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HEARINGS ON THE "CLIMATE CHANGE STRATEGY AND TECHNOLOGICAL INNOVATION ACT OF 2001," S. 1008
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Mr. Chairman and Members of the Committee:

Thank you for inviting me to testify today. Among the many challenges facing our generation, none is more important than the threat of global warming. I commend you on your leadership in addressing this important issue.

By way of introduction, let me tell you a bit about the World Resources Institute. We are a private, non-profit, non-partisan, environmental think tank. We go beyond research to create practical ways to protect the Earth and improve people's lives. WRI convenes dialogues, builds partnerships, generates solutions and pursues cutting-edge research. We illuminate facts, dispel myths and bring our findings to policy-makers and the public at large. On issues including global warming, forest loss, marine biodiversity, the role of the public in environmental decision-making and the role of business in protecting the environment, we help shape the debate and get results that make a difference for the world as a whole.

For more than 15 years, WRI has been at the forefront of thinking on climate change. In 1984, WRI participated in groundbreaking international meetings on greenhouse warming and ozone depletion. During the next several years, WRI played a central role in organizing some of the first Congressional hearings on global warming. These hearings helped build Congressional support for early legislation including the National Energy Policy Act and Climate Protection Act of 1988. WRI was a leading instigator for the development of the Intergovernmental Panel on Climate Change (IPCC), and later helped organize the NGO community for steps leading up to the United Nations Conference on

Environment and Development in Rio in 1992. WRI helped shape thinking of policymakers around the world in the run-up to the Kyoto conference in December 1997 and in the international negotiations that followed.

The foundation for the Institute's education and outreach on climate change has been a series of highly visible reports and policy briefs. With your permission, I would like to submit several of our recent climate change policy briefs for the record. WRI also has a long and distinguished record working on issues related to climate change, such as energy pricing, transportation, and renewable energy. Recently, WRI has focused on reaching out to the business community building support for a more pro-active business stance on climate change. We have also developed innovative ways to use the Internet to address global warming, and invite you to visit our new website at www.safeclimate.net.

Mr. Chairman, today I'd like to say a few words about the threat of global warming, offer some specific thoughts on the legislation before us, and address the need for international action to address climate change.

1. THE THREAT OF GLOBAL WARMING

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The conclusion of the world's scientists is quite unequivocal: climate change is real, we are beginning to see its consequences, and the emissions that cause it are increasing rapidly. Unless we change course, children born today will live to see greenhouse gas concentrations reach levels unknown on this planet for 40-50 million years – almost since the time of the dinosaurs. Such a rapid and unprecedented rise in greenhouse gas concentrations would likely bring devastating consequences, including more severe droughts and storms, sea-level rise, widespread forest loss, biotic disruptions, and the spread of tropical disease.

The basic physical processes behind the greenhouse effect are well known. Earth's atmosphere is made up of gases that trap the sun's rays and warm the planet. This trapped warmth maintains the Earth's average temperature at about 60 degrees F, allowing life on the planet as we know it. The main

"greenhouse gases" (GHGs) added by human activity are carbon dioxide (CO2) and methane (CH4). Over the last 250 years the concentration of these gases has increased dramatically. Due to energy use, agriculture and forest loss, concentrations of CO2 have increased by nearly 30% and those of methane have more than doubled since 1750.

The increase in concentration of GHGs is causing fundamental physical changes in the atmosphere, oceans and the Earth's surface. The 1990s were the warmest decade in the last 1,000 years. Sea level is rising, precipitation patterns are changing, Arctic Sea ice is rapidly thinning, and glaciers are retreating worldwide. IPCC authors warn that projected warming is likely to increase the severity of the most damaging storms, and droughts.

Scientists are also beginning to see biological and ecosystem effects that had been predicted as a consequence of global climate change. Trees are budding a week or two sooner in the spring, birds have been laying eggs earlier, butterflies have moved up mountains and toward cooler polar regions. Many of the world's coral reefs are being destroyed by bleaching, in part because of warming ocean temperatures.

The severity of coming climate-change impacts will depend on the amount of greenhouse gas accumulation in the atmosphere. Current emissions of carbon dioxide would have to be cut by at least 60% to stabilize the *concentration* in the atmosphere at *current levels* within the next century or two. If global *emissions* were stabilized at today's levels, the concentration of carbon dioxide would nevertheless almost double by 2100.

The U.S. Global Change Research Program (USGCRP) has just released "Climate Change Impacts on the U.S.", assuming mid-range emissions, previously published by IPCC in 1992, which makes no assumptions about international policy changes to reduce greenhouse gas emissions. Based on that study, in the U.S., sea-level rise is very likely to cause the loss

of some barrier beaches, islands, marshes and coastal forests. Damage to water and sewer systems, transportation and communication infrastructure are likewise expected. While rare ecosystems and some species are likely to disappear, food supply and timber production are secure. Impacts on the water supply vary by region but drought will be a national concern.

Last month, the National Academy of Sciences released a report on the science of climate change commissioned by the White House a few months earlier. The Academy endorses the report from the USGCRP, as well the work of the IPCC more broadly. The Academy also states "Greenhouse gases are accumulating in the atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise. Temperatures are, in fact, rising."

Climate change is unlike the pollution problems we have dealt with in the past where the consequences were swift and clear, and the benefits of action were immediate. Americans felt the effects of unhealthy air, saw the effects of polluted water, and, when the pollution was stopped, they enjoyed benefits that were almost immediate.

However, the climate system has so much inertia that the changes set in motion by the buildup of greenhouse gases in the atmosphere will continue for hundreds of years after the buildup stops. Today's emissions will create the consequences that future generations will have to deal with, but will be unable to reverse. Species and ecosystems unable to adapt will disappear. Decades of work to save coral reefs, protect forest ecosystems, ensure freshwater supplies, improve humanity's health around the world, and build the infrastructure required for development will be at risk from climate change. One of the great achievements of the Twentieth Century was the creation of 44,000 parks and protected areas that include about 10 % of the dry land surface of the Earth. Most of those parks and protected areas, are at risk from climate change, because they cannot move as climate zones move.

All of this sounds pretty grim. But the good news is that effective policies to prevent climate change can set the world on a new course, one characterized by cleaner energy sources, healthier ecosystems, technological innovation and economic opportunity. We can meet the challenge of global warming – if we get started.

Let me repeat: We can meet the challenge of global warming – if we get started sooner, not later. That means measures to reduce emissions here in the United States, which is the world's largest emitter of greenhouse gases. It means working cooperatively with other nations. It means recognizing that climate change policies must be integrated with policies related to energy and economic development. It means moving forward in a strategic manner, recognizing the gravity of the problem but realizing the many opportunities that arise from reducing greenhouse gas emissions here in the United States and around the world.

2. CLIMATE CHANGE STRATEGY AND TECHNOLOGICAL INNOVATION ACT OF 2001, S.1008

Let me now turn my attention to the bill before us today. I welcome S. 1008 and believe its introduction is a step forward in the dialogue on global warming.

Of course, as its sponsors recognize, S. 1008 is but a small part of the solution to global warming. As Senator Byrd said in introducing his legislation, S. 1008 "is intended to supplement, rather than replace, other complementary proposals to deal with climate change in the near term on both a national and international level." Most important, in my view, are the proposals to reduce greenhouse gas emissions in the United States, such as through limits on carbon dioxide as part of a comprehensive approach to power plant emissions. Mr. Chairman, S. 1008 makes a great deal of sense as a part of a package together with legislation requiring meaningful domestic action to reduce greenhouse gas emissions, but not as a substitute for action.

Several elements of S. 1008 show especial vision:

First, S.1008 recognizes that climate change represents an important threat the Nation's interests, and that we need a national climate change strategy informed by public dialogue.

The strategy should take as its goal stabilization of greenhouse gases in the atmosphere at safe levels – the goal accepted by the United States now almost a decade ago when the first President Bush signed and the U.S. Senate ratified the Framework Convention on Climate Change. Unfortunately, the United States does not now have a strategy on climate change. As many commentators have noted, the Bush administration has stated clearly what it is against, but not offered any affirmative policy on this issue.

Second, S.1008 recognizes that climate change considerations must be infused into decision-making at every level in the U.S. government. I offer no view on the specific and highly detailed requirements set forth in the bill regarding the organization of the Executive Branch on the issue of climate change. I hope the bill's sponsors are open to further consultations on the details of their proposals in this regard. However the underlying purpose – to be sure that climate change receives priority attention in the executive branch decision-making – is one I wholeheartedly endorse.

Third, S. 1008 recognizes that "the economic consequences of…inaction" on global warming "may cost the global economy trillions of dollars." Too often those in the climate change debate focus exclusively on the cost of taking action to reduce emissions; S. 1008 properly recognizes that informed decision-making requires us also to consider the cost of inaction.

Fourth, S. 1008 recognizes that current research and development budgets are grossly inadequate to meet the challenge of climate change. As the bill's finding correctly state, "stabilization of greenhouse gases in the atmosphere will require transformational change in the global energy system" as well as "research and development that leads to bold technological breakthroughs." The bill also recognizes that additional commitment for this research must come from the public and private sectors. My own preference would be for increases significantly in excess of the doubling called for under the bill, but I believe the S. 1008 would have us move in the right direction.

Finally, S. 1008 recognizes that our national energy strategy cannot be shaped without close attention to the challenge of climate change. Treating climate change as an afterthought

when energy policy is established is inconsistent with sound policy-making or the serious nature of the problem.

In summary, Mr. Chairman, I welcome S. 1008, congratulate its sponsors, and look forward to supporting its enactment as a complement to other legislation limiting dom estic emissions of greenhouse gas emissions.

NEED FOR INTERNATIONAL ACTION

Finally, Mr. Chairman, I'd like to use this opportunity to speak briefly about the need for international action to address climate change. The topic is especially timely since, as we speak, more than 180 nations are gathering in Bonn, Germany for a conference of parties to the Framework Convention on Climate Change. Furthermore, according to news reports, global warming will be one of the most prominent topics of discussion when the leaders of the world's major industrial powers gather for the annual G-8 summit this weekend in Genoa, Italy.

Climate change is the quintessential global issue: emissions from one area of the globe affect the climate everywhere. Partly in recognition of this fact, in 1992 more than 180 nations negotiated the Framework Convention on Climate Change (FCCC). The FCCC was signed by the first President Bush and quickly ratified by the U.S. Senate. Among the important features of the FCCC are agreement on an objective -- to stabilize atmospheric concentrations of greenhouse gases at "a level that would prevent dangerou s anthropogenic interference with the climate system." A few weeks ago President Bush noted that the parties to the Convention have not agreed on what level would be "dangerous". That is true, indeed the question has hardly been discussed, but we know that climate change *is* dangerous. We do not need to know the precise level that is unacceptably dangerous to begin to reduce emissions. The first ten years of the reduction strategy will be the same in any case.

The parties to the FCCC arrived at a second important agreement – that "developed country Parties should take the lead" in fighting climate change, and that countries should act in accordance with their "common but differentiated responsibilities and respective capabilities."

The developed country signatories also made a non-binding

commitment to stabilize their GHG emissions to 1990 levels by the year 2000. By 1997, with emissions increasing rapidly, it was clear that voluntary commitments had failed, and the 186 countries that have ratified the FCCC negotiated a binding agreement setting specific targets and timetables for emissions reductions by developed countries--the "Kyoto Protocol."

The Protocol, which the U.S. has signed but not ratified, would require the U.S. to reduce its emissions seven percent below 1990 levels by 2012. The U.S. successfully negotiated for the inclusion of so-called "flexibility mechanisms" in the Kyoto Protocol, including: the ability to count carbon sequestration (carbon absorbing activities such as planting trees, or changed agricultural practices) against emissions; international emissions trading among industrialized countries, and emissions trading with developing countries through the Clean Development Mechanism (which allows companies from the U.S. and elsewhere to claim credits for emission-reduction projects in developing countries).

Earlier this year, President Bush rejected the Kyoto Protocol, which he regards as unfair and unworkable. The reaction to this announcement from most of the rest of the world has been strongly negative. To date, President Bush has not said what type of international agreement, if any, he would support in the fight against global warming.

Mr. Chairman, although it may appear obvious, circumstances compel me to stress one key point: climate change is a global problem that requires a global solution. The current administration’s unilateral rejection of years of work by the international community to address global warming is a clear and present danger to the climate system. Especially troubling is the administration’s tendency to blame poorer nations for its own refusal to act.

As I said earlier, climate change is the quintessential global issue: emissions from one area of the globe affect the climate everywhere. However, neither emissions nor the impacts they cause are spread equally around the globe.

Although every country has emissions of CO2, most of the emissions come from industrialized countries, and the United States with less than 5% of the world’s population is responsible for 25% of emissions. Emissions from U.S. power plants alone exceed those from 146 countries with roughly

75% of the world's population. The emissions from India and China combined are 60% of those from the U.S., and the average American is responsible for 20 times the emissions of the average Indian, ten times the average Chinese.

Furthermore, countries differ in their vulnerability to climate change and in their capacity to adapt. Low-lying coastal areas, such as those of Bangladesh, and islands, such as those of the Pacific, face the greatest risks from rising sea levels and more severe storms. Although industrialized countries will also see serious consequences they are in a better position to protect, or rebuild infrastructure destroyed by storms, to adjust agricultural production to new conditions, or to avoid the spread of epidemics through adequate healthcare provision.

Despite profound North-South disparities, developing countries are actually already taking substantial actions to reduce emissions growth. China 's actions are the most remarkable. Even without quantitative commitments, the world's most populous country reduced its emissions by 17 percent from 1997 to 1999. This is simply unprecedented—emissions have returned to 1992 levels, while China's economy has expanded by more than 90 percent over the same timeframe. How is this happening?

China began sweeping energy policy reforms in the early 1980s, to promote energy efficiency and conservation. Measures taken by China include reductions in fossil fuel subsidies; research, development and demonstration projects; a national information network with efficiency service and training centers; tax reforms; equipment standards; and special loan programs, among other initiatives. Without such measures, China's emissions would be at least 400 million tons higher than current levels, representing emission savings equal to nearly the entire U.S. transportation sector.

Today, more than two billion people around the world have no access to electric power, and another two billion have limited access to electric power and motorized transport. Their lives have little impact on warming, but warming will have a significant impact on them.

Mr. Chairman, the United States should show leadership on global warming, not blame poorer nations for inaction. If the United States remains an active and constructive part of negotiations over the form of a binding international agreement

we will significantly shape the outcome. By refusing to take action domestically, and by failing to propose action internationally, we assure that we will either fail to influence the shape of international action, or prevent. Neither outcome is likely to benefit U.S. industries, or U.S. interests, let alone the well being of future generations. I earnestly hope the legislation you are considering here can become part of a constructive solution to this problem. Thank you again for opportunity to appear before you today.

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