NUCLEAR ENERGY INSTITUTE

Joe F. Colvin
PRESIDENT AND
CHIEF EXECUTIVE OFFICER

December 23, 2002

The Honorable Spencer Abraham
Secretary
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Mr. Secretary:

The purpose of this letter is to update you on initiatives the nuclear energy industry is pursuing to support the Bush Administration's policy on climate change.

The U.S. nuclear energy industry can play a significant role in helping to achieve the President's goal of reducing the greenhouse gas intensity of the U.S. economy by 2012, just as it has played a key role in reducing U.S. emissions of greenhouse gases for the past four decades.

The Nuclear Energy Institute (NEI)[1] has analyzed the impact on U.S. carbon emissions if our industry fully realizes the potential production of our nuclear power plants. Analysis shows that the U.S. nuclear industry can increase its output by the equivalent of about 10,000 megawatts (MW) of capacity by 2012. (Current U.S. nuclear generating capacity is approximately 98,000 MW.) The emissions avoided by this incremental nuclear output are significant, and represent approximately one-fifth of the President's carbon reduction goal for 2012.

[1] NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry. NEI members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

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We have reviewed this program with the chief executive officers that serve on NEI's Executive Committee, and they have agreed that the nuclear energy industry should undertake this initiative. This initiative is also fully consistent with the Administration's policy of expanding our nation's reliance on nuclear energy.

The Bush Administration is relying on voluntary initiatives by U.S. industry and all energy-consuming sectors to reduce the greenhouse gas intensity of the U.S. economy by 18 percent, from the current level of 183 metric tons of carbon equivalent (mtCe) per million dollars of GDP to 151 mtCe per million dollars of GDP by 2012.

Analysis by NEI[2] shows that, by 2012, the U.S. nuclear industry can increase the production of nuclear electricity by the equivalent of 10,000 megawatts (MW) of capacity. This 10,000-MW equivalent would come from several sources:

1. *Uprates.* NEI analysis, confirmed by recent assessments performed for the U.S. Department of Energy, shows that power uprates can add the equivalent of 6,500–8,500 MW of capacity between 2002 and 2012, in addition to those uprates already approved by the Nuclear Regulatory Commission.

2. *Improved Productivity.* Productivity (capacity factors) at U.S. nuclear plants have improved steadily through the 1990s, and the 103 U.S. nuclear reactors operated at an average capacity of approximately 90 percent in 2001. There is untapped efficiency still to be captured, however. Improvements in reliability and productivity can deliver the equivalent of 3,000–5,000 MW of additional capacity by 2012.

3. *Plant Restarts.* Several reactors were closed prematurely for various reasons and companies are assessing the value of refurbishing and restarting those reactors. For example, the Tennessee Valley Authority has decided to undertake the significant capital investment required to restart Unit 1 at the Browns Ferry nuclear power plant. Restart of Browns Ferry 1 is scheduled for 2007 and would add an additional 1,065 MW of emission-free capacity.

NEI's analysis shows that the Bush Administration climate policy would reduce U.S. greenhouse gas emissions in 2012 by approximately 106 million metric tons of carbon equivalent (beyond what would be expected under "business as usual"

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[2] Like the analysis performed by the White House in preparing the President's climate policy, NEI's analysis is based on forecast data from the U.S. Energy Information Administration's *Annual Energy Outlook 2002.*

conditions). The nuclear energy sector's contribution—the equivalent of an additional 10,000 MW of carbon-free generating capacity—would avoid the emission of approximately 22 million metric tons of carbon equivalent in 2012. This is 21 percent of the President's carbon reduction goal.

This nuclear energy sector initiative would build on the nuclear energy industry's excellent performance during the 1990s. Output from America's nuclear power plants increased from 577 billion kilowatt-hours in 1990 to 769 billion kWhr in 2001—the equivalent of adding 24 new 1,000-megawatt power plants to the U.S. electric supply system. Thanks to this improved performance, nuclear power plants played the dominant role in the Department of Energy's existing program to document voluntary reductions of greenhouse gases under §1605(b) of the 1992 Energy Policy Act. In 2000, the last year for which data is available,[3] improved performance at nuclear power plants represented 43.3 percent of all carbon reductions and approximately 60 percent of the reductions reported by the U.S. electric sector.

Looking beyond 2012, the nuclear energy industry is working closely with the Department of Energy, the Nuclear Regulatory Commission and the U.S. Congress to create the conditions under which the private sector will build new nuclear power plants in the United States. NEI has established an industry goal of building 50,000 megawatts of new nuclear energy capacity[4] in the United States by 2020. An additional 50,000 megawatts of new nuclear energy capacity would reduce U.S. greenhouse gas emissions in 2020 by approximately 100 million metric tons of carbon equivalent below the Energy Information Administration's forecast level of 2.5 billion metric tons of carbon equivalent.

New nuclear plants will play a major role beyond 2012 in sustaining the President's commitment to reduce the greenhouse gas intensity of the U.S. economy. The nation's ability to realize the promise of nuclear energy after 2012 will depend on actions and policies we undertake in the next one to two years, particularly new policy initiatives designed to stimulate investment in technologies that require large capital investments and long lead times.

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[3] Source: NEI analysis of data contained in "Voluntary Reporting of Greenhouse Gases 2000" (DOE/EIA-0608), February 14, 2002.

[4] The 50,000-megawatt goal is the amount of new nuclear generating capacity required to maintain emission-free generating capacity at today's level of 30 percent of U.S. electricity supply, based on the Energy Information Administration's forecast of electricity demand and the contribution from hydro and renewables in 2020.

The nuclear energy industry fully supports the President's carbon reduction policy, I look forward to joining you, Council on Environmental Quality Chairman James Connaughton and others for the January 23 ceremony at which the business sector's carbon reduction initiatives will be unveiled formally.

Sincerely,

Joe F. Colvin

c: The Honorable James Connaughton
Chairman, White House Council on Environmental Quality

The Honorable Robert G. Card
Undersecretary, U.S. Department of Energy

Mr. Phil Cooney
Chief of Staff, White House Council on Environmental Quality

Ms. Larisa Dobriansky
Deputy Assistant Secretary for Energy Policy
U.S. Department of Energy