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NATIONAL SECURITY

IN THE 21ST CENTURY *Senator Timothy E. Wirth* 1

Senator Wirth discusses how energy, the environment and the economy are inextricably linked. He proposes that a new energy policy for this country can serve as a model for all nations. This policy should include priority for energy efficiency and conservation; environmental balance; long-term thinking; and the realization that alternative fuels, not increased conventional production, offer the best lasting solution.

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ON GLOBAL CHANGE *Nancy Maynard* 35

The United States Government has developed a policy process for global change issues designed to ensure that the best and most recent scientific information is factored immediately into the policy development process. Because science is such an important part of the U.S. global change policymaking process, Dr. Maynard includes not only a description of this process but also a short discussion and examples of the ways in which the science and policy process intersect.

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To properly address the climate change question of this session, Prof. Dickinson states that we must consider that there are a number of important greenhouse gases that are increasing in quantity; carbon dioxide is the most important of these.

**THE FAILURE OF THE POPULAR
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Michaels and Stooksbury discuss an extensive body of evidence that indicates that anthropogenerated sulfate emissions are mitigating much of the predicted greenhouse warming and that increased cloudiness as a result of these emissions will enhance night, rather than day warming. These observations could drastically alter the debate on global warming in favor of less expensive policies.

III. STRATEGIES FOR REDUCING GREENHOUSE GASES

**THE COMPREHENSIVE APPROACH TO
GLOBAL CLIMATE POLICY:
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& Jonathan B. Wiener* 83

A comprehensive approach to greenhouse gas (“GHG”) issues is the only scientifically, environmentally, and economically sound strategy. Its adoption will increase the likelihood of successful negotiation of a broad international agreement on GHG emissions. During the next decade, the development of national strategies to deal with GHG emissions under the aegis of a framework convention seems most likely. The framework convention on climate change should mandate a “net GHG emissions” approach to these national strategies. This approach will enable the international response to GHGs and potential climate change to proceed on the only sound foundation: a comprehensive one.

**A TRUE COMPREHENSIVE
APPROACH***Lakshman D. Guruswamy* 115

Unfortunately, the Stewart and Wiener version of the comprehensive approach, embraced by the United States in global warming treaty negotiations, is a prescription for procrastination. First, this riposte will outline why, despite its claims, their approach is significantly flawed. Second, it will delineate the contours of a true comprehensive approach.

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After briefly discussing global warming, Mr. Becker further develops Prof. Guruswamy’s talk on a true comprehensive approach. He concludes with a comment on energy efficiency as an inexpensive and extraordinarily effective way to curb global warming. Because this method deals with fossil fuel reductions, he primarily targets CO₂.

IV. ADAPTATION AND MITIGATION

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**IMPACT OF GLOBAL CHANGE
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Possibly one of the most serious problems of climate change will be changes in the water supply. Prof. Smerdon focuses on the southwestern United States since water is the lifeblood of this region. He concludes that while the data is not certain, it strongly suggests that the temperature rises due to global change will reduce the water supplies of Arizona and southern California.

**NOW, THINK AGAIN ABOUT
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In response to Dr. Waggoner's article, Prof. Tarlock states that the magnitude of the uncertainty and the multiple facets of the science of global climate change pose unique resource allocation and risk management problems. His article concentrates on three problems with adaptation that are often overlooked by its advocates.

V. HUMAN BEHAVIOR AND GLOBAL CHANGE

**HUMAN BEHAVIOR AND
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Energy use and the discharge of greehhouse gases are clearly a product of life-style. The flow of materials and energy in a society is basically a function of five interrelated factors. In sum, there has been a *failure* to relate individual and institutional behaviors to their effects on energy, materials and the environment.

**PERCEPTION OF RISK AND
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Public fears and opposition to nuclear-waste disposal plans can be seen as a "crisis in confidence," a profound breakdown of trust in the scientific, governmental, and industrial managers of

nuclear technologies. Therefore, Dr. Slovic concludes that restoration and preservation of trust in risk management needs to be given top priority.

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Latin America is currently exhibiting a generalized ecological degradation that is expected to continue and probably accelerate during the coming decades unless severe policy changes are implemented. Mr. Figueroa looks at Mexico's serious efforts to develop and apply coherent environmental and energy policies to prevent the impact of human activities on the global ecosystem.		

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DECISIONMAKING IN THE FACE

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Scientific uncertainty often serves equally well as sword or shield in the battles over values that actually result in international and national policy. Fortunately, the vast bulk of actions that can be taken to thwart global climate change are also helpful in achieving other goals such as sustainable development, environmental quality, the *inevitable* transition beyond fossil fuels for energy supply, and international economic and military security.

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Coming from the perspective of a geologist, Dr. Baker discusses the problem of scientific knowledge as a basis for action regarding human-exacerbated, global climatic change. The present status of knowledge seems sufficient for caution but insufficient to justify definitive action, especially when the action also may have uncertain consequences of great economic impact.

GLOBAL CLIMATE CHANGE AND REGULATORY

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Environmental policymaking must confront two different kinds of uncertainty: regulatory and technical. Prof. Elliot explores and ultimately challenges the technical uncertainty presupposition and calls attention to the role of regulatory uncertainty.

THE PORCUPINE'S DILEMMA: STRATEGIC AND PSYCHOLOGICAL UNCERTAINTY IN THE FACE OF

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Prof. Rodgers looks to the common porcupine for some metaphorical instruction. He discusses the concept of "systems analysis"—an examination of the full roster of options or responses or adaptations that a society can undertake to combat an environmental threat. He concludes that we should accept the predictions of global warming, take meaningful steps to remedy the threat, yet preserve flexibility of choice for the future.

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