



RESOURCES
FOR THE FUTURE

**Summary and Analysis of McCain-Lieberman –
“Climate Stewardship Act of 2003”
S.139, introduced 01/09/03
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Summary

The legislation proposed by Senators John McCain (R-AZ) and Joseph Lieberman (D-CT) suggests an alternative to the existing approaches to address climate change in the United States based on a new broad, flexible, and domestic framework. Previous approaches include the Clinton administration’s 1997 negotiation of the Kyoto Protocol, an international agreement now ratified by 100 countries, which called for significant greenhouse gas emissions reductions by the United States. President Bush rejected the Kyoto Protocol as too costly and unfounded in science and, in February 2002, called for new voluntary measures to curb greenhouse gas emissions. In the fall of 2001, Senators James Jeffords (I-VT) and Lieberman put forward their approach in a so-called four-pollutant bill, which would limit power-plant emissions of carbon dioxide, as well as sulfur dioxide, nitrogen oxides, and mercury.

In contrast to these international, voluntary, and sector-based approaches, McCain-Lieberman requires domestic, mandatory, and economywide emissions reductions. While the specific emissions limits will likely be the subject of lengthy debate, we view the architecture of the emissions-trading program in this bipartisan bill to be a significant step forward. The broad coverage and flexibility of the trading program make this bill one of the most cost-effective domestic proposals to date. The bill also features a climate research program and an emissions registry. However, it is the trading program (Title III) that represents the most significant change in the debate over climate change and is the subject of this summary and analysis.

Emission limits, covered sources, and trading provisions

Title III of the McCain-Lieberman bill would establish a limit on greenhouse gas emissions beginning January 1, 2010. This limit would be implemented through an emissions-trading program modeled on the successful 1990 acid rain program. During the first six years of the program (2010-2016), annual greenhouse gas emissions would be limited to the amount released in 2000. In subsequent years, the limit would be reduced to the 1990 emissions levels.

McCain-Lieberman excludes residential and agricultural sources of greenhouse gases, as well as any entity responsible for less than 10,000 metric tons of carbon dioxide per year or its equivalent. Given these exclusions, the proposed program still covers more than 70% of all U.S. carbon dioxide and industrial greenhouse gas emissions.

Under the bill, the government would first distribute emissions “allowances” equal in number to the emissions limit for a given year. The government would then require sources covered by the program to submit to the Environmental Protection Agency (EPA) one of these allowances for each ton of carbon dioxide, or the carbon dioxide equivalent of other greenhouse gases, they emit after the program begins. These allowances can be bought and sold freely by anyone and allowances that remain unused at the end of each year can be banked for use in a future year.

The bill treats the transportation sector and users of other greenhouse gases differently than stationary sources of carbon dioxide emissions. Refineries and refined petroleum importers selling transportation fuels are required to obtain allowances for each ton of carbon dioxide that will be emitted by their products. Similarly, producers or importers of industrial greenhouse gases are required to obtain an allowance for each amount equivalent to a ton of carbon dioxide that is produced or imported (rather than emitted).

Allocation and credits

Allowances are allocated in a three-step process. In the first step, covered emissions sources are placed in one of the following groups: electric generation, industrial production, commercial activities, and transportation. Each group is allotted a share of the total number of available allowances in proportion to the group’s emissions during the calendar year before enactment, relative to all four groups. For the first six years of the program, the total volume of available allowances equals the total emissions among all covered sources in the year 2000. Beginning in 2016, the total volume of available allowances equals total emissions among all covered sources in 1990. In other words, emissions data from 1990 and 2000 define the total number of available allowances, while data from the most recent year prior to enactment defines the share received by each group of emission sources.

Once the group’s allotment is determined, the second step is to divide the allowances between those going directly to firms in a group, and those allowances going to a special nonprofit corporation that would be established to benefit consumers, the “Climate Change Credit Corporation” (CCCC). The transportation-sector allotment is similarly divided between those allowances designated for refiners and importers of petroleum products and those designated for the corporation.

In the third step, allowances going to firms are divided among specific firms within a group. In addition to this direct allocation, firms can receive a larger share of allowances through early emissions reductions registered prior to 2010, an agreement to achieve and maintain 1990 emissions levels in 2010 rather than 2016, and/or an exchange for excess corporate average fuel economy credits by vehicle manufacturers that exceed those standards by more than 20%.

Credits for reductions by sources not covered by the trading program, credits from sequestration projects (including forestry, agricultural, and geological), credits borrowed against future emissions-reduction commitments, and allowances purchased from approved trading programs in other countries can be used to satisfy up to 15% of a source's allowance requirements each year until 2016. In 2016 and beyond, the use of these credits/allowances is limited to 10%. Firms that agree to achieve and maintain 1990 emissions levels in 2010 can satisfy up to 20% of their allowance requirement with these credits/allowances.

While considerations are specified for each allocation step, details are left to future rulemakings by the Commerce Department secretary and the EPA administrator.

Analysis

Sources covered by the emissions-trading program in the McCain-Lieberman bill must reduce emissions by a steadily increasing amount relative to forecast levels beginning in 2010. Based on an examination of carbon dioxide and industrial greenhouse gas emissions forecasts in the industrial, transportation, and electricity-generation sectors, required reductions will rise from 860 million metric tons of carbon dioxide in 2010 to 2.9 billion metric tons by 2020. Among these sources, the initial reductions equal 14% of forecast emissions levels of 6.2 billion tons in 2010. By 2020, reductions will equal 39% of forecast emissions levels of 7.5 billion tons.

Compared to the Kyoto Protocol, which would have required reductions of 2 billion metric tons in 2010, McCain-Lieberman is relatively modest. Compared to calls by the Bush administration for an 18% improvement in greenhouse gas intensity—or about a 350 million metric ton reduction in 2012—McCain-Lieberman is relatively aggressive.

Uncertainty exists in these reduction estimates due to uncertainty about how many firms will be excluded based on the 10,000 metric ton per-entity threshold. We have assumed that commercial-sector emissions of carbon dioxide (about 250 million metric tons) are completely excluded, based on an effective per-entity cut-off of 4 million square feet (for example, the Sears Tower in Chicago is only 3.5 million square feet). On the other hand, we have included all carbon dioxide and industrial greenhouse gas emissions from industrial sources (slightly more 1.5 billion metric tons). It is a hunch that most industrial sources will included based on the 10,000 metric ton threshold but by assuming they are all covered, when in fact many may be exempt, our analysis would over-estimate the consequences.

Despite exclusions and uncertainty, at least 70% of the easily monitored U.S. greenhouse gas emissions (for example, carbon dioxide and industrial gases) will be covered based solely on coverage of the transportation and electricity sectors. The easily monitored emissions still exclude methane and nitrous oxide, or about 15% of total U.S. emissions.

Can the United States meet these targets and at what cost?

Recent estimates by EPA, based on a 2001 study conducted for Senators Gordon Smith (R-OR), George Voinovich (R-OH), and Sam Brownback (R-KS), suggest that 1.3 billion metric tons of domestic reductions are available at about \$14 per ton of carbon dioxide in 2010. If firms began by making 1.3 billion metric tons of reductions in 2010—450 million more than the required 850 million metric tons—and then continue with this level of annual reductions in the future, the excess reductions in the early years could offset excess emissions in later years through the end of 2016. That is, this sustained level of reductions would be sufficient for the first seven years of the program. A rough

calculation based on the EPA analysis suggests that the cost of these reductions to the U.S. economy would be around \$9 billion annually but, depending on the availability of international and noncovered domestic reductions, the cost could be 10 times higher or lower. On a \$12 trillion economy forecast for 2010, \$9 billion is less than one-tenth of 1% of the gross domestic product.

The range of uncertainty arises because the quoted EPA estimates consider reductions from all U.S. sources in 2010, including both covered and noncovered sources as defined by McCain-Lieberman. If the noncovered sources (particularly methane and sequestration opportunities) are not sufficiently encouraged to reduce emissions by the bill's crediting provisions, the cost could be 10 times higher. However, other EPA estimates in the same report suggest an equivalent international supply of emissions reductions at one-tenth the cost of domestic reductions—a supply we assume is not realized in our analysis. Adding to the potential overstatement of costs, our perpetual use of cost estimates for 2010 ignore the added availability of inexpensive reductions in later years as more capital is replaced and technology has advanced further, something we do not quantify.

What does \$14 per ton of carbon dioxide mean?

Using the EPA estimates, if firms were required to purchase allowances at \$14 for each ton of carbon dioxide they emit (or for the equivalent volume of gasoline they produce), this would add about 13¢ per gallon of gasoline, 77¢ per thousand cubic feet of natural gas, and \$32 per short ton of coal. Based on current national average prices of \$1.45 per gallon of gasoline, \$3.78 per thousand cubic feet of natural gas, and \$33 per short ton of coal, payment of \$14 for each ton of carbon dioxide would effectively raise the cost of using gasoline by 9%, the cost of using natural gas by 20%, and the cost of using coal by 100%.

Another consequence of \$14 per-ton carbon dioxide is that the allowances created by the emissions-trading program would be valued at roughly \$75 billion. In this way, the allocation of allowances under this program has a greater potential to create significant winners and losers than the direct cost of the program.

Perspective

The McCain-Lieberman bill creates a single trading program covering more than 70% of all carbon dioxide and industrial greenhouse gas emissions. It includes offset provisions for emissions that are not covered, allows for biological and geological sequestration credits, and permits sources to buy allowances in other countries that have their own trading programs. Allowances can be traded freely among gases and sectors, and banked for future use. Allowances are allocated with attention placed on consumer impacts and transitional assistance as well as equity among firms. If domestic methane reductions and sequestration options are fully realized, EPA estimates suggest that an allowance price of \$14 per ton of carbon dioxide, costing about \$9 billion annually, could achieve the reduction goal through 2016, even absent international emissions reductions.

The broad coverage and flexibility of the trading program make this bill one of the most cost-effective domestic proposals to date (even more so than the European Union trading system). The level of control, particularly the achievement of 1990 emissions levels by 2016, will undoubtedly fire up the debate among those who believe it is insufficient given the environmental risk and those who believe it is excessive given the economic cost. Yet, the fact that this debate can occur in the context of a flexible, economywide emissions-trading program represents a significant step forward.