

Appendix C. Provided Bill Summary

Market-Based GHG Emission Trading Discussion Draft

The 2005 Sense of the Senate resolution on climate change emphasized that the risks associated with a changing climate justify the adoption of mandatory limits on greenhouse gas (GHG) emissions and that an important first step towards addressing climate change can be taken at an acceptable cost. In that spirit, this staff draft outlines a legislative proposal that would begin with a modest emissions-reduction target and strengthen gradually over time. The approach is consistent with that of the successful Acid Rain Program in that it sets a “forward price” on emissions to provide both the flexibility and incentive needed to accelerate technology development and deployment. The long-term price signal that a forward price creates would be critical for giving industry certainty and for focusing its decision-making on lower carbon options. However, the price signal initially imposed under any domestic regime would not likely be strong enough to motivate the development and deployment of the key technologies that will ultimately be needed to stop and reverse GHG emissions. Thus, in order to speed technology deployment, the staff draft includes provisions to create incentives for new technology and provides significant new R&D funding for low- and no-carbon technologies.

Key Features

Target, Timing and Price Cap

- **Emissions Target:** The target is calculated in advance to reflect a 2.6 percent per year decline in the emissions intensity of the U.S. economy (expressed as total GHG emissions per dollar of GDP) for the first period of program implementation (2012 to 2021). The target rate of decline in emissions intensity increases to 3.0 percent per year in the second period (2022 onward). The emissions target establishes the total quantity of allowances available each year.
- **Price Cap:** The government would make additional allowances (above and beyond the quantity initially allocated under the emissions target) available for sale at a fixed price. The price starts at \$7 per metric ton of carbon-dioxide-equivalent GHG emissions in the first year of program implementation and rises steadily thereafter at an annual rate of 5 percent above the rate of inflation.

Explanation of Approach

- **Consistent with Sense of Senate Resolution:** By targeting an annual decline in emissions intensity, the proposal is designed to first slow emissions growth (over the period from 2012 through 2021), before attempting to stop emissions growth starting in 2022. Ultimately, emissions will need to decline in absolute terms to stabilize greenhouse gas concentrations in the atmosphere, meaning that the rate of decline in emissions intensity will eventually need to outpace economic

growth. This proposal establishes a policy framework for achieving a long-term trajectory of emissions reductions in what would necessarily be a phased process.

- **Limits Costs to the Overall Economy and Provides Price Certainty for Investors:** By making additional allowances available at a known price, the proposal effectively caps the costs imposed on the U.S. economy and on consumers. Additional allowances would be purchased (and emissions would exceed the economy-wide target) only if the market price of allowances were to rise above the price cap. The price cap increases by 5 percent each year above the rate of inflation so as to provide progressively stronger incentives for emissions abatement over time and to establish a predictable market signal for investors.
- **Changes from 2005 Bingaman Proposal:** Based on numerous comments received during the Committee’s discussion of this issue, implementation is delayed 2 years, from 2010 to 2012. This change will allow the current voluntary Administration program to run its full course before any new policy takes effect and will provide sufficient time to get the trading program in place. To compensate for the delay, the proposed bill accelerates the rate by which the cost cap increases, from 5 percent nominal to 5 percent above inflation. The bill also changes the targeted decline in emissions intensity from 2.4 percent per year to 2.6 percent per year in the first allocation period, and from 2.8 percent per year to 3.0 percent per year in the second period, to adjust for greater “business-as-usual” reductions in emissions intensity stemming from higher projected energy prices.

Scope and Point of Regulation

- **Scope:** The program is economy-wide.
- **Point of Regulation:** Carbon dioxide (CO₂) emissions from fossil fuels are regulated upstream at the point of fossil fuel production, and regulated entities are required to submit allowances equal to the carbon content of fuels produced or processed at their facilities.
- **Regulated Entities:** Entities required to submit allowances include:
 - Petroleum refineries
 - Natural gas processing facilities
 - Coal mines
 - Fossil fuel importers (for petroleum, this includes refined products only) and importers of gases with high-global warming potential (GWP)
 - Non-CO₂ greenhouse gases: coal mine methane; N₂O from adipic acid production; high-GWP gases

Explanation of Approach

- Placing the point-of-regulation relatively higher up in the progression from energy production to consumption reduces the number of sources that must be regulated

and simplifies program administration. This approach more efficiently captures all sources of emissions and all emissions reduction opportunities throughout the economy. In addition, an upstream approach may reduce overall administrative costs.

Allowance Distribution

- **Allocation to Private Sector Entities:** For the first five years of program implementation, 55 percent of the total quantity of allowances available under the emissions target would be allocated without cost to private sector entities. This amount is gradually reduced to 0 percent over 30 years. The industry sectors receiving free allocations under this proposed approach are:
 - Coal mines and coal importers
 - Petroleum refineries and refined-product importers
 - Natural gas processing plants and natural gas importers
 - Non-CO₂ regulated entities
 - Coal, oil and natural gas electric generators
 - Carbon-intensive industrial sectors
- **Auction:** For the first five years of program implementation, 10 percent of the total quantity of allowances available under the emissions target would be auctioned. The share of allowances auctioned would gradually increase to 65 percent over 30 years. Auction revenues are used for R&D and to support the deployment of low- and no-carbon technologies.
- **Agricultural Sequestration:** 5 percent of the total quantity of allowances allocated under the emissions target annually would be for agricultural sequestration activities (see below).
- **Early Reduction Credits:** 1 percent of the total quantity of allowances allocated under the emissions target for each of the first 10 years would be reserved for entities that had undertaken projects resulting in early reductions in greenhouse gases.
- **Distribution by States or the President (to “fine tune” allocation):** 29 percent – 30 percent of the total quantity of allowances allocated under the emissions target:
 - States or the President would distribute allowances for certain defined purposes, such as addressing economic impacts, promoting technology or energy efficiency, and enhancing energy security.
 - If States distribute allowances, their overall amount would be based half on emissions and half on population.

Explanation of Approach

- **Allocation Based on Cost Impacts:** Under the proposal, allowances are allocated in a manner that recognizes and roughly addresses the disparate costs imposed by the program. Allowances are not allocated solely to regulated entities because these entities do not bear all or even most of the costs of the emissions trading program.
- **Auction Phased in Over Time:** Over time, allowance distribution transitions from an approach that fairly compensates sectors for past investments in carbon-intensive technologies to an approach that creates incentives for energy efficiency and lower carbon technologies. This is accomplished by gradually reducing the quantity of allowances given away without cost while gradually increasing the quantity of allowances auctioned.
- **Auction Proceeds for Technology R&D and Incentives:** Virtually all experts agree that significant technology advancements will be needed to adequately and affordably address climate change over the next century. Reserving proceeds from the auction for energy research, development, and deployment would provide the revenue to support significant new development and deployment of the breakthrough technologies needed to address climate change.
- **Allocation for Primary Fuel Producers:** The compliance costs for fossil fuel producers in an upstream system represent only a small portion of the overall costs of any trading program. Most upstream producers can and would simply pass allowance costs through in the form of higher fuel prices, regardless of whether they were to receive free allowances or were required to pay for them. Analysis shows that costs to primary fuel producers would be completely offset by an allocation of roughly 5 percent to 10 percent of the total pool of allowances. However, the EIA analysis of last year's proposal by Senator Bingaman shows that coal companies, while able to pass a substantial portion of their costs through in prices, might be more affected than other energy producers. Although coal demand and sales would continue to grow under the proposed GHG trading program, coal use is projected to grow more slowly under the program than in the absence of regulatory action. Accordingly, the proposal acknowledges the slower growth in coal demand expected as a result of the bill and allocates 7 percent of the total pool of allowances available under the emissions target to coal producers. Oil and gas producers would receive 4 percent and 2 percent, respectively, of that total allowance pool.
- **Allocations for Downstream Electric Generators:** Although electric generators would not be regulated under the staff draft proposal, they would face higher production costs as fossil fuel prices rise. A portion, though not all, of these additional fuel costs would be passed through in higher electricity prices. To the extent that generators were to receive allocations of free allowances, they would be able to sell those allowances and use the revenue to offset higher fuel costs. Based on cost estimates provided by EIA, further analysis suggests that a 10

percent share of the total allocation would fully offset adverse impacts on electric generators. The 10 percent figure assumes that the allocation system perfectly targets allowances to the companies that bear non-recoverable costs. Recognizing that a perfectly targeted allocation is not possible and that some “passed through” costs would revert to fossil-based electric generators, a higher fraction would need to be allocated to fossil generators to fairly offset the impacts of increased fuel prices. If, in the extreme, fossil generators were to bear all program costs without passing any along to rate payers, they would need 40 percent of the total allocation pool to offset their costs. Therefore, between 10 percent and 40 percent of the total allocation reflects the theoretical range of allowances needed to offset the financial impact of increased fuel prices in the electric sector. Using a point in this range, the draft allocates 30 percent of the total pool of allowances available under the emissions target (equal to roughly 75 percent of electricity sector emissions) to fossil-fuel fired generation.

- **Allocations for Carbon-Intensive Industries:** Energy-intensive industries, such as steel, aluminum, chemicals, pulp and paper, and cement, would not be regulated in an upstream trading system. Like electric generators, these industries would, however, face higher prices for fossil fuels under a greenhouse gas trading system. While price increases would be modest, these industries consume significant amounts of fossil fuels and often face stiff competition from foreign competitors, most of whom would not be subject to mandatory greenhouse gas regulation. Including these industries in the allocation would not affect their incentive to improve efficiency and reduce fuel use, but it would offset increased energy costs and help to address competitiveness concerns associated with a domestic greenhouse gas trading program. If one provided allocations of free allowances only to the large, energy-intensive industries noted above—steel, aluminum, chemicals, and pulp and paper—close to 10 percent of the overall allowance pool would be required. The proposal allocates 10 percent of the total annual allocation towards carbon-intensive industries.
- **Allowance Pool to “Fine Tune” Allocation:** Although the approach outlined above generally addresses the cost impacts of the proposal, we recognize that costs are imposed on additional groups and that it may be desirable to address additional policy goals through the allocation process. Therefore, a significant portion of allowances is reserved for these purposes. These allowances would go towards several specific purposes, such as addressing economic impacts, creating incentives for energy efficiency or other “climate friendly” technologies, and enhancing energy security. The proposal presents two options for distributing these allowances: either States would distribute the allowances or the allowances would be distributed according to a process designated by the President.
- **Early Reduction Programs:** For the first ten years, 1 percent of the total pool of allowances available annually under the emissions target would be set aside for an early reduction credit program that would award allowances to companies or other organizations that reduced emissions prior to the implementation of a

mandatory program. These include reductions reported through DOE/EIA's 1605b program, and reductions made through other government-sponsored and private programs identified by the Secretary of Energy.

Offset Projects

- **Cost-Effective Reductions:** Allowances could be provided for cost-effective emissions reductions not otherwise covered by the trading program (e.g., capturing and using methane from landfills).
- **Tiered System:** The proposal would establish a tiered system of offsets whereby the most easily verified project types could use a streamlined procedure to apply for allowances.

Explanation of Approach

- Offset projects can provide low-cost emission reductions and create incentives for new technologies and approaches. The proposed approach would encourage investor certainty and lower transaction costs while ensuring that offset projects have environmental integrity.

Incentives for Farmers

- **Agricultural Sequestration:** The proposal creates a significant new pilot program to encourage and evaluate the benefits of agricultural soil sequestration.
- **Allowance Set-Aside:** 5% of the total pool of allowances available annually under the emissions target would be reserved for sequestration projects by farmers.

Explanation of Approach

- Sequestration of carbon in agricultural soils is a potentially important option for addressing greenhouse gases and could eventually create a significant new source of revenue for farmers. However, there is relatively little long-term experience with monitoring, reporting and verifying agricultural sequestration. Providing agricultural sequestration projects with allowances *from within the pool of allowances established under the program target* would allow the nation to benefit from large-scale demonstration projects aimed at resolving some of these issues, while still ensuring that the program achieves its intended environmental goals. Thus, 5 percent of the initial allowance pool would be reserved to provide incentives for agricultural sequestration projects.

International Linkages

- **Review of Actions by Trade Partners and Large Emitters:** Planned increases in the target rate of emissions intensity reductions and in the price cap could be halted or modified if, during a review process that would occur every five years (Five-Year Review), it were determined that major trade partners and other large emitters were not taking appropriate actions to address greenhouse gases.
- **Consider Implications of Linking to Other Trading Programs:** The Five-Year Review Process also provides an opportunity to consider linking the U.S. program to other countries' domestic GHG reduction programs.

Explanation of Approach

- All stakeholders recognize the need to encourage comparable action by other nations that are major trading partners and key contributors to global GHG emissions. The draft acknowledges that the U.S. should show leadership by taking action on greenhouse gases. However, after the initial stage, further steps would be contingent on a review of progress by other nations in addressing their GHG emissions.
- Differences in the design of domestic trading programs (e.g., different target levels, different monitoring and verification systems) might complicate efforts to link programs internationally, especially in the near-term. Thus, rather than providing a provision for formal linkage now, the draft leaves further consideration of these issues to the Five-Year Review process.

Appendix D. Follow Up Request Letter

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October 11, 2006

Dr. Howard Graenspecht
 Deputy Administrator
 Energy Information Administration
 U.S. Department of Energy
 1000 Independence Avenue, SW
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Dear Dr. Graenspecht:

This letter follows up on the request of September 27, 2006, that EIA provide an analysis of draft climate legislation. Since the time of that request, I have identified three specific issues that I would like to see explicitly addressed in EIA's report: 1) the impact of higher and lower starting prices for the program's "safety valve" price; 2) the impacts of allowing GHG offsets and the potential impact of not permitting or limiting them; and 3) the impact on program costs and the distribution of those costs associated with using a different point of regulation, specifically an alternative in which the point of regulation for coal was downstream (i.e., at electric power plants and industrial sources). While I would like EIA's report to address these issues, it is not necessary to provide a full presentation of all alternative cases that are run to develop insights into these issues.

Please do not hesitate to contact me if you have any questions regarding this additional request.

Sincerely,



Jonathan Black