OBAMA-BIDEN TRANSITION PROJECT
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Nuclear Power: The Leading Strategy for Reducing Carbon Emissions

Position Statement
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The American Nuclear Society believes that one of the most effective ways to reduce global carbon-dioxide emissions in the future is by making increasing use of nuclear energy to replace fossil fuels. This technology is the only one with near-zero carbon-dioxide emissions that has been proven capable of delivering, reliably and sustainably, the large quantities of energy needed by an industrial society. Also, the energy from nuclear fission is essentially inexhaustible, just as is the energy from sources traditionally considered "renewable."

Other energy technologies with low carbon-dioxide emissions, such as wind, solar, and hydro, should be used where appropriate. However, they have a limited capability and, with the exception of hydro, produce energy intermittently, requiring backup power generators or storage facilities. Their land-use requirements are high, and they have nonnegligible external costs, such as degradation of the environment, displacement of populations, destruction of natural habitats, and diversion of natural resources from other socially useful applications.

Nuclear power plants produce about 7% of the world's overall energy and 16% of the electricity. Without the nuclear contribution, the increase in carbon-dioxide emissions over the past few decades would have been much greater. However, carbon-dioxide emissions are still increasing as our economies grow, and urgent action is required if carbon-dioxide emissions are to be reduced.

Countries with a vigorous program of nuclear energy production have greatly reduced their carbon-dioxide emissions. France, for instance, with about 42% of its overall energy and about 78% of its electricity produced by nuclear plants, emits the lowest tonnage of carbon dioxide per unit of gross domestic product (GDP) among the world's major industrial nations—about half that of the United States and Canada.

Globally, most of the carbon-dioxide emissions are due to using energy for purposes other than generation of electricity (space heating, process heat, transportation, etc.). For that reason, it is essential that the application of nuclear energy be expanded to other areas, if necessary, by means of special-purpose reactors. Electric transportation, synthetic transportation fuels, extraction of oil from tar sands, and desalination are especially promising areas of opportunity.

Therefore, to minimize future carbon-dioxide emissions, the American Nuclear Society strongly recommends the following course of action:

- Assure the continued safe operation of the existing nuclear power plants and facilitate the extension of their operating life;
- Develop and deploy advanced nuclear power plants, including fast-neutron reactors;
- Increase the contribution of nuclear energy as part of a balanced energy mix and expand its use beyond electricity generation;
- Promote electrically driven public transportation systems and encourage the continued development and increased use of electrical energy in all forms of transportation.

The American Nuclear Society, founded in 1954, is a not-for-profit scientific and educational society of over 10,000 scientists, engineers, and educators from universities, government and private laboratories, and industry.

Position Statements are the considered opinions and judgments of the Society in matters related to nuclear science and technology. They are intended to provide an objective basis for weighing the facts in reaching decisions on important national issues.