, especially his criticism of President Ford's poor leadership. This improved the Georgian's political prospects at a time when he desperately needed public attention to legitimize his status as a serious presidential contender.[34]

Examples of the salience of the issue can be found in the archives of the Jimmy Carter Presidential Library in Atlanta, which contain correspondence from citizens indicating their support for the candidate's nonproliferation policy. Mr. Jon-Paul Wendt of Brighton, Massachusetts, expressed the sentiments of typical nonproliferation advocates in a mailgram he sent to the Carter-for-President headquarters on 7 October 1976. He advised the candidate that "as a voter I believe that the strongest way to win over Ford and very easily is to be specific and repetitive to the point of imprinting into the public's mind that the vital issue now confronting a President is the Atomic/Solar polarity-priority decision issue since everything inherently rests on it."[35] Although a bit overstated, Mr. Wendt's suggestion appears prescient with the benefit of hindsight.

## The Carter Administration's Nonproliferation Policy

Before Carter assumed the presidency in 1977, the nuclear industry had reaped the benefits of enormous government support. When the industry began developing during the 1950s, nuclear energy executives had successfully argued that the viability of the domestic nuclear industry depended in large measure on continued access to the international market. This proved to be a persuasive argument in effecting national nuclear policy up through the late 1970s. The Nixon and Ford administrations generally agreed that the United States would be most effective in influencing the safe transfer of nuclear technology by providing leadership in the international arena. This was especially true for sales of enriched uranium. By controlling sales and handling of uranium through an international consortium, the United States was in a strong position to dictate terms and conditions that to some extent would limit weapons proliferation.[36]

The industry's strategy seemed to be fairly effective until 1970, when the Soviet Union began to offer enriched uranium to other nations, most notably France, with "no strings attached," unlike the terms of American transfers. After that time, the Nixon administration found itself faced with a difficult question. Should the United States continue to try to influence uranium sales on the free market or should it withdraw from the international arena altogether on the premise that if it could not control sales it would prefer not to export nuclear technology in the first place?[37]

Faced with other foreign policy issues, especially the Vietnam War, the Nixon administration deferred to the nuclear industry and allowed international uranium sales to continue. In the meantime, in response to concerns over the possibility that fuel supplies might be depleted within twenty years if nuclear power became a major source of domestically produced electricity—which seemed likely in the pre–Three Mile Island era of the early 1970s—the Nixon ad-

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ministration threw its support to the liquid metal fast breeder reactor (LMFBR) program.[38] The LMFBR program was designed as a newer, safer generation of reactor that would reduce the demand for fossil fuels and thereby decrease American dependence on foreign energy sources, such as petroleum. At the time, nuclear power also seemed to be a viable alternative, especially as the environmental community began to raise concerns about air pollution generated by coal-fired plants and other industrial facilities that burned fossil fuels.[39]

The new administration arrived in Washington intent on changing what it deemed to be the muddled policy of the Nixon and Ford years. After he assumed the presidency in 1977, Carter followed through with his campaign promise to reject the reprocessing option.[40] He also reviewed plans to develop the LMFBR and eventually decided to shelve the program. Before the year was out, the new president also had delivered four major policy speeches on the urgent need to formulate a new nonproliferation policy.

On 7 April in his first major policy statement concerning nuclear issues, the president said, "We will defer indefinitely the commercial reprocessing and recycling of plutonium produced in the U.S. nuclear power programs. From our own experience we have concluded that a viable and economic power program can be sustained without such reprocessing and recycling. The plant at Barnwell, South Carolina, will receive neither federal encouragement nor funding for its completion as a reprocessing facility.[41] We will continue to embargo the export of equipment or technology that would permit uranium enrichment and chemical reprocessing."[42] In a similar vein, twenty days later he told the Congress that the "need to halt nuclear proliferation is one of mankind's most pressing challenges."[43]

Carter's third major statement on nonproliferation policy came as part of a highly publicized speech delivered at the University of Notre Dame on 22 May. He used the occasion to provide a comprehensive outline of his foreign policy views. In discussing the role of nonproliferation policy in his administration, he said, "We are attempting, even at the risk of some friction with our friends, to reduce the danger of nuclear proliferation and the worldwide spread of conventional weapons."[44] He recognized that this policy was not popular with some friendly nations—nor with members of Congress worried about the Cold War policies of the Soviet Union, for that matter—but Carter believed it was necessary to introduce a semblance of sanity into the arms race. "We will, as a matter of national

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policy now in our country, seek to reduce the annual dollar volume of arms sales, to restrict the transfer of advanced weapons, and to reduce the extent of our coproduction arrangements about weapons with foreign states," he concluded. "And, just as important, we are trying to get other nations, both free and otherwise, to join us in this effort."[45]

Later in the year, as he began pushing his nonproliferation agenda through Congress, Carter used a speech to the General Assembly of the United Nations as a forum for advancing his administration's policy goals. "Peace will not be assured until the weapons of war are put away," he said.[46] The president's timing was no accident. Even as he spoke to the nations of the world, the United States Congress was debating the administration's new approach to nuclear weapons issues.[47]

Although Carter chose to deviate from previous executive policy on nuclear issues, to some extent he accepted the long-standing presupposition that uranium and nuclear technology sales are primarily an economic issue with political repercussions. Unlike Nixon and Ford, however, Carter believed that Americans could influence the behavior of other nations by limiting domestic technology sales and threatening to embargo material sales to rogue nations altogether. Where his predecessors had worked discreetly through international institutions such as the London Suppliers Group, Carter deliberately changed course. In an effort to control weapons production through a principled, high-profile, politicized stance that cast aspersions on any nation that contributed to proliferation, the United States moved away from its previous efforts at building an international coalition.[48]

In the months following the April and May 1977 policy statements, he and his advisers crafted a strategy to implement the new policy into law.[49] As an integral part of the legislative strategy, the administration again declared its intention to postpone development of new reactors because such technology would increase the supply of plutonium and enriched uranium available on the world market, which could then be used to manufacture nuclear weapons.[50] Carter immediately found himself in a heated dispute with members of Congress who feared that the United States would forfeit its lead role in the international marketplace if the new policy prevailed, thereby ironically increasing the likelihood of nuclear proliferation.

Some congressional critics, such as Senator Carl T. Curtis, a Republican from Nebraska, objected to the administration's entire energy policy, including the nuclear provisions. "The Carter energy policy is the product of men of little faith," Senator Curtis wrote in a *Congressional Digest* forum in 1978. "The Carter energy policy is the result of fear—fear of the militant environmentalists who know not whereof they speak, and fear of the demagogues who espouse Marxist theories of taxation and regimentation that have proved fruitless throughout the centuries."[51]

Other critics focused more on Carter's specific approach to nonproliferation. According to Senator James A. McClure, a Republican from Idaho, and his colleague, Senator Frank Church, a Democrat from Idaho, Carter's attempts to regulate nuclear exports and tightly control licensure provisions for the nuclear industry were an invitation to promulgate cumbersome regulations and thereby cause needless bureaucratic delays.[52] Senate Minority Leader Howard H. Baker Jr. of Tennessee agreed that nonproliferation was an important goal, but he doubted whether the administration's proposal to limit technology transfers was a viable solution. "We must try to keep it from proliferating any more than it already has, and try to live with that genie now that he is out of the bottle," he said. Senator Pete Domenici, a Republican from New Mexico, was even more blunt in his criticism of the Carter policy. "A strategy of nonproliferation based solely on denial of equipment and technology will at most only delay, not prohibit, this possibility."[53]

The president faced a tough battle as he fought to implement his own nonproliferation policy in lieu of modified congressional proposals. In the face of intense congressional opposition, he vetoed a bill, S-1811, that would have authorized construction of the breeder reactor. In the accompanying veto message to Congress, Carter explained that the LMFBR program increased the risk of nuclear weapons proliferation by making the technology readily available. He specifically referred to "my strong belief that proceeding beyond completion of the system design phase of the Clinch River facility would imperil the Administration's policy to curb proliferation of nuclear weapons technology."[54] The president also rejected the notion that a "once through fuel cycle" might exacerbate a domestic nuclear waste storage and treatment problem by eliminating a promising means of spent-fuel disposal.[55] By vetoing the measure, Carter fulfilled his campaign promise of promoting nuclear nonproliferation, although Congress subsequently allowed the breeder reactor program to move forward through other legislation.[56] Congress could not prevent the president from issuing an executive order banning reprocessing; consequently, by using executive authority, Carter successfully prevented plans to build a reprocessing facility from receiving the necessary legislative authorization.[57]

The administration's refusal to compromise on the nonproliferation issue strained Carter's already poor relationship with Congress. Many congressional leaders, even within Carter's own party, were upset because he did not consult with them early in the policymaking process. Moreover, his moralistic tone, his "the sky is falling rhetoric," and his heavy-handed "no compromises" approach to shaping the policy combined to aggravate a Congress that already viewed this political outsider with suspicion, if not outright disdain. Although in later years Carter was to experience greater frustrations and disappointments in his relationship with Congress over other administration initiatives—most notably in the debate over the Panama Canal Treaties[58]—this dispute early in his tenure foreshadowed many problems that persisted throughout his presidency.[59]

His success with the private sector was only marginally better. Accustomed to widespread presidential support, the nuclear industry was stunned to realize that the new administration would curtail nuclear technology exports as well as prohibit reprocessing of spent nuclear fuel. When the new position became clear, the industry vehemently lobbied against the administration's proposals. Executives were worried that the administration's policy would not influence the state of global nuclear weapons proliferation and would inadvertently and irrevocably harm the American nuclear industry. A representative of Westinghouse Electric Corporation, a major supplier of foreign nuclear reactors, argued at the time that, among other things, jobs would be lost, the domestic industrial base would erode, and the United States would lose its international standing in the nuclear market. Instead of tightly controlling nuclear technology exports, Westinghouse suggested that the United States should seek greater international and multinational solutions for controlling nuclear exports.[60]

The Carter administration disputed the industry's claims that the loss of technology exports and the prohibition of reprocessing would lead to calamitous economic consequences. Carter always maintained that the nuclear industry could develop new and better fuel-cycle technologies without relying on reprocessing or the revenue generated by export sales. Moreover, the administration sought to exercise a greater measure of control than the Westinghouse proposal allowed.

After the president successfully halted plans for constructing a reprocessing facility, industry officials realized that they had to change their strategy. Recognizing a *fait accompli*, they eventually acquiesced to prevent adoption of more draconian, less market-based approaches that would have required congressional approval prior to exporting nuclear technology. On 7 February 1978, with industry more or less on board, the administration successfully pushed a measure, S 897, through the Senate by an 88–3 vote.[61] Two days later, the House version, HR 8638, easily passed by a 411–0 vote. President Carter signed the bill into law on 10 March 1978 as the Nuclear Non-Proliferation Act (NNPA).[62] "Preventing nuclear proliferation will not be easy—some have called this task impossible," he said as he signed the bill. "I believe, however, that halting the spread of nuclear weapons is imperative. We must press forward in our efforts. Fear of failure cannot be allowed to become a self-fulfilling prophecy."[63]

Carter had accomplished the nonproliferation goals established during the campaign, but he had incurred tremendous political costs in doing so. According to administration critics, because he did not adequately consult with Congress and he strong-armed the nuclear industry, Carter permanently depleted a significant portion of his political capital during the first year of his presidency. Moreover, the question remained whether the costs were worth the benefits; the new statute provided the president with authority to control nuclear technology transfers, but his decision to apply the statutory provisions would depend on other geopolitical developments.[64]

The NNPA promulgated several legal mechanisms designed to control nuclear exports. The first mechanism refined language contained in cooperative agreements with other nations to insert a clause limiting nuclear weapons technology exports. Another mechanism required that existing cooperative agreements be renegotiated to include the new language. The act also created an export licensure system and established procedures for controlling the enrichment, reprocessing, and retransfer activities of countries receiving nuclear technology assistance from the United States. The express purpose of these mechanisms was to increase U.S. leverage over "friendly" nations, especially France, Japan, and West Germany, that had taken a more permissive view of reprocessing and nuclear technology transfers.[65]

In cases where exports were allowed, the president could cancel or modify the terms of the contract if a recipient nation used the material it acquired to develop nuclear weapons or if it exploded a nuclear device during the contract period. The contract also was revocable if a recipient nation transferred the material to a non-nuclear nation or if it encouraged weapons production in non-nuclear nations. The president's power to act under the terms of the NNPA was predicated on his authority to protect American security. His decision could be overruled only by a concurrent resolution passed by Congress within sixty days of the president's action.[66]

In addition to their opposition to tight controls placed on exports in the NNPA, nuclear industry executives were concerned about the repercussions for domestic nuclear waste disposal options. They had always assumed that spent nuclear fuel would be reprocessed and used several times in the nuclear fuel cycle.[67] Without the reprocessing option, the industry was forced to fall back on a number of traditional, short-term methods of disposal. The methods they adopted generally were variations on a process known as at-reactor storage,[68] which included storage pool expansion,[69] transshipments,[70] and dry storage,[71] all of which presented significant technical challenges.

The administration was not oblivious to the problems presented by the president's decision to foreclose the reprocessing option. Several days after he signed the act into law, President Carter established the Interagency Review Group (IRG) to formulate recommendations on long-term management and disposal of spent nuclear fuel and high-level radioactive waste without reprocessing.[72] In theory, the creation of the IRG was designed to improve the administration's decision-making capabilities by expanding the boundaries of the nuclear issue to factor in problems associated with waste disposal without a reprocessing component. In the industry's opinion, however, the reality was far different. Because the group was created *after* passage of the NNPA and because group members generally supported the president's policies at the outset, the IRG became a "rubber-stamping" mechanism for justifying the administration's position in lieu of serving as an effective internal critic of the decision-making process. According to this perspective, the group's recommendations predictably supported Carter's position, concluding that "the implementation of the President's Spent Fuel Policy should be pursued vigorously and appropriate legislation be submitted to Congress."[73]

President Carter's problems with the nation's evolving nonproliferation policy did not end with passage of the NNPA or issuance of the report containing the IRG's recommendations. Although he attempted to present a united front within his administration and inside the federal bureaucracy, the assumptions built into the NNPA always presented problems for the president. Science and technology adviser Frank Press, for example, posed a question that the administration never adequately addressed. "If reprocessing proceeds abroad, what utility is there in the U.S. foregoing it?" he wrote in a March 1977 memorandum, less than a month before the new president issued his first formal policy statement on the issue. "Might not an international reprocessing program, involving U.S. participation, be better in halting proliferation?"[74]

A year earlier, the Institute for Energy Analysis, Oak Ridge Associated Universities, made a similar point in a volume on the economic and environmental implications of a nuclear moratorium. "We are unable to determine the effects of a U.S. nuclear moratorium on the international proliferation of nuclear weapons," the report began. "We believe that the effect of a moratorium adopted only by the U.S. would be marginal and secondary: marginal because reactors would be available from other countries, secondary because of the influence of the U.S. on world energy policy (including decisions by others to follow suit). It is no longer possible for a single nation to influence significantly the possibility of proliferation through a unilateral capacity to supply nuclear power systems. On the other hand, the extent to which the U.S. influence on worldwide nuclear policy would be diminished by its withdrawal from nuclear power development could result in less rigid international regulation and inspection."[75]

Despite these criticisms—and the criticisms initially articulated by the nuclear industry before the NNPA was enacted—the administration continued to profess its support for the act. The president insisted that he intended to apply the NNPA provisions strictly. To do otherwise, he contended, would be to fall back into the old patterns of thinking that permeated predecessor administrations.[76]

The first major test of the NNPA occurred in April 1979, when Pakistan attempted to acquire reprocessing equipment and enrichment technology from other countries. Although Pakistan had not received a significant number of shipments from American companies up until that time, the country's fledgling industry had been constructed with American cooperation and with Canadian, French, and Japanese assistance. Thus, the NNPA applied to Pakistan because the American nuclear industry previously had supplied equipment and technical assistance. Under provisions of the statute, President Carter had the authority to intervene and vitiate those contracts. In addition, he had the option of suspending other forms of assistance provided by the United States to the Pakistani government.[77]

Although clearly Carter possessed the necessary legal authority to prevent Pakistan from acquiring reprocessing technology, he pursued a confused, and confusing, course of action for several reasons. First, American policy toward Pakistan was in a state of transition in the 1970s. During the Nixon years, the United States had allied itself strongly with Pakistan as a means of establishing relations with Mainland China. Because India and Pakistan were bitter rivals, this perceived American bias toward Pakistan (especially in the 1971 Indo-Pakistani War) exacerbated a growing rift between India and the United States. Anxious to improve relations with the second most populous nation on earth, President Carter signaled a policy shift by visiting India and calling for closer ties between New Delhi and Washington.[78]

Also, in a larger sense, the Asian subcontinent always has been an area of the world that has perplexed American foreign policy owing to the diverse social, cultural, religious, and political beliefs prevalent in the region. Because nations such as Pakistan have traditions that are alien and sometimes hostile to the United States, American policymakers have been cautious in their dealings with non-nuclear powers in Asia to prevent them from acquiring the means to manufacture nuclear weapons. On the other hand, during the 1970s the same Islamic nations often were important sources of foreign oil production; moreover, they became important crossroads for American efforts to contain Soviet aggression. The tension between the complex policies of the region and the competition between World War I and World War II geopolitical strategy often produced a kind of "policy schizophrenia" where decision makers waffled in their efforts to develop clear, consistent foreign policy.[79]

Pakistan is a prime example of this policy schizophrenia. In keeping with terms of the act and the new policy of normalizing relations with India, the Carter administration initially discontinued aid to the Pakistani government. The following year, in the wake of the Soviet invasion of Afghanistan, the administration was forced to recognize Pakistan's strategic importance to U.S. interests; consequently, Carter reversed his decision and restored aid. In fact, the United States was so concerned with Pakistan's strategic importance that the administration offered $400 million to General Mohammed

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ul-Haq Zia, the country's military dictator. For supporters of the president's nonproliferation policy, this reversal added insult to injury.[80]

Following Carter's decision to set aside the NNPA provisions for Pakistan, critics denounced the president as weak and vacillating (a charge that Carter on occasion had leveled at his predecessor). After expending so much political capital to push the NNPA through Congress, Carter seemed willing to abrogate the strict provisions of the statute at a time when they were most important. In the administration's defense, one could argue that the president did not set aside the NNPA lightly. The United States had to modify its support for the strict terms of the NNPA when international political events and strategic considerations compelled such policy deviations. Strict adherence to the statute with respect to Pakistan would have jeopardized the administration's goal of countering Soviet aggression in Europe and Asia.[81]

The United States did not have many long-standing connections with the Pakistani nuclear industry, so the administration was able to set aside the NNPA provisions with few qualms. India, however, presented a much more complex case. The U.S. nuclear industry assisted the developing Indian nuclear industry as early as the 1950s. Thanks in no small measure to American assistance, India's first nuclear power facility, the Tarrapur Atomic Power Station (TAPS), began operating in 1969. Unfortunately for the United States, India proved to be a fiercely independent nation when it came to its atomic energy program. It refused to ratify the original 1968 international NPT and it constantly pushed to develop nuclear weapons capabilities. India also steadfastly refused to grant access to IAEA inspectors when they sought to inspect the TAPS facility. Finally, when India exploded a nuclear device in May 1974, American policymakers were faced with a dilemma about the future of U.S.-Indian relations.[82]

After a series of discussions with representatives of the Indian government, the United States reached a decision. Administration officials said they were convinced that the nuclear device was not built using American technology; as a result, India had not technically violated any U.S. laws. (The 1978 NNPA was enacted four years after the 1974 explosion.) Later, when India made three nuclear materials transfer requests to the United States during the Carter administration, the House voted to approve the shipments. The first transfer occurred in July 1978 and was based on the premise that the

United States would have greater leverage with India if the export took place.[83] In June 1980, the administration agreed to transfer the final two shipments of thirty-eight metric tons of enriched uranium to India, despite the country's continued refusal to renounce future nuclear weapons tests and its insistence that IAEA inspectors would not be permitted to inspect its nuclear industrial sites.[84] President Carter signed Executive Order 12218 authorizing the sale on 19 June.[85]

As was the case with Pakistan and other Asian nations, U.S. policy toward India was filled with tension and inconsistencies. One commentator, Stanley Hoffman, has argued in another context that "the United States exposed itself to dangerous schizophrenia in the realm of security" as the administration struggled with its desire to support the strict terms of statutory requirements in the face of other geopolitical considerations.[86] Schizophrenia or no schizophrenia, the U.S. Senate voted by a margin of 2-to-1 to support President Carter's decision to ship the uranium. Although the House of Representatives later rejected the proposal, the shipment was carried out as planned because the law required only Senate approval.[87]

Critics often speculated over the reasons for the administration's decision to back away from applying the NNPA provisions to India in 1978 and 1980—even though it was a clear example of a nation that sought to intensify the arms race on the Asian subcontinent if ever there was one. President Carter always insisted that his paramount consideration was to bring India back into the international community of nations friendly to the United States.[88] In response, critics argued that the president was too lenient with India. At least with the previous policy deviation, General Zia provided Washington with assurances that Pakistan would not develop or transfer nuclear weapons and weapons technology, however empty such promises may have been in the long run. India provided no such assurances, yet the administration approved the sale of uranium nonetheless.[89]

For his part, President Carter explained that, despite misgivings, he believed relations with India were too important to jeopardize over the sale of a comparatively small quantity of uranium. In a message to Congress that accompanied the Executive Order 12218, Carter noted that "India's failure to accept international safeguards on all its peaceful nuclear activities and its failure to commit itself not to conduct further nuclear explosions are of serious concern to me. These exports will help us maintain a dialogue with India in

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which we try to narrow our differences on these issues." In short, he realized that this exception to the NNPA was not risk-free, but he believed that the potential benefits of maintaining good relations with India far outweighed the risks. "Approval of these exports will help strengthen ties with a key South Asian democracy at a time when it is particularly important for us to do so. Insecurity in South and Southwest Asia has been greatly heightened by the crisis in Iran and the Soviet invasion of Afghanistan," he concluded. "We must do all we reasonably can to promote stability in the area and to bolster our relations with states there, particularly those that can play a role in checking Soviet expansion."[90]

## Conclusion

Prior to 1977, when Jimmy Carter entered the presidency, American nuclear nonproliferation policy generally was developed as a peripheral component of the nation's foreign policy. In the past, decision makers focused more attention on the Cold War and efforts to check Soviet aggression throughout the world. After India exploded a nuclear device in 1974, nonproliferation issues became far more salient, although the Nixon and Ford administrations continued to advocate international solutions to nonproliferation issues. The Carter administration changed the previous administration's policies by supporting measures, such as the 1978 NNPA, aimed at aggressively curtailing nuclear weapons proliferation absent international controls. Plans to export nuclear technology and reprocess spent nuclear fuel also were altered to limit the amount of material and equipment that might be used by non-nuclear nations intent on entering the "nuclear club."[91] Nonetheless, as had been the case in prior administrations, the Carter administration continued to do business with nations that contravened the strict terms of the NNPA when geopolitical considerations necessitated such exceptions.

Unfortunately for Carter, his new nonproliferation policy failed to achieve its objective of halting or severely curtailing the global spread of nuclear weapons.[92] At the time the nuclear industry first developed in the 1940s and 1950s, it may have been possible for the United States to control weapons proliferation by tightly controlling technology exports. By the 1970s, this was no longer the case. As more European nations began to develop and export nuclear technology, they were able to supply material and equipment to develop-

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ing nations to such an extent that the absence of the United States from the global nuclear marketplace presented, at best, an inconvenience. In a worst-case scenario, the unwillingness of the United States to participate in an international consortium ironically may have exacerbated weapons proliferation. By leaving the field to European nations that expressed little or no compunction in exporting nuclear technology, the United States may have lost what marginal leverage it had to influence the debate. Moreover, because the U.S. nuclear industry could no longer participate as freely in international markets, it lost significant revenue sources. Without a reprocessing option, the domestic nuclear industry also was forced to develop short-term methods for disposing of spent nuclear fuel and high-level radioactive waste while waiting for a geologic repository to be constructed. Although the absence of a reprocessing option did not create a domestic nuclear waste disposal crisis, it did worsen an already difficult waste management problem.[93]

Many specific provisions of U.S. nonproliferation policy developed in 1977–81 were reversed by the Reagan administration and obviated by the fall of the Soviet Union and the end of the Cold War. Nonetheless, the Carter administration's focus on nonproliferation propelled the issue to the forefront of American foreign policy during the 1970s.[94] By highlighting nonproliferation, Carter succeeded in elevating the importance of the issue on the world stage for the remainder of the twentieth century. Despite modest success in increasing the salience of the issue, however, the administration ultimately was unable to curtail weapons production because of several factors that were largely beyond U.S. control.

Even if the United States had been the sole supplier and had successfully placed conditions on nuclear technology exports, it would have been extremely difficult, in most cases, to enforce the controls without conducting extensive monitoring and testing. Absent an international consortium to perform the monitoring and testing, the United States probably would have been unwilling to undertake such an extensive project alone. Moreover, even if other nations had not supplied the non-nuclear nations with technology and assistance, it is highly probable that a number of developing countries would have developed the technology on their own. Except for Pakistan, countries such as India, Brazil, and South Africa were sufficiently well developed and sophisticated that they probably could have acquired the means to produce nuclear weapons without foreign assistance. Finally, because geopolitical realities and security considerations re-

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peatedly necessitated deviations from the strict terms of the NNPA, the Carter administration's selective application of the statutory provisions left U.S. policy vulnerable to charges of favoritism and inequity.

American nuclear nonproliferation policy remains an ambiguous area of foreign policy, filled with tensions and inconsistencies. This is hardly surprising. In the international arena, the United States has always had a difficult time reconciling its desire to influence global events and police rogue nuclear proliferants with the realities of the intractable problems that result from the internal politics and struggles of other countries. The record of the Carter administration was no worse in influencing nonproliferation than many other administrations before and since its time. In fact, as Douglas Brinkley and others have argued, perhaps the Carter presidency was not as inept in handling these issues as critics once charged. It may be that in years to come, Carter's "resurgent Wilsonianism"—as Tony Smith called it—will be vindicated by events of the twenty-first century. By pushing nonproliferation to the forefront of the American foreign policy agenda even before the Cold War had ended, Carter forced U.S. policymakers to struggle with the perplexing problem of nuclear weapons proliferation—a problem that persists, and will continue persist, into the foreseeable future.[95]

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## Notes

1. See, for example, Mohammed Ayoob, "India Matters," *Washington Quarterly* 23 (Winter 2000): 27–39; Stephen P. Cohen, "India Rising," *Wilsonian Quarterly* 24 (Summer 2000): 32–49; Robert S. Greenberger, "Nuclear Freeze Is Urged for Pakistan and India," *Wall Street Journal,* Eastern Edition, 5 June 1998, A16; Sami G. Hajjar, "Regional Perspectives on the Causes of Proliferation of Weapons of Mass Destruction in the Middle East," *Comparative Strategy* 19 (January–March 2000): 35–56; Weixing Hu, "New Delhi's Nuclear Bomb: A Systemic Analysis," *World Affairs* 163 (Summer 2000): 28–38; and Amartya Sen, "India and the Bomb: Forgetting the Moral and the Prudential," *The New Republic*, 25 September 2000, 32–38.

2. For a cogent discussion of the dangers inherent in nuclear proliferation resulting from the availability of nuclear technology, see David Albright, Frans Berkhout, and William Walker, *Plutonium and Highly Enriched Uranium 1996: World Inventories, Capabilities, and Policies* (New York: Oxford University Press for the Stockholm International Peace Research Institute, 1997), 147. Leonard S. Spector provided a good discussion of the troubling state of affairs for nuclear nonproliferation at the beginning of the 1990s in "Repentant Nuclear Proliferants," *Foreign*

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*Policy* 88 (Fall 1992): 21–37. See also Morton H. Halperin, *Nuclear Fallacy: Dispelling the Myth of Nuclear Strategy* (Cambridge, Mass., 1987); Joseph F. Pilat and Walter L. Kirchner, "The Technological Promise of Counterproliferation," *Washington Quarterly* 18 (Winter 1995): 153–65; Mitchell Reiss, *Bridled Ambitions: Why Countries Constrain Their Nuclear Capabilities* (Washington, D.C., 1995); John F. Sopko, "The Changing Proliferation Threat," *Foreign Policy* 105 (Winter 1996–97): 2–19; and Daniel Yergin, *Shattered Peace: The Origins of the Cold War and the National Security State* (Boston, 1978).

3. See, for example, "Pakistan Nuclear Tests, Following India's, Alter the Global Landscape," *Wall Street Journal,* 29 May 1998, A1, A10; and Thomas E. Ricks, "India-Pakistan Nuclear Rivalry Conjures Up Wargame Scenarios, Worrying U.S. Military," *Wall Street Journal,* 24 June 1998, A20.

4. See, for example, Gawdat Bahgat, "The Iraqi Crisis in the New Millennium: The Prospects," *Asian Affairs* 31 (June 2000): 149–59; and Spector, "Repentant Nuclear Proliferants," 30–31.

5. See, for example, Elisabeth Rosenthal, "North Korea Says It Will Unseal Reactor," *New York Times,* 13 May 1998, A10; and Spector, "Repentant Nuclear Proliferants," 27–29.

6. See, for example, Clovis Brigagao and Marcelo F. Valle Fonrouge, "Argentina and Brazil: A Regional Model of Confidence Building for Nuclear Security," *International Journal of Peace Studies* 3 (July 1998): 99–107; Avner Cohen and Joseph F. Pilat, "Assessing Virtual Nuclear Arsenals," *Survival* 40 (Spring 1998): 129–44; and Spector, "Repentant Nuclear Proliferants," 24–27.

7. See, for example, Cohen and Pilat, "Assessing Virtual Nuclear Arsenals," 129–44; Spector, "Repentant Nuclear Proliferants," 29–30; and "World Nuclear Power Summary, 1998," *World Almanac & Book of Facts 2000* (New York, 1999), 167.

8. See, for example, James M. Lindsay, "The Nuclear Agenda," *Brookings Review* 18 (Fall 2000): 8–11; "Pakistan Nuclear Tests, Following India's, Alter the Global Landscape," A1, A10; Ricks, "India-Pakistan Nuclear Rivalry Conjures Up Wargame Scenarios," A20; James R. Schlesinger, "Nonproliferation and U.S. Nuclear Policy," *Washington Quarterly* 20 (Summer 1997): 103–6.

9. For more on the historical evolution of nuclear policies from Truman to Johnson, see, for example, Shane Joseph Maddock, "The Nth Country Conundrum: The American and Soviet Quest for Nuclear Nonproliferation, 1945–1970" (Ph.D. diss., University of Connecticut, 1997), beginning at 75. A similar work that traces the issue through the Ford presidency is Roger Kelly Smith, "The Origins of the Regime: Nonproliferation, National Interest, and American Decision-making, 1943–1976" (Ph.D. diss., Georgetown University, 1990). For more on the Truman years, see also Lawrence S. Wittner, *One World or None: A History of the World Disarmament Movement Through 1953* (Palo Alto, 1993).

10. See, for example, Timothy J. Botti, *The Long Wait: The Forging of the Anglo-American Nuclear Alliance, 1945–1958* (Westport, Conn., 1987); Robert A. Divine, *Blowing on the Wind: The Nuclear Test Ban Debate, 1954–1960* (New York, 1978); David Alan Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945–1960," *International Security* 7 (Spring 1983): 3–70; and Thomas F. Soapes, "A Cold Warrior Seeks Peace: Eisenhower's Strategy for Nuclear Disarmament," *Diplomatic History* 4 (Winter 1980): 57–70. For more information on the U.S.-French nuclear debates, see, for example, Richard H. Ullman, "The Covert French Connection," *Foreign Policy* 75 (Summer 1989): 3–32.

11. A good work on this point is Marc Trachtenberg, *A Constructed Peace: The Making of the European Settlement, 1945–1963* (Princeton, 1999). Tractenberg's central thesis is that two paramount and interconnected concerns propagated Cold War policies, namely, fears about how the United States and her NATO allies could

defend themselves against the Soviet Union and worries that Germany might gain access to nuclear weapons. Accordingly, if one accepts Trachtenberg's argument, American presidents had an incentive to reject international control of nuclear weapons because they believed that the Soviet Union might exercise its influence and dilute the strength of NATO and, moreover, Germany might join the nuclear club as part of an international consortium. See also, for example, David Alan Rosenberg, "Reality and Responsibility: Power and Process in the Making of United States Nuclear Strategy, 1945–68," *Journal of Strategic Studies* 9 (March 1986): 35–51; and Samuel J. Walker, *Stemming the Tide: Arms Control in the Johnson Years* (Lexington, Mass., 1987).

12. Walton Brown, "Assessing the Impact of American Nonproliferation Policy: 1970–1980: An Analysis of Six Cases" (Ph.D. diss., University of Michigan, 1982), 1.

13. For a cogent analysis of this point, see especially William Stueck, "Placing Jimmy Carter's Foreign Policy," in *The Carter Presidency: Policy Choices in the Post–New Deal Era,* ed. Gary M. Fink and Hugh Davis Graham (Lawrence, Kan., 1998), 244–66.

14. Radioactive nuclides in radioactive materials differ in the intensity of their radiation, that is, by the number and energy of rays or particles emitted per second per unit of volume. Uranium and plutonium used in commercial nuclear reactors to generate electricity are high-level radioactive waste. Such waste is generated either by producing used nuclear fuel in commercial reactors or through reprocessing (chemical separation of the uranium and plutonium from other elements). "Spent nuclear fuel" is a term of art used to describe fuel removed from commercial reactors because the fuel can no longer produce electricity efficiently. The League of Women Voters, *The Nuclear Waste Primer: A Handbook for Citizens* (New York, 1993), 20–22.

15. Jimmy Carter acknowledged the new emphasis on nuclear nonproliferation in his major speech to the United Nations in May 1976. "Nuclear Energy and the New World Order," Address by Governor Jimmy Carter at the United Nations, 13 May 1976, 2, "Nuclear Issues" Folder, Box 25, Carlton Neville Collection, Subject File: "Nuclear Economic through Nuclear Issues," Jimmy Carter Presidential Library, Atlanta, Georgia.

16. Despite Nixon's seeming insensitivity to arms control concerns, at least one commentator observed that his administration witnessed "a major breakthrough in arms control treaties; a wide range of mutual cooperation agreements; and a generally improved atmosphere of détente." Jonathan Aitken, *Nixon: A Life* (Washington, D.C., 1993), 433.

17. Brown, "Assessing the Impact of American Non-Proliferation Policy: 1970–1980," 59.

18. See, for example: Glenn Chafetz, "The Political Psychology of the Nuclear Nonproliferation Regime," *Journal of Politics* 57 (August 1995), 743–75; Gregory A. Pickell, "Strength in an Unsettled World: The Role of Nuclear Weapons in Nuclear Nonproliferation and Deterrence," *Comparative Strategy* 15 (January 1996): 81–90; George H. Quester, *The Politics of Nuclear Proliferation* (Baltimore, 1973); Rosemary Radford Ruether, "A Biased U.S. Calls Shots on Nuclear Weapons," *National Catholic Reporter* 32 (31 May 1996): 17; Schlesinger, "Nonproliferation and U.S. Nuclear Policy," 103–6; Gerard Smith and Helena Cobban, "A Blind Eye to Nuclear Proliferation," *Foreign Affairs* 67 (Summer 1989): 53–69; Roger D. Speed, "International Control of Nuclear Weapons," *Washington Quarterly* 20 (Summer 1997): 179–84; Gerald Steinberg, "Beyond NPT," *Technology Review* 99 (May 1996): 64–65; and Yergin, *Shattered Peace*.

19. This comment is not technically accurate. On 28 October 1976, six days before the 1976 presidential election, President Ford ordered a temporary ban on spent-fuel reprocessing. Consequently, when Carter assumed the presidency in Janu-

ary 1977, he was not the first president to link nuclear deterrence with a ban on spent nuclear fuel reprocessing. Michael B. Gerrard, *Whose Backyard, Whose Risk: Fear and Fairness in Toxic and Nuclear Waste Siting* (Cambridge, Mass., 1994), 28.

20. Jimmy Carter, *Why Not the Best?* (New York, 1975), 58–65.

21. For more information on Carter's 1976 campaign strategy, see, for example, Robert A. Strong, "Pondering the Post-Scandal Election Dynamic," *Christian Science Monitor,* 16 March 1999, 11. For more detailed background information on the factors that influenced Jimmy Carter's political development, see, for example, Douglas Brinkley, "A Time for Reckoning: Jimmy Carter and the Cult of Kinfolk," *Presidential Studies Quarterly* 29 (December 1999): 778–97; and James Wooten, *Dasher: The Roots and Rising of Jimmy Carter* (New York, 1978).

22. See, for example, Betsy McBride and Sharon Lloyd O'Connor, *Transporting Radioactive Spent Fuel: An Issue Brief* (Washington, D.C., 1996); Jeffrey L. Means, *Long-Term Performance of Spent Fuel Waste Forms* (Washington, D.C., 1987); and U.S. Department of Energy, Office of Spent Fuel Management and Reprocessing Systems, *Bubble, Bubble, Toil and Trouble: Reprocessing Nuclear Spent Fuel* (Washington, D.C., 1983).

23. Candidate Carter's nuclear policy was sufficiently ambiguous to allow him to appear both antinuclear when it suited his purposes and pronuclear when that stance seemed politically expedient. Thus, he was able to assure most of his audiences that nuclear power was necessary to meet the nation's energy needs and yet, when he addressed a group of antinuclear environmentalists upset about the Seabrook Nuclear Power Plant in New Hampshire, he remarked that only "as a last resort would I continue to use nuclear power." Betty Glad, *Jimmy Carter: In Search of the Great White House* (New York, 1980), 310. For additional information on Carter's deliberately "fuzzy" approach to many issues in the 1976 campaign, including nuclear weapons proliferation and the Strategic Arms Limitation Talks (SALT II), see especially Zbigniew Brzezinski, *Power and Principle* (New York, 1983), 7; Euel W. Elliott, *Presidential Voting in Contemporary America—A Revisitionist View* (Boulder, Colo., 1989), 45; and Alexander Moens, *Foreign Policy Under Carter: Testing Multiple Advocacy Decision Making* (Boulder, Colo., 1990), 65. For more information on the early history of the environmental movement, especially the genesis of the nuclear freeze and disarmament factions, see, for example, Lawrence S. Wittner, *Resisting the Bomb: A History of the World Disarmament Movement, 1954–1970* (Palo Alto, 1997). Another useful history of the early antinuclear movement can be found in R. Allen Smith, "Mass Society and the Bomb: The Discourse of Pacifism in the 1950s," *Peace & Change* 18 (October 1993): 347–72.

24. For more on the Nixon-Kissinger approach to foreign policy, especially with respect to nuclear nonproliferation strategies, see, for example, Henry Kissinger, *Diplomacy* (New York, 1995), esp. 608–11; and Walter Russell Mead, *Mortal Splendor: The American Empire in Transition* (New York, 1987), esp. 88, 185.

25. Robert A. Strong, *Working in the World: Jimmy Carter and the Making of American Foreign Policy* (Baton Rouge, 2000), 73. For more information on the Carter administration's human rights emphasis, see also Clair Apodaca and Michael Stohl, "United States Human Rights Policy and Foreign Assistance," *International Studies Quarterly* 43 (March 1999): 185–98; Victor S. Kaufman, "The Bureau of Human Rights during the Carter Administration," *Historian* 61 (Fall 1998): 51–66; Mead, *Mortal Splendor,* 91–100; and Gaddis Smith, *Morality, Reason, and Power: American Diplomacy in the Carter Years* (New York, 1986).

26. For more on the nuclear strategies adopted by the Nixon and Ford administrations, see, for example, Robert Greene, *The Limits of Power: The Nixon and Ford Administrations* (Bloomington, 1992). In his memoirs, Carter explained that his reason for considering nuclear energy production in conjunction with nonproliferation was because the stakes were so high. "Despite opposition from some of

the suppliers of advanced technology, I wanted to do everything possible to prevent this capability from spreading to any additional nations," he wrote. In developing foreign policy, he insisted that his administration "had to wrestle with technical, political, economic, and moral questions of enormous difficulty," but it was the president's duty to consider each of these issues in reaching his decisions. Jimmy Carter, *Keeping Faith: Memoirs of a President* (New York, 1982), 215–16. Accordingly, if "suppliers of advanced technology" suffered from the nuclear energy–nonproliferation linkage, it was a small price to pay in the interests of national security.

27. Carter, "Nuclear Energy and the New World Order," 2. One commentator noted that Carter's May 1976 speech to the United Nations was an important part of the candidate's effort to distinguish himself from the competition on selected foreign policy issues. "This speech presently stands as the most elaborate expression of his view on any foreign policy issue," Ross Baker observed in 1977. Ross K. Baker, "The Outlook for the Carter Administration," in *The Election of 1976: Reports and Interpretations*, ed. Marlene M. Pomper (New York, 1977), 130.

28. For more discussion on this point, see, for example, Strong, *Working in the World*, 72–75.

29. This decision to reject international solutions to nonproliferation questions also caused Carter to turn away from the idea of a Multilateral Force (MLF), the notion that NATO should create a nuclear force owned and operated by participating nations as a defensive measure against Soviet aggression. The MLF concept originated as early as the Eisenhower administration and gained ground until the Johnson administration rejected this approach in championing the NPT. The Carter administration firmly closed the door on the MLF in pursuing a policy that eventually led to passage of the Nuclear Non-Proliferation Act of 1978. See, for example, Maddock, "The Nth Country Conundrum," 315–23, 525–26, 528.

30. Letter from Townsend M. Belser, attorney at law, Columbia, South Carolina, to Dr. John W. Gofman, Committee for Nuclear Responsibility, Division of Medical Physics, University of California, Berkeley, 12 May 1976, "Nuclear Issues" Folder, Box 25, Carlton Neville Collection, Subject File: "Nuclear Economics Through Nuclear Issues," Jimmy Carter Presidential Library, Atlanta, Georgia.

31. Harry B. Ellis, "Carter Would Shift U.S. Toward Solar Energy," *Christian Science Monitor*, 25 May 1976, n.p.

32. "Nuclear Waffle?" *Los Angeles Times*, 28 December 1976, section II.

33. Candidate Carter often derided President Ford's weak leadership, commenting that the incumbent had abdicated his responsibilities as president, leaving it to his secretary of state, Henry Kissinger, to develop foreign policy. "Mr. Kissinger has been the president of this country," Carter said on several occasions. Robert H. Swansbrough, "Forging a New Beginning: President Carter's Foreign Policy Beliefs," *Southeastern Political Review* 16 (Spring 1988): 120. See also Timothy P. Maga, *The World of Jimmy Carter: U.S. Foreign Policy, 1977–1981* (West Haven, Conn., 1994), 6–7; and George Coleman Osborn with Ron Martin, *The Role of the British Press in the 1976 American Presidential Election* (Smithtown, N.Y., 1981), 13, 165.

34. For more discussion on this point, see, for example, Henry A. Plotkin, "Issues in the 1976 Presidential Campaign," in *The Election of 1976: Reports and Interpretations*, ed. Marlene M. Pomper (New York, 1977), 35–53, esp. 47–49.

35. Mailgram from Jon-Paul Wendt, 8 Ransom Road, Apt. 15, Brighton, Massachusetts 02135, to Carter-Mondale Headquarters, Atlanta, Georgia, 7 October 1976, "Nuclear Waste [2]" Folder, Box 26, Carlton Neville Collection, Subject File: "Nuclear Opposition through Offshore Oil and Gas," Jimmy Carter Presidential Library, Atlanta, Georgia.

36. Historians consider the mid-1950s as a pivotal time for the industry because this marked the appearance of the first nuclear-powered submarine, the *Nautilus*, as well as President Eisenhower's Atoms for Peace program. It also marked the

first time that previously classified nuclear reactor designs were made available to public utilities and private companies anxious to move beyond fossil fuels and provide commercial, nuclear-generated electricity. After the 1950s, the civilian nuclear industry no longer tracked developments in the defense industry owing to a decision by the newly created Department of Defense to classify many of its nuclear operations. Gerald Jacob, *Site Unseen: The Politics of Siting a Nuclear Waste Repository* (Pittsburgh, 1990), 26. To expedite industry development, in 1957 Congress passed the Price-Anderson Act, the nation's first nuclear liability insurance law. The act was designed to alleviate fears over the financial solvency of the new industry in the event of an accident. Two years later, Commonwealth Edison's Dresden facility, located in Morris, Illinois, became the first industry-built and government-licensed nuclear power plant. For the next two decades, the nuclear industry grew tremendously. The Midwestern Office of the Council on State Governments, *Handbook of High-Level Radioactive Waste Transportation* (Lombard, Ill.: DOE/CH/10402-19, October 1992), 5.

37. Brown, "Assessing the Impact of American Nuclear Non-Proliferation Policy, 1970–1980," 48–49.

38. For more information on the Nixon administration's nuclear policymaking goals, see, for example, Terry Terriff, *The Nixon Administration and the Making of U.S. Nuclear Strategy* (Ithaca, 1995).

39. Walter A. Rosenbaum, *Environmental Politics and Policy*, 4th ed. (Washington, D.C., 1998), 279–81.

40. For more information on reprocessing in general, see, for example, Luther J. Carter and Thomas H. Pigford, "Confronting the Paradox in Plutonium Policies," *Issues in Science & Technology* 16 (Winter 1999/2000): 29–36; and William C. Sailor, "The Case Against Reprocessing," *Forum for Applied Research & Public Policy* 14 (Summer 1999): 108–12.

41. In 1976, Barnwell, South Carolina, served as a regional disposal site for low-level radioactive waste, and a plan for supplanting the facility was codified in the Low-Level Radioactive Waste Disposal Act of 1983. It was also the site of a planned spent nuclear fuel reprocessing facility. Clark W. Bullard, "Low-Level Radioactive Waste: Regaining Public Confidence," *Energy Policy* 20 (August 1992): 712–20. See also Richard C. Kearney and John J. Stucker, "Interstate Compacts and the Management of Low-Level Radioactive Wastes," *Public Administration Review* 45 (January–February 1985): 210–20.

42. "4/7/77—Statement—Nuclear Power Policy" Folder, Box 3, "Staff Offices/ Speechwriters—Chron File," 3/18/77—Swearing In—Ambassador [Richard N.] Gardner through 4/18/77—Energy Speech [3], Jimmy Carter Presidential Library, Atlanta, Georgia. The full text of the speech can be found in Jimmy Carter, "Nuclear Power Policy," in *Weekly Compilation of Presidential Documents* 13 (7 April 1977): 502–7. See also "House Sustains Carter Defense Program," *Congressional Quarterly Weekly Report* 35 (30 April 1977): 804, and "Nuclear Policy: Carter Halts Use of Plutonium as Fuel," *Congressional Quarterly Weekly Report* 35 (9 April 1977): 681–82.

43. "Nuclear Proliferation: April 27 Message to Congress," *Congressional Quarterly Weekly Report* 35 (7 May 1977): 867. The full text of the speech can be found in Jimmy Carter, "Nuclear Non-Proliferation: The President's Message to Congress Transmitting the Proposed Nuclear Non-Proliferation Act of 1977," in *Weekly Compilation of Presidential Documents* 13 (27 April 1977): 611.

44. Jimmy Carter, "University of Notre Dame," in *Weekly Compilation of Presidential Documents* 13 (22 May 1977): 777.

45. Ibid., 778.

46. The text of his United Nations address can be found in Jimmy Carter, "United Nations Address Before the General Assembly," in *Weekly Compilation of*

*Presidential Documents* 13 (4 October 1977): 1469–77. He discussed nonproliferation especially at 1471–73.

47. "Nuclear Arms Pact Near, Carter Tells UN," *Congressional Quarterly Weekly Report* 35 (8 October 1977): 2154–57.

48. For more on Carter's difficult first year in office owing to his support for this, and other, controversial and contentious foreign policy initiatives, see, for example, Paul J. Quirk, "Presidential Competence," in *The Presidency and the Political System,* 3d ed., ed. Michael Nelson (Washington, D.C., 1990), 163–87, esp. 179; Jerel A. Rosati, *The Carter Administration's Quest for Global Community: Beliefs and Their Impact on Behavior* (Columbia, S.C., 1987), esp. 124–25; and Norman C. Thomas, Joseph A. Pika, and Richard A. Watson, *The Politics of the Presidency,* 3d ed. (Washington, D.C., 1994), 224–28.

49. Developing a workable nonproliferation policy was important to President Carter because, in his view, it was an integral component of the administration's strategy for limiting nuclear weapons worldwide through moral, executive-based leadership that included a variety of measures, such as negotiating the SALT treaties. "Restraints on the size, nature, and testing of existing arsenals were just one side of the coin," Carter wrote in his memoirs. "The other was preventing the spread of nuclear explosives to those nations which did not yet have them." Carter, *Keeping Faith: Memoirs of a President,* 215. See also Erwin C. Hargrove, *Jimmy Carter as President: Leadership and the Politics of the Public Good* (Baton Rouge, 1988), 135–37.

50. This point is discussed in some depth in Robert F. Mozley, *The Politics of Nuclear Proliferation* (Seattle, 1998), esp. 70–71.

51. Carl T. Curtis, "Controversy over the Carter Administration's Approach to National Energy Policy," *Congressional Digest* 57 (August–September 1978): 205.

52. "Bill to Establish Controls on Exports of Nuclear Fuels Approved by Senate Panel," *Congressional Quarterly Weekly Report* 35 (12 November 1977): 2430–32. See also "Antiproliferation Goal: House Votes Strict Controls on Exports of Nuclear Fuels," *Congressional Quarterly Weekly Report* 35 (8 October 1977): 2152–53.

53. "Controls on Exports: Legislation to Reduce Risk of Nuclear Proliferation Signed by President," *Congressional Quarterly Weekly Report* 36 (11 March 1978): 639.

54. Jimmy Carter, "Veto of Department of Energy Authorization Bill: Message to the Senate Returning S. 1811 Without Approval," in *Weekly Compilation of Presidential Documents* 13 (5 November 1977): 1726–27.

55. McBride and O'Connor, *Transporting Radioactive Spent Fuel: An Issue Brief,* 4.

56. Brown, "Assessing the Impact of American Nuclear Non-Proliferation Policy, 1970–1980," 60–61.

57. McBride and O'Connor, *Transporting Radioactive Spent Fuel: An Issue Brief,* 4.

58. For a discussion of President Carter's difficulties over the Panama Canal, see, for example, Robert A. Strong, "Jimmy Carter and the Panama Canal Treaties," *Presidential Studies Quarterly* 21 (Spring 1991): 269–86; and David Skidmore, "Foreign Policy Interest Groups and Presidential Power: Jimmy Carter and Ratification of the Panama Canal Treaties," *Presidential Studies Quarterly* 23 (Summer 1993): 477–97.

59. President Carter's difficulties with the Congress, especially during his first year in office, are well documented. See, for example, Roger H. Davidson and Walter J. Oleszek, *Congress and Its Members,* 3d ed. (Washington, D.C., 1990), esp. 241–42, 351; Charles O. Jones, *The Trustee Presidency: Jimmy Carter and the United States Congress* (Baton Rouge, 1988), esp. 137–39; and Stephen Skowronek, "Presidential Leadership in Political Time," in *The Presidency and the Political System,* 3d ed., ed. Michael Nelson (Washington, D.C., 1990), 150–56.

60. Brown, "Assessing the Impact of American Non-Proliferation Policy, 1970–1980," 66–67.

61. "Proliferation Issue: Senate Approves Stricter Controls on Nuclear Exports," *Congressional Quarterly Weekly Report* 36 (11 February 1978): 349–50.

62. "Controls on Exports: Legislation to Reduce Risk of Nuclear Proliferation Signed by President," 637–44. President Carter did not engineer this triumph on his own. He had considerable bipartisan assistance from two Senators: John Glenn, a Democrat from Ohio, and Charles Percy, a Republican from Illinois. See, for example, "Given High Marks: John Glenn: Science Background Helps in Managing Nuclear Bill," *Congressional Quarterly Weekly Report* 36 (11 March 1978): 641.

63. Jimmy Carter, "Nuclear Non-Proliferation Act of 1978: Statement on Signing H.R. 8638 into Law," in *Weekly Compilation of Presidential Documents* 14 (10 March 1978): 501.

64. For more information on congressional and industry reactions to Carter's "heavy-handed" approach to nonproliferation, see, for example, Brown, "Assessing the Impact of American Non-Proliferation Policy, 1970–1980," 58–71; and *Congress and the Nation, 1977–1980* (Washington, D.C., 1981), 5:149.

65. Brown, "Assessing the Impact of American Non-Proliferation Policy, 1970–1980," 58–71. See also Norman D. Palmer, *The United States and India: The Dimensions of Influence* (New York, 1984), 215–18.

66. Brown, "Assessing the Impact of American Non-Proliferation Policy, 1970–1980," 69. The NNPA provisions were highlighted and discussed in "Controls on Exports: Legislation to Reduce Risk of Nuclear Proliferation Signed by President," 640–44.

67. McBride and O'Connor, *Transporting Radioactive Spent Fuel: An Issue Brief,* 4.

68. In the absence of a deep geologic repository or a spent nuclear fuel reprocessing option, commercial generators of spent fuel and high-level radioactive waste have relied on a series of creative techniques to handle the growing stockpile of material. Not surprising, the availability of options for temporarily storing waste depends upon the characteristics of a particular utility's facilities. Most utilities remove spent fuel from a reactor and store it underwater in a temporary storage pool. U.S. Department of Energy, *Transporting Spent Nuclear Fuel: An Overview* (Washington, D.C.: Office of Civilian Radioactive Waste Management, DOE/RW-0065, March 1986), 13. Methods of at-reactor spent nuclear fuel diverge at that point.

69. To increase storage-pool capacity, some utilities rerack spent fuel in assembly casings using stainless steel or boron (that is, neutron absorbing) racks so the assemblies are denser, hence closer together, than in the usual configuration. This new arrangement allows for more economical use of storage space. Jacob, *Site Unseen: The Politics of Siting a Nuclear Waste Repository,* 54. See also, for example, U.S. Department of Energy, *Final Version Dry Cask Storage Study* (Washington, D.C.: Office of Civilian Radioactive Waste Management, DOE/RW-0220, February 1989), I-16–I-19. As an added benefit, reracking is relatively inexpensive and is licensed by the U.S. Nuclear Regulatory Commission, the federal agency responsible for, among other things, licensing nuclear handling and storage technologies. U.S. Department of Energy, "Cooperative Demonstration Projects for Spent Nuclear Fuel," *Office of Civilian Radioactive Waste Management Backgrounder* (Washington, D.C.: Office of Civilian Radioactive Waste Management, DOE/RW-1038, April 1987), 2. A difficulty occurs with reracking, however, owing to potential structural and seismic constraints inherent in size and strength limitations in the pool floor. U.S. Department of Energy, *Final Version Dry Cask Storage Study,* I-19.

Rod consolidation is another temporary storage strategy often used by utilities. As the name implies, this process requires that utilities dismantle a spent-fuel assembly, separate fuel rods from the hardware that holds them together, rearrange the rods into a more compact array, and separately store the non-fuel-bearing hardware. Rod consolidation can double the density of fuel rods in a single canister, increasing the capacity of storage pools and providing savings in spent-fuel transportation costs. U.S. Department of Energy, *Annual Report to Congress* (Washington, D.C.: Office of Civilian Radioactive Waste Management, DOE/RW-0216, December 1989), 18.

The success of rod consolidation was vividly illustrated when the Northeast Utility Services Company (NUSCO) completed an in-pool consolidation demonstration at the Millstone 2 Reactor near Waterford, Connecticut, in September 1987. U.S. Department of Energy, *Annual Report to Congress* (Washington, D.C.: Office of Civilian Radioactive Waste Management, DOE/RW-0189, August 1988), 27. The Idaho National Engineering Laboratory (INEL) in Idaho Falls, Idaho, installed a rod-consolidation pilot program in 1987. By the end of that year, INEL had successfully consolidated forty-eight assemblies. The data gathered were used to design prototype production-scale equipment. Equipment delivery and cold (i.e., nonradioactive) testing began at INEL late in 1989. U.S. Department of Energy, *Annual Report to Congress* (December 1989), 18.

Like reracking, rod consolidation has limitations and uncertainties. It causes heavier weight loadings, thus creating possible seismic and load constraints. Moreover, consolidating fuel rods requires handling, processing, and disposing of assembly hardware as well as the fuel rods themselves. These additional steps increase the amount of radioactive materials that must be handled and, therefore, theoretically increase the risk of an accident. Southern States Energy Board, *Spent Fuel and High-Level Radioactive Waste Transportation Primer* (Norcross, Ga.: Southern States Energy Board, July 1987), I-18.

70. If reracking and rod consolidation are not always considered viable temporary solutions, a utility can transship radioactive material among several facilities, although this option might be dismissed with the pejorative adage of "borrowing from Peter to pay Paul." Utilities with several nuclear reactors may have surplus storage at one site, thus allowing the company to transport spent fuel between its own pools. Transshipping delays the need to deploy other storage options or construct additional storage space. For example, before the dry-cask storage facility owned and operated by Duke Power Company began operating in 1987, shipments from the utility's Oconee, South Carolina, facility to its William B. McGuire facility in North Carolina were common. In 1987, Duke Power transshipped seventy-five spent fuel assemblies. Southern States Energy Board, *Spent Fuel and High-Level Radioactive Waste Transportation Handbook* (Norcross, Ga.: Southern States Energy Board, DOE-FC01-92RW00247, January 1995), 8–9.

Many utilities have rejected the transshipping option because it triggers the NIMBY (Not in My Backyard) syndrome among citizens along the transportation and disposal corridor. As evidenced by public protests, no one wants high-level radioactive waste shipped near his or her homes, schools, and businesses. To impress this point on nuclear utilities and shippers, some state laws and ordinances specifically ban transshipping on the grounds that it unnecessarily increases the risk of handling radioactive materials. Moreover, the decision to delay construction of a new utility storage facility does not solve the utility's problem; it only delays the inevitable decision. U.S. Department of Energy, *Spent Fuel Storage Requirements, 1990–2040* (Washington, D.C.: Office of Civilian Radioactive Waste Management, DOE/RL-90-44, November 1990), 3.3.

71. An additional option for improving a reactor site's storage capacity is to use dry-cask storage technology. Most containers housing spent nuclear fuel must be immersed in water to cool down the fuel assembly and ensure that no radiation escapes. Dry storage technology, however, allows casks, modules, and drywells (vaults) to be stored outside of a storage pool. This feature allows utilities to in-

crease the amount of waste that can be stored on-site because the utility does not have to link storage capacity to pool capacity. U.S. Department of Energy, *Annual Report to Congress* (December 1989), 18.

Until a geologic repository or a temporary storage facility can be constructed, dry storage appears to be the most effective and safest short-term answer to the nuclear waste conundrum. It provides a relatively simple and passive form of spent-fuel storage. The technology is reasonably priced, requires low maintenance, and theoretically provides additional storage capacity, as needed (although the NRC will not license a dry storage facility indefinitely, no matter how advanced the technology). U.S. Department of Energy, "Cooperative Demonstration Projects for Spent Nuclear Fuel," 2.

Dry-cask storage programs began in 1977 at the Nevada Test Site and have become part of extensive test and demonstration programs since that time. In July 1986, the Virginia Power Company became the first U.S. utility to receive an NRC license for dry storage at the company's Surry Nuclear Plant near Williamsburg, Virginia. The facility began operating in 1987. U.S. Department of Energy, *Annual Report to Congress* (August 1988), 27.

A second dry storage system, the Nutec Horizontal Modular System (NUHOMS) Spent Fuel System, is used by several nuclear utilities, including Carolina Power & Light Company at its H. B. Robinson facility in South Carolina, Duke Power Company at its Oconee Plant in South Carolina, and Baltimore Gas & Electric Company's Calvert Cliffs, Maryland, facility. Other dry-cask storage technologies include the Modular Vault Dry System (MVDS) and a Ventilated Storage Cask (VSC) system. All such technologies are variations on a common theme, namely, a need to increase the number of options available to nuclear utilities for containing spent nuclear fuel and high-level radioactive waste in the short term. Southern States Energy Board, *Spent Fuel and High-Level Radioactive Waste Transportation Handbook*, 10.

Dry storage is a developing technology, and some utilities have hesitated to commit resources to this option until more data are available on the performance of existing storage facilities. In some cases, where land is scarce or other technical and legal constraints exist, the technology may be impracticable. It remains to be seen whether this option will prove to be a viable, ongoing solution to the problem of temporarily storing waste. McBride and O'Connor, *Transporting Radioactive Spent Fuel: An Issue Brief*, 4.

72. "Nuclear Waste Management, 9/11/79 [Briefing Book]" Folder, Box 145, "Staff Offices/Office of Staff Secretary/Handwriting File," 9/10/79 [1] through [9/12/79—Not Submitted—DF], Jimmy Carter Presidential Library, Atlanta, Georgia.

73. "Report to the President by the Interagency Review Group on Nuclear Waste Management," Washington, D.C., March 1979, 99, "Nuclear Waste Management, 9/11/79 [Briefing Book]" Folder, Box 145, "Staff Offices/Office of Staff Secretary/Handwriting File," 9/10/79 [1] through [9/12/79—Not Submitted—DF], Jimmy Carter Presidential Library, Atlanta, Georgia.

74. White House Memorandum from Frank Press to the President, Monday, 21 March 1977, 2:30–2:50 p.m., 2, "Nuclear Policies, 3/21/77–1/28/80" Folder, Box 6, STAFF OFFICES, Science and Tech. Advisor to the President—Press, "Aid to Egypt, 3/24/79 through U.S.-China Science and Technology, 5/77–8/79," Jimmy Carter Presidential Library, Atlanta, Georgia.

75. "Vol. I: Economic and Environmental Implications of a U.S. Moratorium, 1985–2010," The Institute for Energy Analysis, Oak Ridge Associated Universities, Oak Ridge, Tennessee, August 1976, "Nuclear Opposition" Folder, Box 26, Carlton Neville Collection, Subject File: "Nuclear Opposition through Offshore Oil and Gas," Jimmy Carter Presidential Library, Atlanta, Georgia.

76. For more on this point, see Rosati, *The Carter Administration's Quest for Global Community,* beginning at 121.

77. Walton L. Brown, "Presidential Leadership and U.S. Nonproliferation Policy," *Presidential Studies Quarterly* 24 (Summer 1994): 566.

78. For a more detailed analysis on this point, see, for example, H. W. Brands, *India and the United States: The Cold Peace* (New York, 1990); and Sumit Ganguly, "The Indian and Pakistani Nuclear Programmes: A Race to Oblivion," in *The Nuclear Non-Proliferation Regime: Prospects for the Twenty-first Century,* ed. Raju G. C. Thomas (New York, 1998), 272–83.

79. For a good general discussion of this subject, see Rodney Jones, *Nuclear Proliferation: Islam, the Bomb, and Saudi Arabia* (Berkeley, 1980).

80. The decision to restore aid to the Pakistanis was especially controversial because General Zia's legitimacy as a leader was suspect owing to his role in executing former Pakistani Prime Minister Zulfikar Ali Bhutto. When General Zia visited Washington, President Carter said, much to the dismay of supporters of U.S. human rights policy, that the dictator's "knowledge of the sensitivities and ideals of American life make him particularly dear to us." John Dumbrell, *The Carter Presidency: A Reevaluation* (Manchester, England, 1995), 187. See also Ganguly, "The Indian and Pakistani Nuclear Programmes," 272–83.

81. For more on this point, see Ganguly, "The Indian and Pakistani Nuclear Programmes," 279; and Robert J. McMahon, *The Cold War on the Periphery: The United States, India, and Pakistan* (New York, 1994), esp. 6.

82. Brown, "Assessing the Impact of American Nuclear Non-Proliferation Policy, 1970–1980," 124–33.

83. Ironically, this was the reasoning that the Institute for Energy Analysis and science adviser Frank Press argued for in 1976 and 1977, respectively, to no avail. For a full discussion of the controversy surrounding the 1978 transfer of nuclear material to India, see *Nuclear Fuel Export to India,* Subcommittee on Arms Control, Oceans and International Environment, Committee on Foreign Relations, United States Senate, 24 May 1978 (Washington, D.C., 1978).

84. Brown, "Assessing the Impact of American Nuclear Non-Proliferation Policy, 1970–1980," 133–34. See also Palmer, *The United States and India,* 215–18; and *The Tarrapur Nuclear Fuel Export Issue,* Hearings, Committee on Foreign Relations and Committee on Governmental Affairs, United States Senate, 18 and 19 June 1980 (Washington, D.C., 1980).

85. The text of the executive order can be found in Jimmy Carter, "Executive Order 12218," in *Weekly Compilation of Presidential Documents* 16 (19 June 1980): 1137.

86. Stanley Hoffman, "Requiem," *Foreign Policy* 42 (Spring 1981): 14. In the opinion of another commentator, this confusion in the Carter administration's policies was especially pronounced with respect to nuclear issues. "The contradictions in Carter's own beliefs, plus the conflicts over these questions among his top advisers, created vulnerabilities that arms control opponents could easily exploit." Nancy W. Gallagher, *The Politics of Verification* (Baltimore, 1999), 170. To be fair, however, foreign policy almost always involves "schizophrenia" owing to competing and occasionally contradictory objectives. Moreover, when domestic issues are considered along with foreign policy initiatives, the result often is a confusing mix of conflicting laws and policies.

87. *Congress and the Nation,* 5:149. See also John McCormick, *American Foreign Policy and Values* (New York, 1985), 107.

88. In his memoirs, Carter indicated that his unwillingness to antagonize India was because he was concerned about the nation's reluctance to condemn the Soviet Union's 1979 invasion of Afghanistan. Carter recalled the precarious nature of U.S.-Indian relations in 1979–80: "When Indira Gandhi was re-elected Prime Min-

ister of India, I called to congratulate her and to ask for her cooperation regarding our hostages [in Iran] and the Soviet presence in Afghanistan. She was polite but cold. It was obvious she did not wish to discuss anything of substance. Within a few days, I learned why. The Indian representative's speech in the United Nations was strongly supportive of the Soviets' invasion as were those of Czechoslovakia and Vietnam. Even Cuba was more reticent in its praise than India." Carter, *Keeping Faith: Memoirs of a President*, 479. According to one well-known commentator, the problems of Indian-U.S. relations extended back as far as the Eisenhower administration, when the two nations reached a low point in 1953–56. Even though relations improved in subsequent years, cross-cultural misunderstandings continually exacerbated tensions. Brands, *India and the United States: The Cold Peace*, esp. 5–9. See also Satu P. Limaye, *U.S.-Indian Relations: The Pursuit of Accommodation* (Boulder, 1993), esp. 96–98.

89. Perhaps with his increased foreign policy experience, the president accepted the Institute for Energy Analysis's and science adviser Frank Press's recommendation that it was preferable to work with a country to contain its nuclear weapons proliferation capabilities rather than oppose it and thereby push the country to obtain technology from other sources, some of which might be hostile to American interests. See, for example, Brown, "Presidential Leadership and U.S. Nonproliferation Policy," 565–66; and Ricks, "India-Pakistan Nuclear Rivalry Conjures Up Wargame Scenarios," A20. In the words of one commentator, "American policymakers never succeeded in constructing a rational, effective approach to the myriad challenges posed by India and Pakistan." McMahon, *The Cold War on the Periphery*, 6.

90. Jimmy Carter, "Export of Special Nuclear Material and Components to India; Message to Congress," in *Weekly Compilation of Presidential Documents* 16 (19 June 1980): 1138.

91. In July 1981, the incoming Reagan administration reversed the Carter administration's policy of strictly controlling exports of "peaceful" nuclear energy technology and materials. In Reagan's view, the domestic nuclear industry and nations that did not constitute a "proliferation risk" should not be damaged by a blanket policy that limited all nuclear technology transfers. At the same time, the United States pledged its continued support for nonproliferation policy in general and vowed to support the IAEA in its quest to inspect the nuclear capability of nations suspected of developing nuclear weapons. However, during the 1980s, in the wake of the Reagan policy change, many other nations—Argentina, Brazil, India, Iraq, and Pakistan—developed and stockpiled nuclear weapons while the United States, in the words of commentator Walton L. Brown, "seemingly turned a 'blind eye' to proliferation." Brown, "Presidential Leadership and U.S. Nonproliferation Policy," 567–68. See also V. G. Kiernan, "Peddling Arms in Paris," *Technology Review* 94 (November–December 1991): 18–19.

92. For more discussion on the failure of President Carter's foreign policy initiatives, especially in the area of arms control, see Jerel A. Rosati, "Jimmy Carter, a Man Before His Time? The Emergence and Collapse of the First Post–Cold War Presidency," *Presidential Studies Quarterly* 23 (Summer 1993): 459–76; and David Skidmore, "Carter and the Failure of Foreign Policy Reform," *Political Science Quarterly* 108 (Winter 1993–94): 699–729.

93. Southern States Energy Board, *Spent Fuel and High-Level Radioactive Waste Transportation Handbook*, 22.

94. For a more in-depth discussion of the change between the Carter and Reagan administrations, see Kiernan, "Peddling Arms in Paris," 18–19; Mead, *Mortal Splendor*, 260–61; and David Mutimer, *The Weapons State: Proliferation and the Framing of Security* (Boulder, 2000), starting at 51.

95. Douglas Brinkley, "The Rising Stock of Jimmy Carter: The 'Hands-On' Legacy of Our Thirty-Ninth President," *Diplomatic History* 20 (Fall 1996): 505–29, esp. 522. See also Burton I. Kaufman, *The Presidency of James Earl Carter* (Lawrence, Kan., 1993); Gary W. Reichard, "Early Returns: Assessing Jimmy Carter," *Presidential Studies Quarterly* 20 (Summer 1990): 603–20; Mark J. Rozell, "Carter Rehabilitated: What Caused the Thirty-ninth President's Press Transformation?" *Presidential Studies Quarterly* 23 (Spring 1993): 317–30, and J. M. Sanchez, "Awaiting Rehabilitation: The Carter Presidency in Political Science Textbooks," *Presidential Studies Quarterly* 27 (Spring 1997): 284–96.