THE MCCAIN-LIEBERMAN CLIMATE CHANGE PROPOSAL:

THE IMPORTANCE OF A COMPREHENSIVE "CAP-AND-TRADE" FRAMEWORK TO REDUCE GREENHOUSE GAS EMISSIONS

Testimony of

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Before the

Committee on Commerce, Science and Transportation

U.S. Senate

January 8, 2003

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Introduction

Mr. Chairman and Members of the Committee, my name is Fred Krupp and I am President of Environmental Defense, a national nonprofit organization based in New York, representing more than 300,000 members. Since 1967 we have linked science, economics and law to create innovative, equitable and cost-effective solutions to the most serious environmental problems.

I appreciate the opportunity to testify here today on what Environmental Defense considers one of the most urgent environmental problems of our time – global climate change. I am very pleased, moreover, that the focus of the hearing is the impressive proposal offered by Senators McCain and Lieberman (shared with Environmental Defense in draft form on December 20) to tackle that problem. Finally, I am particularly grateful to this Committee for the previous hearings it has conducted to create a sound, well-balanced record of scientific understanding of global climate change.

Thanks to those hearings, I know that my testimony on the McCain-Lieberman legislation will be considered against a backdrop of increased understanding. First, there is strong scientific consensus that human activities contribute substantially to the buildup of heat-trapping greenhouse gases (GHG) in the atmosphere. Second, if GHG emissions continue to rise, the world will face increasingly devastating environmental disruptions affecting not only our most precious natural ecosystems but also, potentially, the world food supply and human health.

This state of affairs challenges our American values and our American ingenuity. Fortunately, I believe that, taken as a whole, the McCain-Lieberman bill is a serious and credible response.

Later in this testimony, I will address a number of concerns that we have, some quite serious, with particular provisions in the bill. For now, however, I think Senators McCain and Lieberman and their staffs should be congratulated for putting together comprehensive legislation that could form the basis of a successful strategy for addressing global climate change.

Climate Change and American Values

Our success in this endeavor will require responsible environmental stewardship—one of the bedrock values held by Americans.

The GHG emissions produced by the first automobile that rolled of the assembly line in Detroit are still in the atmosphere. Each new ton of greenhouse gases emitted today will reside in the atmosphere for decades. Over time, the resulting warming will change the climate—and the environment—in countless ways. Impacts could range from the die-off of coral reefs to the loss of vital fisheries to sharply increased cycles of storms and drought. Sea level rise could be so severe that the entire National Mall here in Washington would be flooded regularly. That this could be the legacy of our own everyday actions is a notion that few Americans alive today would knowingly tolerate. America's commitment to caring for our natural heritage prompts us to demand that our national leaders take responsible actions to help curb global warming.

Responsible stewardship requires that we take the necessary steps to protect the climate from the harmful effects of GHG emissions. Because greenhouse gases build up incrementally in the atmosphere, stabilizing their *concentrations* will require very significant reductions in *emissions* over the next century. Moreover, most scientists agree that in order to avoid the kind of drastic environmental damage that most would consider unacceptable, substantial reductions in total GHG emissions must begin *now*. Highly respected analyses indicate that world leaders have a narrow time window in which to act. Failure to begin reducing total GHG emissions within the next decade (the period covered by the McCain-Lieberman bill) may foreclose the chance our children and grandchildren have to avert dangerous climate change in the future.

Climate Change and American Ingenuity

Throughout history, American ingenuity has enabled our nation to triumph over adversity. We need to unleash that same can-do spirit today to help curb global warming. The challenge arises from the fact that GHG emissions are the direct result of fundamental economic activities—like producing energy, food and clothing, transporting ourselves and our goods, using our lands and forests and even creating and sharing data. No matter how powerful our commitment to environmental protection is, unless we can ensure our continued economic prosperity, policies seeking to reduce GHG emissions likely will not succeed.

That's where Americans' ability to solve problems comes in. Achieving significant GHG reductions that the economy can afford will require inventiveness and entrepreneurship. The good news is that climate change *is* a man-made problem, and thus can be addressed by human actions. Our nation's record of success in attaining high levels of environmental protection while enjoying continual economic growth suggests that curbing U.S. GHG emissions not only is eminently affordable, but also could bring about a host of benefits to the public. The best GHG policies will be those that set clear emissions reduction targets and explicitly allow businesses and individuals to seek out a broad mix of the strategies. Through experimentation and innovation, they will devise new technologies and invest in GHG emissions reductions that deliver the biggest environmental and social payoff at lowest cost. At the same time, it is critical that those policies be as close to all-encompassing as possible, so that energy producers, industrial manufacturers, farmers and landowners and other key economic actors have a chance to contribute their expertise to the search for the best ways to reduce GHG emissions.

This approach reflects more than just blind faith or naïve optimism. Anticipating the eventual need to comply with GHG requirements, many firms and landowners

already are experimenting successfully with GHG reduction strategies. Several years ago, DuPont, a charter member of Environmental Defense's Partnership for Climate Action (PCA), announced its intention to cut its GHG emissions by 65% by 2010. In 2001, the company reached, and surpassed, that goal, nine years ahead of schedule. Since 1990, DuPont has succeeded in holding its energy use at 1990 levels. In 2000 alone, the program yielded a $325 million savings; overall the company attributes a $1.65 billion savings to its program.

In Washington State, the Pacific Northwest Direct Seed Association, representing 300 farmers owning 500,000 acres, has joined with Entergy, the power company, to promote direct seeding, a practice that enhances soil carbon sequestration and provides a host of other benefits such as improved soil productivity, reduced erosion and better wildlife habitat. In this partnership, Entergy will lease 30,000 tons of carbon offsets over a ten-year period from participating landowners. In addition to the carbon benefits to the atmosphere, the lands affected by the project will contribute less runoff to nearby waterways, helping to improve the habitat for critical steelhead and salmon runs.

Finally, perhaps the best-known example of can-do success in reducing GHG emissions is that of BP, the global petrochemical company. In 1998, the company launched a private initiative to reduce its GHG emissions 10% below 1990 levels by 2010. Last year, BP announced that it had achieved its target eight years ahead of schedule, and at no net cost to the business, all while achieving steady and robust economic growth.

These are not theoretical models, but real-life actions. In addition to BP, DuPont and Entergy, Environmental Defense has also been working with Alcan, Pechiney, Ontario Power Generation and Shell in the Partnership for Climate Action (www.pca-online.org). Each of these firms has established a cap on GHG emissions voluntarily and is undertaking measures to limit emissions to the committed levels. Each company is succeeding in its efforts, while continuing to prosper.

McCain-Lieberman and Environmental Stewardship

Environmental Defense believes that the McCain-Lieberman bill embodies America's core commitment to responsible environmental stewardship. First, it would deliver the single most crucial response to the dangers of climate change – actual reductions in GHG emissions below current levels. The current policy debate on climate change features a host of potential approaches, including voluntary initiatives, technology subsidies and tax-like schemes such as cost safety-valves. None of these, however, would accomplish what this bill would do – guarantee actual reductions in GHG emissions. Again, to curb the unwanted effects of climate change means limiting the *concentrations* of greenhouse gases in the atmosphere. GHG concentrations can be limited *only* by reducing actual emissions. McCain-Lieberman would do just that – mandate the reduction of U.S. GHG emissions.

Second, the bill mandates GHG reductions below current levels by the middle of the next decade. Our best analysis suggests that this requirement could keep open the window of opportunity that policy-makers in the future must have if they are to achieve sufficient reductions for ultimate success in curbing climate change over the balance of the century.

Since GHG emissions build up in the atmosphere, every year of delay in reducing emissions is akin to playing another round of "global climate roulette." The ambitious use of emissions trading and flexibility will increase affordability and spur even greater and earlier GHG reductions than are required in the bill as currently drafted. Tightening the reduction levels and timetable now in the bill will only enhance our legacy to future generations. Again, because of the long-lived nature of greenhouse gases in the atmosphere, by achieving even greater reductions sooner, the bill would make it that much easier for future generations to achieve the reductions needed to solve the climate problem on a long-term basis.

McCain-Lieberman and American Ingenuity – and Economic Prosperity

By requiring GHG emissions reductions across virtually all sectors of the U.S. economy, the McCain-Lieberman bill taps the know-how and inventiveness of the broadest possible swath of economic players. It does so by integrating in a GHG emissions trading market virtually every major economic sector that can contribute to solving this problem, including transportation, agriculture and forestry.

Opponents of mandatory GHG reduction policies often claim that such policies would cost too much and stifle economic growth. They also question whether the kinds of innovations needed to achieve reductions can be found in the near term. By incorporating emissions trading as its centerpiece (along with a mandatory emissions cap), the McCain-Lieberman legislation emulates one of the most successful environmental programs in U.S. history—the federal acid rain program. Under the McCain-Lieberman approach, companies that achieve more GHG reductions than required can save their extra reductions to use against their own future emissions increases or can trade those reductions to other companies that are having trouble meeting their emissions limits.

Consequently, companies will have a direct financial incentive and unlimited opportunity to make as many low-cost reductions as possible as soon as possible. That means that the lowest-cost reducers will be acting in a way that will result in overall compliance costs being lower. It also means innovative companies that achieve more reductions than required will be financially rewarded by the emissions trading market. The emissions trading framework provides flexibility for companies to change and grow while meeting their emissions requirements at the same time.

In 1990, Congress used a similar approach to achieve reductions in sulfur dioxide, a chief cause of acid rain. Sulfur dioxide emissions at U.S. power plants were reduced and capped through a program that allowed the plants to save or trade extra emissions reductions. As a result, the acid rain program has achieved more total reductions than required, at lower cost than predicted and through technological innovations not seen under previous air pollution programs. Meanwhile, the power sector has enjoyed steady economic growth. Emissions trading can also be a useful tool for reducing GHG emissions because their environmental effects are not local, but national and global. Thus, it is the quantity of reductions achieved, not their location, that determines the environmental success of the program.

Simply put, the acid rain emissions trading program has done what markets do best — drive down costs. The economic performance of the McCain-Lieberman emissions trading system can be expected to be even more robust than that of the acid

rain emissions trading system. The latter covered only the power sector in the United States. The McCain-Lieberman market would embrace a vastly more numerous and more diverse set of economic actors. Standard economic theory suggests that their number and diversity would intensify the search for cost savings by the participants and would more richly reward that search by providing an enormous multiplicity of cost-effective reduction opportunities.

By creating a market, the McCain-Lieberman bill takes the challenge of cost head-on and meets it with the most powerful of cost-savings tools. It is in markets that Americans' relentless ingenuity, the engine of our nation's economy, has always thrived.

Economic and Environmental Performance under McCain-Lieberman

The U.S. acid rain program, thanks to its cap-and-trade framework, has achieved not only full compliance with its emissions reduction requirements at a lower-than-predicted cost but also more reductions than required along with incremental technological innovation. The McCain-Lieberman legislation employs the same framework in an even more ambitious way and can be expected to produce even more dramatic environmental and economic results.

To be effective environmentally, it is essential that the bill impose a cap across all major GHG-emitting sectors of the U.S. economy. The economy-wide framework makes possible the bold innovation at the heart of McCain-Lieberman, i.e., its adoption of an emissions trading system to integrate all sectors into a functioning GHG reduction market. The result is that participants in the market, whether they are subject to reduction mandates or simply seeking to make incremental reductions, can search across the nation—and, to some extent, overseas—for the most productive GHG reduction opportunities. Under the bill, that search can encompass, as it should, the agriculture and forestry sectors as well. Every time it yields a new opportunity, the emissions trading market will reward the GHG reduction investment. For this reason, as illustrated by the success of the acid rain program, the McCain-Lieberman approach promises a suite of benefits including not just lower costs, but accelerated reductions and continual environmental innovation.

In light of this, Environmental Defense believes that Senators McCain and Lieberman were right to include as part of the emissions trading system the fuel and automotive segments of the transportation sector, as well as the agricultural and forestry sectors. Again, we are convinced that the broader and more dynamic a GHG-reduction market is, the greater will be its success in reducing costs and delivering enhanced environmental performance along with technological innovation.

The Importance of Forests and Farmland

While climate and energy policies are inextricably linked, climate policy demands more than just a re-tooling of the nation's energy, industrial and transportation sectors. The McCain-Lieberman bill is pioneering a comprehensive and rational climate policy that encompasses the effects of land use as well.

The Earth's climate is warming as a result of increasing concentrations of atmospheric greenhouse gases released not just from energy and industrial sources but also through land-use activities. Most significantly, these activities include forest

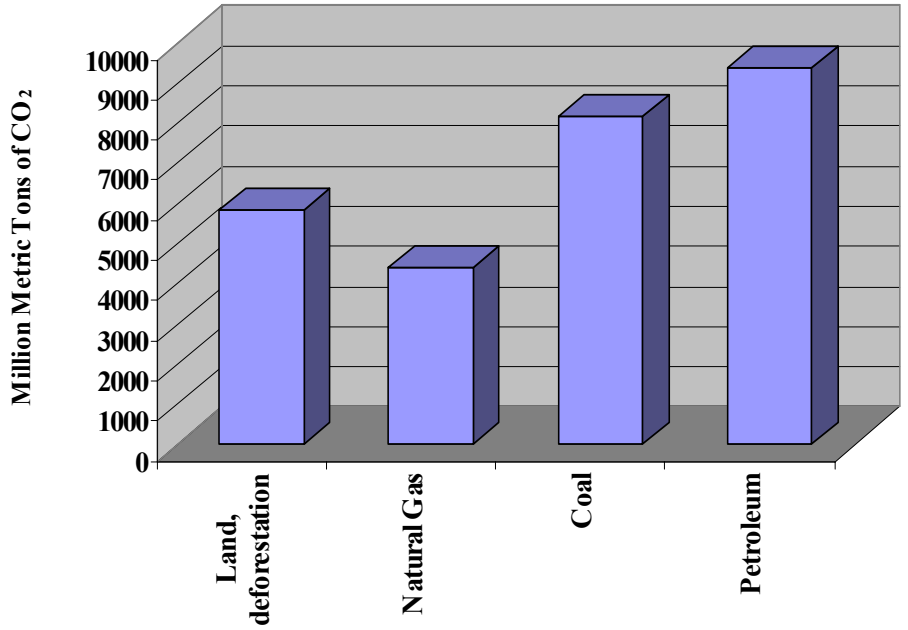
management and agricultural practices in both croplands and grasslands. As forests grow, they absorb vast amounts of carbon dioxide from the atmosphere through photosynthesis. This carbon is then sequestered in woods, leaves, roots and soils (hence the term "carbon sequestration"). When forests are harvested, burned, or cleared for agriculture, much of the carbon stored in plant matter and soils is emitted into the atmosphere as carbon dioxide, the primary greenhouse gas.

Agricultural activities also play an important role in the global carbon cycle as croplands and grasslands store large amounts of carbon. Practices such as conservation tillage, grassland restoration and use of cover crops enhance carbon storage in agricultural soils. In contrast, land clearing and plowing release carbon dioxide by exposing soils to air and sunlight.

By sequestering carbon, forests and agricultural lands can act as a carbon "sink." The capacity of soils and biomass to remove carbon from the atmosphere depends upon location, soil type, vegetation type, climate, human or natural disturbances, and other factors.

Historically, releases of carbon dioxide from land-use activities have contributed substantially to increased concentrations of atmospheric greenhouse gases. Prior to the surge in human activities, primarily the burning of fossil fuels, atmospheric concentrations of CO_2 were around 280 parts per million (ppm). Today, CO_2 concentrations are approximately 378 ppm. Figures 1 and 2 show the relative contribution of land-use activities, notably deforestation, to global greenhouse gas emissions.

Figure 2. Comparison of Mean Annual Global Emissions from Deforestation (1989-1995) and Fossil Fuels (1990-1999) source: IPCC; US DOE



In view of this, Environmental Defense believes that Senators McCain and Lieberman made the correct fundamental choice in allowing farmers and landowners to opt to participate in the GHG reduction market. Within the framework of a cap-and-trade system, investments in the land-use sector can provide a critical mass of cost-effective, high-yield emission reduction opportunities. Thus, emissions reductions made through carbon sequestration have the potential to play a valuable role in a broad ensemble of tools to combat climate change.

In our view, both the environmental performance and the economic performance of a GHG reduction market demand that in the search for carbon sequestration and GHG reduction opportunities, farmers and landowners be allowed to act on a level playing field with other emissions sources. To ensure such a level playing field, land-use-generated GHG "credits" must be rigorously proven to represent real, surplus and durable reductions or increments of sequestration to the same degree that surplus GHG emissions allowances or allotments do. This stricture, far more than the imposition of quantitative limits on the use of land-use-generated credits, will be key to ensuring the environmental integrity of a GHG trading system that encompasses sequestration and other land-related crediting.

McCain-Lieberman and Regulatory Innovation

Thanks to its use of the cap-and-trade framework, the McCain-Lieberman bill, like the federal acid rain program, introduces a noteworthy regulatory innovation. Under the bill, it would be businesses and landowners, not governmental officials or regulators, who would be making the pivotal choice in determining the best means of compliance. The bill would establish that GHG sources are legally accountable for achieving a specified level of emissions reductions and to continually monitor and report their actual emissions. The regulators' only job would be to ensure that each source meets its monitoring and reporting requirements and that its actual annual emissions equal its allotment of allowable emissions.

How sources reduce their GHG emissions would be left completely to the discretion of their operators. As a result, it would be up to them to adapt to the continually changing economic and technical circumstances while still meeting their emissions cap. The burden and the opportunity of lowering costs would be placed squarely on the firms. In place of regulatory variances and other cost-relieving methods that entail compromise of standards and forego actual emissions reductions, firms under a cap-and-trade system must turn to emissions banking and trading for cost control. Because of the built-in cap-based structure of the bill, cost savings through emissions trading in no way would lessen the amount of total emissions reductions or their environmental benefit.

Issues of Implementation

For the McCain-Lieberman bill to fulfill its promise, a number of technical issues and concerns need to be addressed and fully resolved.

Targets and Timetables. As mentioned above, Environmental Defense believes that a GHG emissions trading system will deliver cost-savings significant enough to make aggressive reduction mandates and deadlines affordable. Environmental Defense believes that the proposed targets and timeframe should be

modified so that the U.S. would retain the option of rejoining the global community and participating in the Kyoto Protocol. To achieve this, the bill should bring U.S emissions to just below 1990 levels by 2012. To date, 100 countries have ratified the Protocol, including the members of the European Union and Japan. Last fall, Russia announced its intention to ratify this year, an action that will bring the Protocol into legal force as the vehicle that much of the world regards as the framework for addressing climate change.

Fuel Economy Standard Credits. Given our support for the bill's efforts to create an economy-wide emissions trading market, Environmental Defense is certainly open to approaches that permit some form of emissions trading between automobile manufacturers and other GHG sources. To some extent, however, the inclusion of petroleum producers in the GHG reduction mandate renders trading of credits generated by automakers redundant; in fact, in the absence of appropriately crafted provisions, such trading could entail in-aggregate double-counting. Beyond that, any attempt to qualify and quantify improvements in CAFÉ as GHG reduction credits or allowance-equivalents requires a highly specific set of provisions to ensure environmental integrity. Creating such credits through the project-based reduction and crediting provisions included in the draft's registry title, which are inadequate in and of themselves, are not appropriate to apply here.

Terrestrial Carbon Sequestration. Environmental Defense believes that there should be a set of criteria established in the legislation as to what carbon sequestration projects will yield valid credits. The legislation does not yet include these rigorous criteria. Environmental Defense believes that eligible domestic carbon sequestration activities should be limited to forest conservation, grassland conservation and restoration, cropland management and reforestation of native species (where feasible) on lands that have not been in forest use for the previous 10 years. Afforestation and carbon storage in wood products should be ineligible carbon sequestration activities. Terrestrial carbon sequestration, when done properly, can provide a double environmental benefit—by reducing greenhouse gases and by protecting native species.

Incentives for Capital Investment. This "borrowing" provision, though well intended, has no place in a market-driven system. Such a provision is likely to replicate the negative experience of attempts to single out specified investments for tax subsidies. Here, the program would delay reductions, either unnecessarily or in ways that distort investment decisions. This is exactly what market systems aim to avoid. Banking and multi-sector trading are themselves amply sufficient to foster and facilitate capital investments.

Baseline Protection. Companies that have initiated climate policies early and that have begun to reduce their GHG emissions must be treated equitably. As I mentioned, Environmental Defense has been working with some of the world's largest corporations through the Partnership for Climate Action (PCA). Baseline protection is intended to ensure that forward-looking companies such as BP and DuPont, which are acting on the problem in advance of a legal mandate, are not penalized.

The Importance of the 1990 Baseline. The year 1990 has long been considered the appropriate base year for benchmarking GHG emissions performance of countries. When the U.S. ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the agreement called for all parties (countries) to reduce emissions to 1990 levels by the year 2000. The Berlin Mandate, which was agreed to at

the first Conference of parties to the UNFCCC in 1995, called for mandatory and binding targets for emissions relative to the 1990 base year. The Kyoto Protocol also uses a 1990 base year for national commitments. These seminal decisions have paved the way for international recognition of 1990 as the appropriate base year for measuring the GHG emissions performance of nations. Since the economy and individual companies have changed substantially since 1990, it is appropriate to use more contemporaneous data in the establishment of procedures for the allocation of emission allowances. However, the nation and our GHG reduction goals should be explicitly referenced in 1990 terms in keeping with our international commitments.

Title II National Greenhouse Gas Database. Environmental Defense has a number of concerns with this section of the bill. The language fails to ensure that credit-generating reductions are real and surplus and thus consistent with environmental integrity. First and foremost, any entity that wants to register reductions must report on an entity-wide basis. Unfortunately, this bill allows for voluntary project reductions, rather than entity-wide reductions, to be eligible for credit. Such a loophole could undermine much of the carefully constructed architecture of the bill. In addition, the references to "direct" and "indirect" emissions raise the specter of double-counting.

Role of Environmental Protection Agency. Ever since its founding, the U.S. Environmental Protection Agency has taken the lead in implementing federal laws designed to protect and improve the environment. That should also be the case for addressing climate change. EPA administers the federal acid rain program, which involves the nation's electric power producers in a cap-and-trade program analogous to what is proposed in this legislation. Thus, EPA has the experience to take the lead role here as well. Clearly though, on an issue as complex and far reaching as climate change, many other agencies in the federal government will have valuable and key roles to play.

Environmental Compensation. Although the draft includes a financial penalty for sources whose emissions exceed their allowances, it fails to provide a mechanism for "making the environment whole" – that is, for restoring the lost emissions reductions. Such a provision is explicitly set forth in the federal acid rain program under which an allowance is deducted from a source's allocation for each ton of excess emissions. This, together with the program's financial penalties, is a key to its success and should be included here.

International Emissions Trading. Environmental Defense appreciates the inclusion of provisions in the draft bill to ensure the environmental integrity of GHG reductions transferred from sources operating under GHG emissions reduction programs in foreign countries. In our view, perfecting these provisions is far more vital to the environmental integrity of the GHG reduction market created by the bill than the imposition of a quantitative limit on the use of such credits. In fact, for sound reasons, the Kyoto Protocol itself imposes no such quantitative limit on international transfers. To the extent that it remains important to keep U.S. political and policy options open over time, domestic climate legislation should seek to be more, rather than less, compatible with the global system likely to develop under the Protocol.

Geologic Sequestration. Sequestering carbon after it is emitted is the subject of much current attention. While Environmental Defense believes these technologies, like terrestrial sequestration, should be explored and tested, the standards must be

rigorous, and the legislation does not yet articulate those standards. For example, language should specify that the originating entity (i.e., the entity that emitted the carbon) is responsible for any carbon that is subsequently lost from storage to the atmosphere. This creates the right incentives for entities to pick sound disposal sites and site operators, and to assure the long-term effectiveness and financial viability of storage sites, or to compensate for any failures. There also needs to be language creating a process for obtaining the Administrator's approval of the suitability of geo-storage sites, reviewing both the geology and the capacity of the entity that will manage the site.

Conclusion

For those of us who support meaningful action to combat climate change, the draft bill represents a significant breakthrough. Its comprehensive GHG reduction and trading framework sets the threshold for any serious proposal that purports to tackle the issue of GHG reductions and climate change. For this, its authors deserve the thanks of all Americans.