

THE CLIMATE STEWARDSHIP ACT IMPLEMENTATION PROGRAM: BACKGROUND AND FIRST-YEAR IMPLEMENTATION

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
INTRODUCTION	5
1. THE SCIENCE BEHIND THE PROBLEM	5
1-a. Abrupt Climate Change	
1-b. Impacts of Climate Change	
1-c. Scientific Controversies	
2. THE PROPOSED SOLUTION	7
2-a. Title I: Federal Climate Change Research and Related Activities	
2-b. Title II: National Greenhouse Gas Databases	
2-c. Title III: Market Driven Greenhouse Gas Reductions	
2-d. Economic Analysis	
3. ISSUES FOR PROGRAM IMPLEMENTATION	10
3-a. Issues - Climate Research	
3-b. Issues - Greenhouse Gas Database	
3-c. Issues - Cap-and-Trade	
4. PROGRAM DESIGN	11
4-a. Task 1: Climate-related research	
4-b. Task 2: Two reports issued by Department of Commerce	
4-b-i. Task 2.1: Report on Technology Transfer	
4-b-ii. Task 2.2: Report on Kyoto Protocol	
4-c. Task 3: Measurement standards; verification and reporting regulations	
4-d. Task 4: National Greenhouse Gas Database	
5. ORGANIZATION AND STAFFING PLAN	15
5-a. Proposed Program Organizational Structure	
5-b. Overview of current structure of the Clean Air Markets Division	
5-c. New Organizational Structure Incorporating the Climate Stewardship Program	
5-c-i. Market Policy Branch	
5-c-ii. Emissions Monitoring Branch	
5-c-iii. Assessment and Communications Branch	
6. BUDGET PLAN	18
6-a. Budget: Tasks 1, 2.1 and 2.2	
6-b. Budget: Task 3	
6-c. Budget: Task 4	
7. MASTER CALENDAR	20
8. PERFORMANCE MEASUREMENT	21
8-a. Performance Measurement Task 1: Climate Related Research	
8-b. Performance Measurement Tasks 2.1 and 2.2: Report on Technology Transfer and Report on Kyoto Protocol	
8-c. Performance Measurement Task 3: Measurement Standards; Verification and Reporting Regulations	
8-c-i. Developing Measurement Standards	
8-c-ii. Developing Verification and Reporting Standards	
8-d. Performance Measurement Task 4: National Greenhouse Gas Database	
SUMMARY	25
APPENDIX A	26
APPENDIX B	27
APPENDIX C	37
APPENDIX D	41
BIBLIOGRAPHY	47

EXECUTIVE SUMMARY

The Climate Stewardship Act of 2003 (S. 139) was introduced on January 9, 2003 by Senators Joseph Lieberman (D-CT) and John McCain (R-AZ) to address the problem of abrupt climate change. Human activities, such as the burning of fossil fuels and deforestation, result in an increase of greenhouse gases (GHGs), which trap heat within the atmosphere, thereby increasing global temperatures leading to climate change. Abrupt climate change is the acceleration of natural global warming via human activities, which is expected to change global hydrologic cycles and weather patterns, thereby threatening ecosystems and thus, threatening human well-being. In order to prevent or mitigate the anticipated impacts of climate change, the Act aims to reduce United States' GHG emissions via a market-driven cap-and-trade program. The solution detailed in the Act is threefold: first, Title I addresses the need for additional climate change research; second, Title II outlines the establishment of a GHG database; and lastly, Title III creates a domestic, mandatory cap-and-trade program that would limit GHG emissions from the commercial, energy, transportation and industrial sectors that are responsible for 70 to 85% of GHG emissions in the United States.

After detailing the science of the problem and summarizing the legislative solution, this report focuses on the first-year implementation of the Climate Stewardship Program. In the first year, the mission of the program is to carry out the mandates of the Climate Stewardship Act including the creation of a National Greenhouse Gas Database, as well as demonstrating early effectiveness, and laying the foundation for the long-term success of the program. The program design identifies four Tasks to achieve this mission. While the Act's main objective is to reduce US GHG emissions through an economy-wide cap-and-trade system (Title III), several critical components in Titles I and II must first be achieved before emissions trading can take place under Title III. Therefore Tasks One through Four concentrate on Titles I and II. Corresponding with Title I, Tasks One and Two involve additional climate change research. Task One requires the Senate Committee on Commerce, Science, and Transportation to "develop a list of priority areas for research and development on climate change that are not being addressed by Federal agencies" (S. 139, Sec.104c) for the National Science Foundation. Task Two mandates that the Department of Commerce (DOC) deliver two reports: the report on best management practices and technology transfer barriers, and the report on the impacts of the Kyoto Protocol on the United States. These reports must be issued within the first 6 months of implementation. In accordance with Title II, Tasks Three and Four establish a comprehensive system for measuring and inventorying GHG emissions and reductions, and develop the National Greenhouse Gas Database. Addressing these components lays the foundation for the cap-and-trade system (Title III).

The EPA will be the lead agency for all facets of the Climate Stewardship Program. It will be housed within the Clean Air Markets Division (CAMD) of the EPA. The Climate Stewardship Program would be modeled closely after the Acid Rain Program, currently run by the Clean Air Markets Division, which also employs a cap-and-trade emissions reduction program and utilizes a database for tracking sulfur dioxide and nitrous oxide emissions. Housing the Climate Stewardship Program in the CAMD is logical, as GHG emissions monitoring and reductions will only need to be integrated into the existing framework of sulfur dioxide and nitrogen oxide

emissions programs and the national greenhouse gas inventory. The first year cost of implementing S.139 is \$1.36 million dollars. In fiscal year 2004, the EPA has a budget of \$138 million for the goal of reducing GHG emissions (EPA, Annual), which makes the Climate Stewardship Program a mere 0.98% of the EPA's total GHG budget.

A Performance Measurement Plan has been constructed to assure initial success of the Program during its first year of implementation. For Tasks One and Two, the EPA requires that both the NSF research areas be identified and that the DOC reports be issued by July 1, 2004, respectively. For Tasks Three and Four the main instrument for performance management is pilot testing of the National Greenhouse Gas Database. This will ensure that the Database is fully functional and ready for reporting by January 1, 2005.

The first year of implementation of the Climate Stewardship Act will result in expanded climate change related research and the creation of a greenhouse gas emissions and reductions database. This will facilitate the successful implementation of the cap-and-trade program to reduce GHG emissions, resulting in a 39% reduction of GHG emissions by 2016 (Bailie, 2003). The reduction in GHG emissions will help to mitigate the negative impacts of global climate change.

INTRODUCTION

This report addresses the problem of abrupt climate change and the solution proposed in the Climate Stewardship Act of 2003 (S. 139), which was introduced in January 2003 by Senators Joseph Lieberman (D-CT) and John McCain (R-AZ). After detailing the science of the problem and summarizing the legislative solution, this report focuses on the first-year implementation of the Climate Stewardship Program. In the first year, the mission of the program is to carry out the mandates of the Climate Stewardship Act, as well as to demonstrate early effectiveness, and lay the foundation for the long-term success of the program. A program design, organization and staffing plan, budget, calendar and management plan have been constructed to achieve the first year mission, and are summarized herein. The successful implementation of this program will lead to the mitigation of the negative impacts of abrupt climate change.

1. THE SCIENCE BEHIND THE PROBLEM

The Climate Stewardship Act of 2003 addresses the problem of abrupt climate change, which is expected to change global hydrologic cycles and weather patterns, thereby threatening ecosystems and human well-being. The legislation is based on the growing scientific consensus that abrupt climate change is being induced by human activities that have altered natural atmospheric processes. Specifically, the Act addresses the emissions of greenhouse gases (GHGs), which contribute to abrupt climate change. Failure to mitigate abrupt climate change is likely to result in increased flooding, drought, and disease in the United States and in nations around the world.

1-a. Abrupt Climate Change

Abrupt climate change is the acceleration of natural global warming via human activities. The Earth receives energy from the sun in the form of light and re-emits this energy as heat. Most of the heat escapes from the atmosphere into space, but some heat is trapped and retained in the atmosphere by GHGs. This heat trapping is known as the greenhouse effect and is a natural phenomenon responsible for creating the temperatures that allow life to thrive on Earth (Kump, 44). Human induced increases of atmospheric GHGs are causing an abrupt increase in temperatures at a rate that surpasses the ability of the biosphere to adapt. The Climate Stewardship Act is designed to reduce atmospheric concentrations of GHGs to slow abrupt climate change. This legislation focuses on the release of carbon dioxide (CO₂), and five other GHGs, through human activities. The concentration of atmospheric CO₂ has risen 30%, between the pre-industrial era (prior to 1750) to the present, and it is projected to double pre-industrial levels by 2100 (IPCC, 6). The major sources of CO₂ include fossil fuel combustion for industry, transportation, and electricity generation. Emissions from fossil fuel combustion account for about 65% of the anthropogenic CO₂ now found in the atmosphere (EPA, 2003). Conversion of natural land to agricultural land has also significantly increased CO₂ levels because cultivated land holds 20 to 100 times less CO₂ per unit area than natural ecosystems.

While CO₂ is the most abundant anthropogenic GHG, the five other gases that are addressed by the Act are important due to their varied abilities to trap heat. The Act compares the heat-trapping effects of GHGs by using their global warming potentials (GWPs). The GWP is defined as a molecule's relative ability to trap heat over time, taking into account both potency and residence time in the atmosphere (IPCC, 2001). CO₂ is used as a basis for comparison and is

assigned a GWP of 1. To compare different gases, non-CO₂ gases are converted to CO₂ equivalents, by multiplying a gas's GWP and its atmospheric concentration (For a listing of CO₂ equivalents, see Appendix A).

Over the last century, an abnormal increase of 0.6°C (1°F) has been recorded on the planet (IPCC, 2001). Most models predict that the average global temperature will increase 1 to 5.5 °C in the next 100 years (IPCC, 2001). Indicators of climate change show a 10% decrease in snow cover since the 1960s and a widespread retreat of mountain glaciers. Tide gauge data reveals that in the last century, the global sea level has risen between 0.1 and 0.2 meters. Moreover, extreme weather and El Nino events have also increased in frequency over the last 100 years. All of these are effects of the climate change that is already occurring from current GHG concentrations in the atmosphere.

1-b. Impacts of Climate Change

Increased temperatures lead to disruptions of hydrologic and weather patterns, which jeopardize ecosystems, biodiversity, property and human well-being. As global temperatures increase, sea levels will rise for two reasons. First, as the climate warms, water will expand, raising sea levels. Second, glaciers have already begun to melt, increasing the volume of water in the oceans. Projected sea level rise is 50 to 200 cm, which is enough to flood low-lying areas such as coastal Louisiana, areas of Washington, D.C. and Charleston, South Carolina (IPCC, 2001). Rising seawater will cause saltwater to migrate inland, adversely impacting water quality and freshwater supplies. If the sea level rises 50 cm by the year 2100, more than 5,000 square miles of dry land and 4,000 square miles, or half of our remaining coastal wetlands, will be underwater (Titus, 346). In addition, there will be more severe weather events, subsequently leading to increased flooding and property damage (IPCC, 2001).

Ecosystems are adapted to the local mean temperatures and precipitation, and are highly sensitive to large-scale climatic changes. Consequently, any perturbations to the mean range will affect biodiversity (IPCC, 2002). Diverse ecosystems provide essential services such as clean water and fresh air. As a result of temperature and sea level rise, the risk of extinction will increase for many species that are already vulnerable such as those that live in coastal and marine ecosystems (IPCC, 2002). The effects of climate change on both fresh and saltwater fisheries could be drastic. For example, because productivity of fish stocks is dependent on optimal temperature, oxygen, salinity and circulation, variations triggered by abrupt climate change can cause entire fish populations to shrink.

Extreme weather, increased temperatures and sea levels will lead to greater incidence of disease and mortality in many areas of the United States. Areas that become wetter and warmer may see an increase in waterborne and vector-borne disease such as giardia and cholera. Changes in climate will allow vectors such as rodents and mosquitoes to thrive in new areas, exposing temperate areas to diseases such as tick-borne Lyme disease, flea-borne plague, dengue fever and malaria (EPA, 2003). Some scientists propose that the West Nile virus, a form of encephalitis, is possibly the first tropical disease that has successfully migrated to the United States because of changes in temperature and moisture (UCS, 2003). All of these risks to human health will affect those in our population that are most vulnerable, mainly the elderly, the sick, and children (USGCRP, 2002).

1-c. Scientific Controversies

The scientific debate centers on the need to distinguish between human influences upon global climate and natural fluctuations. The principle source of information regarding climate change is the Intergovernmental Panel on Climate Change (IPCC) 2001 Climate Change Report. The IPCC was initiated by the World Meteorological Organization and the United Nations Environment Program. It is composed of more than 2,500 scientists from more than 100 countries and their seminal 2001 report involved the analysis of over 20,000 peer-reviewed scientific articles. The report's conclusions were derived via consensus. The IPCC concluded that "in the light of new evidence... most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations" (IPCC, 2001). Still, some paleo-climatologists and other skeptics emphasize the natural variability of climate and the difficulty in separating human impacts from natural fluctuations.

Conclusion

While the causes and implications of abrupt climate change are uncertain, prudence dictates that action be taken to avert its potential drastic consequences. Further research and mitigating actions are a necessary insurance policy to protect ecosystems and human well-being.

2. THE PROPOSED SOLUTION

In order to prevent or mitigate the anticipated impacts of climate change, the Climate Stewardship Act of 2003 (S. 139) was introduced to address the problem. It aims to reduce United States' GHG emissions via a market-driven cap-and-trade program. The solution detailed in the Act is threefold: first, it addresses climate change research; second, it outlines the establishment of a GHG database; and lastly, it creates a domestic, mandatory cap-and-trade program that would limit GHG emissions from the sectors responsible for 70 to 85% of GHG emissions in the United States.

2-a. Title I: Federal Climate Change Research and Related Activities

Title I describes the research mandated by the bill. Research efforts will be lead by the Department of Commerce (DOC). Priority research areas will be identified by the designated Senate Committee and a minimum of \$17 million per year must be appropriated by the National Science Foundation to those research areas starting in 2004. The National Oceanic and Atmospheric Administration will conduct research into past instances and mechanisms of abrupt climate change and develop models based on this research. Within six months of enactment, the DOC must submit a report addressing the effects of the Kyoto Protocol on United States industry, and international cooperation on climate change research and mitigation. The DOC will also study technology transfer barriers and best practices related to energy efficient technology.

The National Institute of Standards and Technology (NIST) must develop new methods, technologies and standards to measure and reduce GHG emissions. Using these tools, they will establish baselines for future trading of emissions allowances. The National Measurement Laboratories of NIST will develop manufacturing processes and chemical processes which minimize GHG emissions. Other federal agencies are directed to develop standards and technologies to measure emissions from non-point sources such as agriculture, forestry, and transportation.

2-b. Title II: National Greenhouse Gas Databases

Title II calls for the creation of the infrastructure for a market driven GHG reduction program. A National Greenhouse Gas Database will be established and maintained by the Environmental Protection Agency (EPA) in collaboration with the Departments of Commerce, Energy, and Agriculture, the private sector, and non-governmental actors in order to manage information on GHG emissions. The database will consist of an inventory of GHG emissions and a registry of reductions and sequestrations. It must be instituted within the first two years of enactment by the EPA.

Starting in 2009, all covered entities¹ must report emissions for the preceding year to the EPA. If an entity wants to register reductions achieved between 1990 and 2010, they may submit emissions and reductions reports starting two years after enactment. This voluntary early reporting will facilitate the establishment of a baseline. Emissions will be measured in metric tons of CO₂ or CO₂-equivalents. However, entities involved in CO₂ sequestration² projects need not comply with requirements to establish a baseline and submit annual reports.

2-c. Title III: Market Driven Greenhouse Gas Reductions

The cap-and-trade program has two phases. Phase I spans 2010 – 2015. During Phase I, the total quantity of allowances will not exceed total U.S. GHG emission levels of covered sectors in 2000. Phase II will begin in 2016 and continue thereafter. During Phase II, the total amount of allowances will not exceed total U.S. GHG emission levels of covered sectors in 1990. The market will determine the price of allowances.

Title III establishes a nonprofit corporation entitled the Climate Change Credit Corporation (CCCC) but does not specify an exact timeline. The Corporation shall receive and manage a percentage of the total tradable allowances that will be bought and sold. The proceeds derived from trading activities will be used to reduce costs to consumers resulting from this Act. The number of tradable allowances allocated to each sector and to the CCCC is determined by the DOC. Within the sectors, allowances are allocated to each entity by the EPA. The exact process and determination of allowances is left to the discretion of the EPA and the DOC. However, they are encouraged to consider growth and economic impacts on individuals, corporations, and government. Residential and agricultural sources of GHGs, as well as firms producing less than 10,000 metric tons of CO₂ equivalents, are exempt from this program.

Each entity is allocated a certain number of allowances and they can acquire additional allowances through trade or auction. These allowances are then returned to the EPA for every metric ton (in CO₂ equivalents) of direct or indirect GHG they emit, refine, produce or import. Failure to submit tradable allowances to the EPA for every metric ton of GHGs emitted will result in a penalty payable to the EPA, equal to three times the market value of the allowances that would be necessary to meet the requirements.

¹ A covered entity is defined as an entity (including a department, or agency of Federal, State, or local government that owns or controls a source of GHG emissions in the electric, industrial or commercial sectors, or refiners of petroleum products used in transportation that emit over 10,000 metric tons of GHGs per year.

² Sequestration involves the capture, long-term separation, isolation, or removal of greenhouse gases from the atmosphere. Examples include reforestation and other terrestrial conservation practices.

The Act has mechanisms and incentives that assist entities in meeting targets. During Phase I, an entity may achieve 15% of its quota through sequestration programs, credits borrowed against future emissions reductions, and trade with other certified countries. During Phase II, an entity may achieve 10% of its requirements through the same methods. If an auto manufacturer exceeds fuel efficiency standards by more than 20%, then it may receive equivalent emissions credits. The conversion ratio of fuel economy standard credits and emissions credits will be determined by the Department of Transportation.

As a built-in check, the DOC shall begin biennial reviews of the allowances two years after enactment. These reviews will re-evaluate targets based upon the best science available and ensure that they agree with objectives put forward by the United Nations Framework Convention on Climate Change. The DOC will submit reports of these reviews in 2008 and 2012 with any recommendations for alterations of caps to specified Senate and House Committees.

2-d. Economic Analysis

One of the strengths of this policy is its minor economic effect compared to the costs of the impacts of climate change if it was not addressed. The economy is highly dependent on carbon-rich fuels, and the U.S. economy is tightly bound to energy production. Therefore, economic impacts are a chief concern in implementing any GHG or climate change policy. Studies have indicated that the Climate Stewardship Act will have minimal negative economic impacts on the economy. The Act will be efficient at mitigating GHG emissions while preserving economic output and jobs.

A wide range of scenarios have been constructed to predict the costs of allowances and the impacts of those costs on the economy at large. MIT's Joint Program on the Science and Policy of Global Change used its Emissions Prediction and Policy Analysis computer model to generate estimates of the costs of the Act. It found that the price of a metric ton of CO₂-equivalents, (CO₂-e), will be \$20 in 2010, \$26 in 2015 and \$34 in 2020 (MIT, 21). A similar study by the Energy Information Administration (EIA) found corresponding costs of \$21, \$31 and \$47 per ton of CO₂-e. (DOE, 37) The EIA analysis places the increase in household energy expenditures, including transportation, at \$444 (13%) per year in 2025. (DOE, 2) The MIT analysis, on the other hand, predicts household energy expenditures to increase by \$89. The difference in expenditures is a result of the varying assumptions made by each study as well as the inherent uncertainty involved when making predictions about future economic behavior.

The consumer price index should rise by 0.6 % in 2010 and 2.5% in 2025. Real disposable income is expected to fall beginning in 2010 and bottoms out in 2015 at 0.8% below the reference case. (DOE, 22-23) MIT uses welfare cost, to reflect the economic impacts of the policy. Their results show welfare cost rising in the range of .09, or about \$80 to .15%, about \$100, in 2025. (MIT, 21) However, this welfare loss occurs while median household income rises from \$41,000 to \$61,000. Average annual growth in GDP from 2001 to 2025 is 3.02% with the bill and 3.04% without it. (DOE, 3) These costs have the possibility of being further mitigated or totally offset by new technologies, which may be developed to increase efficiency. In addition, as less CO₂-e intensive technologies develop and cheaper alternatives arise,

consumers will change their behavior due to the new price signals, creating a positive feedback leading to diffusion and additional development of such technologies.

The bill proposes to use revenues derived from the sale of allowances by the CCCC to reduce consumer costs through rebates, subsidies or other means. Transition assistance to displaced workers will be available through the CCCC. (S.139, 55) Reinvestment of revenues could play an important part in alleviating the impacts of job losses in the energy sector. Although there could be negative economic impacts, the Act was designed to lead businesses and industries toward more efficient uses of machinery as well as encourage the use of cleaner technologies with minimal cost. Both studies by the EIA, as well as the EPA, found corresponding modest costs.

Conclusion

Overall, the implementation of the Climate Stewardship Act is expected to cost between one-quarter (Paltsey, 8) and 1/10th (Pizer, 2003) of one percent of United States GDP. The Act will result in expanded climate change related research, creation of a greenhouse gas emissions and reductions database, and a cap-and-trade program to facilitate reduction of emissions by allowing their trade within a set cap. The EPA will play a vital role in the further development and implementation of the program that will eventually lead to a 39% (Bailie, 2003) reduction in annual greenhouse gas emissions. The reduction and slowing of GHG emissions into the atmosphere will help to mitigate the negative impacts of global climate change.

3. ISSUES FOR PROGRAM IMPLEMENTATION

Although the economics are in favor of S. 139, some other issues within the legislation need to be considered in the program design for the implementation of the Climate Stewardship Act.

3-a. Climate Research

In Title I of the Act, more research into the science of climate change will be a key objective of this policy. A concern is whether the Act will generate research that will be considered legitimate by both skeptics and the international consensus. The government will decide on a group of natural, socioeconomic, and health scientists to continue the study and evaluation of climate change and future predictions. The Act also requires research and development of technologies that will facilitate the Act's implementation. It is important that the research conducted under the Act be based upon sound science.

3-b. Greenhouse Gas Database

In Title II, the Climate Stewardship Act requires the NIST to develop new technologies to measure and monitor GHG emissions, reductions, and sequestrations for the National Greenhouse Gas Database. The National Measurement Laboratories will be required to study materials and manufacturing processes that minimize emissions. It is imperative that these agencies employ appropriate as well as non-biased measuring techniques to regulate emissions. The agencies should model the database on operational or existing databases.

3-c. Cap-and-Trade

As the cornerstone of the Act, the cap-and-trade provision of Title III calls for a market based initiative to curb GHG emissions. One of the main issues that arise is how tradable allowances will be distributed. Companies favor the free-allocation of allowances, as this will minimize costs. Auctioning the allowances however, makes room for growth allowing new companies to operate. It is unclear what percentage of the allowances will be freely distributed and what percentage will be given to the CCCC, which regulates the trading and auctioning of allowances. This will be an issue during the later years of the implementation of the Act.

Conclusion

The program design for the implementation of the Act must consider many of its most pressing political, scientific and structural issues. It will be imperative to explore research initiatives that span partisan and scientific debate within the program design. Research leading to innovations that will minimize the cost of implementation and assure equitable implementation will be a primary focus of the program design. It is also important that the design should minimize costs while maximizing the potential for successful outcomes. The program design for the first year of implementation should additionally focus on the creation of the GHG database as well as measurement standards and reporting regulations for CO₂ emissions for the construction of the National Greenhouse Gas Database.

4. PROGRAM DESIGN

The program design for the first year implementation of the Climate Stewardship Act of 2003 takes many variables into consideration, including those addressed in Section 3 of this report. The goals of the design are to comply with the requirements of the Act and demonstrate early success at minimal cost. While the Act's main objective is to reduce US GHG emissions through an economy-wide cap-and-trade system (Title III), several critical components in Titles I and II must first be achieved before emissions trading can take place as specified in Title III. Therefore, the first year of implementation of S. 139 will concentrate on Titles I and II. The Act mandates, with specific deadlines, the delivery of climate-related research reports (Title I), the establishment of a comprehensive system for measuring and inventorying greenhouse gas emissions and reductions, and the development of a National Greenhouse Gas Database (Title II). Addressing these components lays the foundation for the cap-and-trade system (Title III).

Given the timeline outlined in the Act, four tasks essential to the successful implementation and long-term success of S.139 have been prioritized for the first year of implementation. While the establishment of measurement, verification and reporting standards and a functional database are not due until 2005 and 2006 respectively, these tasks from Title II can realistically be accomplished in the first year based on existing and previous work done by the agencies involved, and it is in the best interest of the program to move these forward. The following table summarizes the tasks that will be accomplished in year one.

Table 4.1: First Year Program Design

DUE DATES	DELIVERABLES
2004	Title I
in 6 months	<ul style="list-style-type: none"> ▪ TASK 1: Senate Committee designates research priority areas for climate-related research for the National Science Foundation ▪ TASK 2: Department of Commerce submits 2 reports on: <ul style="list-style-type: none"> 2.1) Best management practices and technology transfer barriers 2.2.) Kyoto Protocol impacts on the United States
in 6 months	
End of year	Title II
End of year	<ul style="list-style-type: none"> ▪ TASK 3: Department of Commerce publishes standards for measurement, verification and reporting of greenhouse gas emissions and reductions ▪ TASK 4: EPA establishes and operates the National Greenhouse Gas Database

4-a. Task 1: Climate-related research

The Act calls for the Senate Committee on Commerce, Science, and Transportation to “develop a list of priority areas for research and development on climate change that are not being addressed by Federal agencies” (S. 139, Sec.104c). At least \$17 million will be appropriated to the National Science Foundation (NSF), every fiscal year beginning in 2004, to fund research in these designated priority areas.

It is important to designate the NSF research priority areas and allocate funding in the first year. Early allocation of this money should pay off with technical advances such as better measurement techniques and green technologies that can be used to improve the implementation of S.139 as well as help entities comply in a cost-effective manner. A great deal of discretion is left to the Office of Science and Technology Policy (OSTP), which presumably means that they will be funding those projects that have the most promise of providing solutions to the problems of climate change itself and reducing costs of mitigation. The research funded under this section will be critical to effective implementation. Funding for NOAA research leading to the creation of a climate modeling system will not be provided during the first year because funds are limited and it is not critical to first year implementation of the Act.

4-b. Task 2: Two reports issued by Department of Commerce

The Department of Commerce is mandated to deliver two reports: the report on best management practices and technology transfer barriers, and the report on the impacts of the Kyoto Protocol on the United States. These reports must be issued within the first 6 months. The information synthesized in these reports will provide a basis for moving forward on climate change in a cost-effective manner.

4-b-i. Task 2.1: Report on Technology Transfer

The Department of Commerce will submit a report, by July 2004, on technology transfer barriers, best practices, and outcomes of technology transfer activities to Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science. This will enable Congress to target funding for energy efficient technologies and speed

their adoption for commercial uses. The creation of a plan for increasing the availability of new technologies is crucial to the cost-effective implementation of the Act. Feedback from this study will also aid in the establishment of standards for GHG emissions on an ongoing basis, as technological advances make tighter standards economically feasible.

4-b-ii. Task 2.2: Report on Kyoto Protocol

By July 2004, the Department of Commerce will submit a report to the Senate Commerce Committee on “the effects that the entry into force of the Kyoto Protocol will have on – (1) United States industry (2) international cooperation on scientific research and development; and (3) United States participation in international environmental climate change mitigation efforts and technology deployment” (S. 139, Sec. 103). This report will help determine whether and how the United States should participate in international climate change mitigation efforts. The relationship between the domestic systems established under the Act and any international system arising from Kyoto is important, and this report will help guide implementation by clarifying the government’s approach to international agreements.

4-c. Task 3: Measurement standards; verification and reporting regulations

The establishment of measurement standards and a comprehensive reporting and verification system for GHG emissions and reductions are essential prerequisites for the operation of the National Greenhouse Gas Database and ultimately the cap-and-trade system. S.139 mandates that no later than 1 year after the date of enactment of the Act, the DOC in conjunction with the EPA, and the Departments of Energy and Agriculture, “shall develop comprehensive measurement and verification methods and standards to ensure a consistent and technically accurate record of greenhouse gas emissions, emission reductions, sequestration, and atmospheric concentrations for use in the registry” (S. 139, Sec. 204a). The measurement standards deal with how the entity actually measures their emissions, whereas the reporting and verification standards are related to the paperwork and auditing of how these emissions are entered into the database.

Data collected using these measurement standards will be used to determine the baseline for a covered entity, facilitating its future allowance allocation. These measurement standards must also be applicable to actions taken to reduce, avoid, or sequester GHG emissions. In conjunction with these standards, a transparent and reliable reporting and verification system must also be developed. The intent of these reporting and verification standards is to “avoid double counting of greenhouse gas emissions and emission reductions, to provide protocols to prevent a covered entity from avoiding the requirements of this Act by reorganizing into multiple entities that are under common control” and other such loopholes (S. 139, Sec. 204a). S.139 also specifies that entities that voluntarily report their GHG reductions between 1990 and two years after the enactment of S.139 must have their reports verified in accordance with the Regulations. Hence, development of both measurement standards and the reporting and verification standards must be pursued simultaneously in the first year. The Act calls for protocols that incorporate continuous emissions monitoring system (CEMS) technology that makes inspection and enforcement remotely possible.

Thorough evaluation led to the decision to unify existing standards of measurement, reporting and verification for the program design as it enhances existing systems and produces the most

accurate and robust system. Currently, the EPA promulgates measurement standards for GHG and operates the Inventory of U.S. Greenhouse Gas Emissions and Sinks, which records the total greenhouse gas emissions from all sources including energy use, agriculture and land-use change. Similarly, the Department of Energy (DOE) operates the Voluntary Reporting of Greenhouse Gases program and has established measurement standards. The proposed new system will be based on the highly utilized DOE voluntary registry system while strengths of other systems developed by the GHG Protocol, Intergovernmental Panel on Climate Change, EPA, and International Standards Organization will be incorporated. Combining what is practicable and the best from many systems results in a superior system to any single existing system. The unified system will benefit early reporters with a better comprehensive system with which they can measure and report their emissions and emission reductions. The establishment of high-quality comprehensive standards will speed up the actualization of the National Greenhouse Database.

4-d. Task 4: National Greenhouse Gas Database

The Act calls for the EPA to “establish, operate, and maintain a database, to be known as the ‘National Greenhouse Gas Database’, to collect, verify, and analyze information on greenhouse gas emissions by entities” (S. 139, Sec 201a). The database will consist of an inventory of emissions and a registry of reductions. Establishing the database in the first year will allow for early reporting to begin in 2005. The earlier an entity reports, the more emission credits it can sell, bank or use in the future when the emissions cap is put into effect. Thus, providing for early reporting will prompt entities to make greater reductions sooner. (Mc Williams, broadcast) The EPA will use the framework of the existing sulfur dioxide and nitrogen oxide database for the Acid Rain Program in developing the National Greenhouse Gas Database.

The decision to use an existing database for GHG emissions reductions was made after evaluating the many existent operational GHG databases within the United States. The EPA database, which has proven to be a successful tool in reducing sulfur dioxide and nitrogen oxide emissions, will be expanded to fit the needs of the Climate Stewardship Act. The reasons for this are three-fold: it is a Federal level database, which the Act calls for, it is housed within the EPA (Clean Air Markets Division) as the Act mandates, and it incorporates improvements to make it more accurate and fair as President Bush has called for (Spencer). By adapting an existing database, positive environmental impacts that we deem necessary to demonstrate early success of this legislation can be documented earlier and at a relatively lower cost than creating a new database.

Conclusion

The above Tasks are central to the success of this legislation. Implementation must reflect the logical sequencing of the Act and be managed with this critical path in mind. Before the GHG database can become functional, the necessary regulations and reporting standards must first be developed and promulgated. Once the comprehensive system is standardized and the database is operational, all covered entities can begin registering their emissions and emission reductions. The future operation of the cap-and-trade system will depend on the successful completion of this first year’s work. Finally, while important developments from green technology and climate research may not spill over during the first year’s activities, they could be incorporated into the system as it moves forward in the coming years. Any innovations and efficiencies achieved in

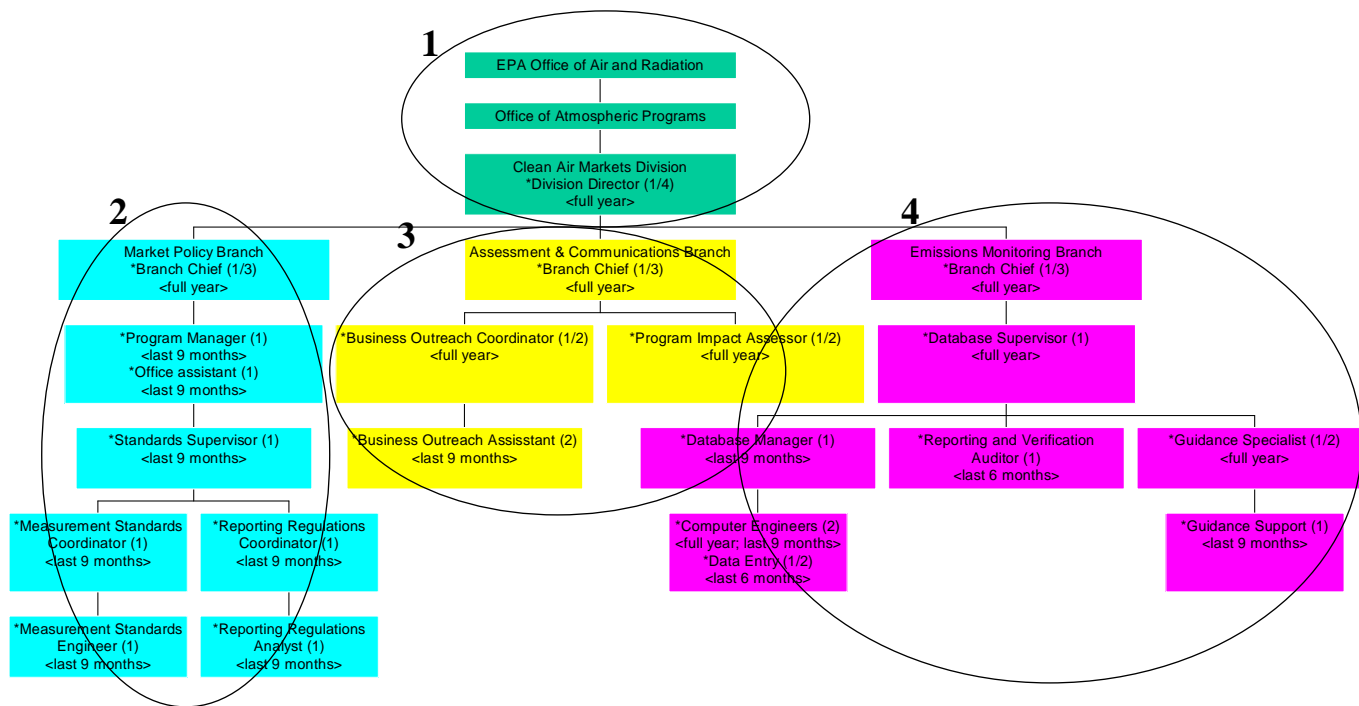
the future would be a direct result of addressing research needs early on. The four Tasks constituting the program design accomplish the most essential parts of the Act for the first year of implementation, expediting actual GHG reductions and ensuring the long-term success of the Climate Stewardship Act.

5. ORGANIZATION AND STAFFING PLAN

The EPA will be the lead agency for all facets of the Climate Stewardship Program. It will be housed within the Clean Air Markets Division of the EPA. For the completion of Tasks 2.1, 2.2 and 3, EPA will coordinate with the DOC. Since Tasks 2.1 and 2.2 are completely under the auspices of the Secretary of Commerce, this organizational and staffing plan is mainly concerned with EPA employees necessary for the completion of Tasks 1, 3 and 4.

5-a. Proposed Program Organizational Structure

The following chart illustrates the proposed organizational structure of the Climate Stewardship Program. Circle 1 represents the higher-level EPA Offices and the Clean Air Markets Division. Circle 2 represents the Market Policy Branch, circle 3 represents the Assessment and Communications Branch, and circle 4 represents the Emissions Monitoring Branch.



Please note that the asterisk (*) denotes an employee. The number in parenthesis (i.e. 1/3) after the employee title is the amount of time the employee will be devoting to the Climate Stewardship Program while they are employed for the division. The time period in brackets (i.e. <full year>) denotes the length of time in 2004 they will be hired to work in the Climate Stewardship Program. “Full year” employees will begin working in January, “last 9 months” employees will begin working around March, and “last 6 months” employees will begin in July. **For complete job descriptions, see Appendix B.**

The first year will require about 15 FTEs, spread over the staff time of 23 employees. There will be 15 new hires which include internal and external hires that will be hired in different quarters.

The Climate Stewardship Program employs many high-level professionals in the first year of implementation. The Climate Stewardship Act is groundbreaking legislation by being the first to regulate GHGs through a cap-and-trade system. In addition, the program ambitiously strives to have standards and regulations completed, and an operational database by the end of the first year. Quality and timeliness in work are critical to program success. Therefore, experts are needed to build the program foundation in the first year upon which the rest of the program will be based. Furthermore, these high level officials will be hiring and supervising many supporting staff in subsequent years.

5-b. Overview of current structure of the Clean Air Markets Division

The Clean Air Markets Division is part of the Office of Atmospheric Programs, a subdivision of the EPA's Office of Air and Radiation. The Office of Air and Radiation regulates air pollution and industrial emissions, among other functions. Within the Office of Air and Radiation, the Office of Atmospheric Programs works specifically with emissions reductions and trading schemes. The three major programs of the Office of Atmospheric Programs are the Acid Rain Program, the Ozone Layer Protection Program, and the Climate Protection Program.

The Clean Air Markets Division of the Office of Atmospheric Programs manages the Acid Rain Program. This involves responsibility for sulfur dioxide (SO₂) and nitrogen oxide (NO_x) trading programs, emissions monitoring and reporting, assessing emissions control technology options, and reporting the national greenhouse gas inventory.

The Clean Air Markets Division has six branches:

1. Market Policy
2. Emissions Monitoring
3. Assessment and Communications
4. Market Operations
5. Program Development
6. Economic Analysis

Three branches – Market Policy, Emissions Monitoring, and Assessment and Communications are most relevant to first year implementation activities.

5-c. New Organizational Structure Incorporating the Climate Stewardship Program

The Climate Stewardship Program will be located in OAR's Office of Atmospheric Programs, Clean Air Markets Division (CAMD). The Climate Stewardship Program would be modeled closely after the Acid Rain Program, currently run by the Clean Air Markets Division, which also employs a cap-and-trade emissions reduction program and utilizes a database for tracking SO₂ and NO_x emissions. Housing the Climate Stewardship Program in the Clean Air Markets Division is logical, as the carbon dioxide and halocarbon emissions monitoring and reductions will only need to be integrated into the existing framework of sulfur dioxide and nitrogen oxide emissions programs and the national greenhouse gas inventory. The existing staff will already be familiar with databases also making this an ideal choice. The current Acting Director of the Clean Air Markets Division will spend one quarter of his time overseeing the Climate Stewardship Program.

The first-year implementation of the Climate Stewardship Act involves functions that will be carried out primarily by the Market Policy Branch and Emissions Monitoring Branch, with outreach support from the Assessment and Communications Branch. (The Market Operations Branch will administer emissions trading once Phase I begins). Extensive communication and collaboration will be required between branches, as the program will be dispersed among them. The staff of each branch will also work with other agencies such as Department of Agriculture and Department of Energy on various components of the program.

5-c-i. Market Policy Branch

The Market Policy Branch currently analyzes the potential of emissions trading to mitigate air pollution problems, develops the national greenhouse gas inventory and oversees compliance of emissions trading standards and builds emissions trading capacity. For the Climate Stewardship Program, the Market Policy Branch is in charge of developing and complying with the measurement standards and reporting regulations for the database. The program manager who will oversee the whole program will also be part of the market policy branch. The two reports to be done by the Department of Commerce will be submitted to the program manager's assistant.

5-c-ii. Emissions Monitoring Branch

The Emissions Monitoring Branch provides guidance to industry and ensures accurate, cost-effective, and timely measurement and reporting of emissions. The primary function of the Emissions Monitoring Branch will be the creation, maintenance, and testing of the database. Some of the software development will be contracted out through this branch. As the database becomes operational, staff in this branch will conduct audits and verify the information submitted by entities. Other staff will work with the Market Policy Branch to develop guidelines for the measurement standards and reporting regulations.

5-c-iii. Assessment and Communications Branch

The Assessment and Communications Branch assesses the environmental, health, and economic costs and benefits of the division's programs and communicates this information to government officials and customers. Since early participation is highly encouraged for better implementation, showing success, and greater environmental benefits, outreach to the business community is needed to encourage early reporting. Staff will research the environmental and health impacts as well as other ancillary benefits of the Climate Stewardship Program. Others will spend their time organizing the communication of the benefits of early participation to the business community, by writing press releases and articles for journals and papers directed towards businesses and speaking at conferences for the business community. This branch is responsible for promoting the program to entities that will be covered by the Act and encouraging them to participate in early reporting.

Conclusion

The Climate Stewardship Program will be led by the Clean Air Markets Division of the EPA. There will be 15 full-time equivalent employees devoted to the program in 2004; they will be distributed over three branches within the division. The Market Policy Branch will coordinate and promulgate these standards for use by entities. The Emissions Monitoring Branch will modify the existing Acid Rain Program emissions database to accommodate the GHGs covered by the Climate Stewardship Act. The Assessment and Communications Branch will begin to

assess and promote the benefits of the Program and encourage voluntary participation by entities before mandated reporting begins. Thus, by the end of 2004, the framework for a successful Climate Stewardship Program will be established.

6. BUDGET PLAN

Once the staff has been delineated, the next step is to understand the budget required to complete these Tasks. In fiscal year 2004, the EPA has a budget of \$138 million for the goal of reducing GHG emissions (EPA, 2003). This budget is part of EPA’s goal to reduce global and cross-border environmental risks. The first year cost of implementing S.139 is \$1.36 million dollars, a mere 0.98% of the EPA’s total budget just for this goal. The budget has been broken down into allocations for the completion of each task. All program costs, including personnel services and other than personnel services (OTPS), such as travel, overhead and consultants, are detailed in Appendix C, but summarized below.

6-a. Budget: Tasks 1, 2.1 and 2.2

Tasks 1, 2.1 and 2.2 are to be carried out in the first year of the program by the Department of Commerce, using its own internal budget. The budget shown below covers the coordination of the Program Manager and Program Assistant for the CAMD’s cooperation with DOC.

Table 6.1: Budget for Tasks 1, 2.1 and 2.2

Personnel Services	\$9,100
OTPS	\$1,754
TOTAL	\$14,285

6-b. Budget: Task 3

Although the Department of Commerce is responsible for the overall output of Task 3, the DOC will be working closely with members of the CAMD Market Policy Branch. Specifically the Standards Supervisor, Measurement Standards Coordinator and Engineer, and the Reporting Regulations Coordinator and Analyst will be helping to implement this Task. The budget includes staffing and travel costs for these members, as well as the cost of hiring an independent consultant firm to verify the measurement standards and reporting rules.

Table 6.2: Budget for Task 3

Personnel Services	
Market Policy Branch	\$359,492
Emissions Monitoring Branch	\$39,242
Assessment & Communications Branch	\$47,775
OTPS	\$117,049
TOTAL	\$581,683

6-c. Budget: Task 4

The modification and expansion of the current emissions database to include GHGs will take place in the Emissions Monitoring Branch of CAMD. The Database Supervisor will work with the Database Manager and computer engineers, the Reporting and Verification Auditor and the Guidance Specialist to make any modifications necessary to the existing database once the measurement standards and reporting and verification regulations are received from DOC. This task will also require the Program Impact Assessor and Business Outreach Coordinator to be involved in the design of the database. They will also be responsible for encouraging entities to participate in the test phase of the database in the second half of the year. The outreach staff will hold three information sessions at EPA regional offices in the last quarter for businesses that will be affected by the Climate Stewardship Program. The budget includes staffing and travel costs for the members of this branch implementing the program, as well as consulting costs for database modification and testing, training for database personnel, and costs for the information sessions (publications, on-site sessions costs).

Table 6.3: Budget for Task 4

Personnel Services	
Market Policy Branch	\$99,032
Emissions Monitoring Branch	\$434,791
Assessment & Communications Branch	\$106,775
OTPS	\$401,721
TOTAL	\$1,060,444

Conclusion

A majority of the total budget for the first year of the Climate Stewardship Program is used for the staff needed to put the program in place. Approximately one quarter (22%) will be used for implementation costs such as computer equipment, consultants, training, information sessions and travel. Overall, the program has low capital costs. The overhead item (10% of total budget) will be used to cover office expenses, insurance, extra furniture and equipment costs, etc. (For detailed budget, see Appendix C)

Table 6.4: Total Program Budget

Line Item Budget	
Personnel Services (including overheads)	\$1,294,911
OTPS	\$361,500
TOTAL	\$1,656,411

7. MASTER CALENDAR

The master calendar is based on the program design, organizational and staffing plan, and program budget for the first-year implementation of the Climate Stewardship Act. The calendar breaks the implementation objectives into eight missions, as seen in *Table 7.1*.

Table 7.1: Summary of Master Calendar

Program Mission Overview	Quarter One	Quarter Two	Quarter Three	Quarter Four
1. Establish Headquarters				
2. Employment				
3. Climate Research Reports				
4. Communications & Outreach				
5. Measurement Standards				
6. Reporting Regulations				
7. National Greenhouse Gas Database				
8. Pretesting				

- **Mission 1: Establishment of headquarters**
This involves adding on needed software and furniture to preexisting EPA Headquarters.
- **Mission 2: Staff employment**
This ranges through all quarters, and distributes hiring between the EPA HR Department, the Program Manager, and respective Branch Chiefs.
- **Mission 3: Climate Related Research**
This involves completion of the Kyoto Protocol Report, the Green Technology Report, and climate research reports from the Department of Commerce and any additional departments. (Mission 3 corresponds to Tasks 1, 2.1 and 2.2)
- **Mission 4: Communications and Outreach**
This is also a year-round task that involves contacting voluntary businesses as well as distributing public relations materials via the Internet.
- **Mission 5: Measurement Standards**
This will come from the Department of Commerce during the middle of the year and will be finalized by fall 2004. (Mission 5 corresponds to Task 3)
- **Mission 6: Reporting Rules and Regulations**
This will be handled by the Market Policy Branch of the EPA and will be completed by the end of November 2004. (Mission 6 corresponds to Task 3)
- **Mission 7: The National Greenhouse Gas Database**
The database is already partially in existence (Database 1605 from the Acid Rain Program) and will be modified and tested by a consultant, after the standards are completed in fall 2004. (Mission 7 corresponds to Task 4)
- **Mission 8: Pilot Testing**

This will consist of discrete tests for the standards, reporting and regulations, and National Greenhouse Gas Database, and will be completed by the end of December 2004. By January 2005, the Climate Stewardship Program will be ready to begin the next stage of Pilot Testing, consisting of comprehensive, voluntary entity greenhouse gas emissions.

Conclusion

Overall, the master calendar provides a timeline that maximizes productivity and efficiency over the short term to facilitate long-term success. The master calendar is an integral part of the performance measurement system. (For complete Master Calendar Outline, including all mission dates, see Appendix D)

8. PERFORMANCE MEASUREMENT

The Performance Measurement Plan has been constructed to assure initial success of the program during its first year of implementation. Performance indicators are categories of information that are designed to provide a picture of how each Task in the program design is progressing. Additionally, pilot testing of the database will be used to ensure the highest possible quality outcome.

8-a. Performance Measurement for Task 1: Climate Related Research

The Director of the Office of Atmospheric Programs at EPA will apprise the Committee on Earth and Environmental Sciences of the need to create a list of priority research areas in the field of climate change that are not being addressed by Federal agencies. It will also direct the NSF to include a request to fund these research areas (not less than \$17 million). The EPA will request that research areas be identified by July 1, 2004.

8-b. Performance Measurement for Tasks 2.1 and 2.2: Report on Technology Transfer and Report on Kyoto Protocol

The reports on Technology Transfer and on the Kyoto Protocol are due July 1, 2004. The Assistant Secretary of Technology Policy at Department of Commerce is responsible for the report on Technology Transfer. The Secretary of Commerce is responsible for the report on the Kyoto Protocol. Both reports will be submitted the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science. Since the EPA is not responsible directly for the creation of these reports, its scope for performance management is fairly limited. The EPA is responsible for the implementation of the Act, though, and will provide for a performance management system that will ensure the reports are created in the time frame stipulated by the Act. Specifically, the Climate Stewardship Program Manager within the Market Policy Branch of EPA (henceforward "Program Manager") will be responsible for ensuring these reports are created.

Measurement

In order to ensure progress, the divisions that will create the reports will be identified in the first week after enactment. These divisions will furnish progress reports in April 1, 2004 to ensure quality and on-time completion. The progress reports will detail what has been achieved and what remains to be done for each report. The Program Manager will review the progress reports

and determine if there is any need to direct the divisions further as to how to proceed with the creation of the reports. The Program Assistant will collect the final reports by July 1, 2004.

8-c. Performance Measurement Task 3: Measurement Standards; Verification and Reporting Regulations

8-c-i. Developing Measurement Standards

The Act requires the DOC to develop the measurement standards by the end of 2004. A draft of the measurement standards must be made available to the public for comment for at least 90 days. Therefore the DOC must complete the standards by August 1, 2004.

Although EPA is not directly charged with developing the measurement standards, they will oversee the measurement standards production process at DOC because EPA is the lead agency for implementation of the Act. As such, EPA oversees the construction of the Greenhouse Gas Database of which the standards are a critical component. Measurement standards developed by the DOC will be integrated into the emission reporting regulations developed by EPA. In addition, since we aim to operationalize the National Greenhouse Gas Database by the end of 2004, the measurement standards must be prepared as soon as possible.

Table 8.1: Performance Indicators for the Development of Measurement Standards

PERFORMANCE INDICATOR	MEASURES
Input	Expenditures, FTEs
Output	Deadlines met (master calendar, legislation)
Efficiency	Productivity (FTEs)
Quality	Compatibility with reporting regulations Meet requirements of the Act
Outcome	Functionality of standards Impacts on entities Emissions reduction

Measurement

Inputs will be measured in terms of the expenditures and full time equivalents spent on the task of obtaining and reworking the standards. It will be assumed that all employees in the standards group of the Market Policy Branch devote all of their time to this task in the first year. Expenditures will be tracked by the database supervisor.

The standards have already been developed; the job of the EPA is to modify them to be compatible with the regulations being produced at EPA. After regulations have been produced, which is occurring simultaneously, the standards will be integrated with them to produce a comprehensive system to measure, monitor, and record emissions and reductions in the database. The quality indicator, compliance with the requirements of the legislation, will be measured by testing the standards on the intended audience. These tests will be conducted by consultants. The outcome indicator will also be measured through beta testing by outside consultants.

8-c-ii. Developing Verification and Reporting Standards

In order to operationalize the National Greenhouse Gas Database, the Administrator of the EPA must promulgate regulations for comprehensive GHG emissions reporting, inventorying and verification. The regulations must maximize the completeness, transparency, and accuracy of reported information and minimize costs to those entities measuring and reporting their GHG emissions to the EPA. (S. 139, Sec. 201c) The EPA must include protocols to achieve the following:

- Prevent double counting of GHG emissions or emission reductions by more than one; make corrections to errors in data submitted to the database
- adjust data when reorganizations of entities occurs (i.e. mergers, acquisitions, etc.)
- make adjustments that reflect new technologies or measurement methods for the calculation of GHG emissions
- account for changes in registration of ownership of emission reductions
- clarify reporting of facility owned by more than one entity

The system developed by the EPA must also provide for the verification of submitted emissions reductions and the ability to identify and track verified emissions reductions with unique serial numbers.

Table 8.2: Performance Indicators for Development of Verification and Reporting Standards

PERFORMANCE INDICATORS	MEASURES
Input	Expenditures, FTEs
Output	Deadlines met (master calendar, legislation)
Efficiency	Productivity (FTEs) Interagency Cooperation
Quality	Regulations fulfill requirements of the Act
Outcomes	Functionality of regulations

Measurement

Inputs will be measured in terms of the expenditures and full time equivalents spent on the task of producing regulations for reporting of GHG emissions and reductions. It is assumed that all employees in the regulations group of the Market Policy Branch devote all of their time to this task in the first year. Expenditures will be tracked by Program Manager.

The quality indicator, compliance with the requirements of the legislation, will be measured through review by consultants. The criteria will be the degree to which the regulations reflect the specific requirements laid out in the legislation (see bulleted list above). Regulations will also be tested on the intended audience. These tests will be conducted by consultants. The outcome indicator, functionality of the database, will also be measured through beta testing by outside consultants.

8-d. Performance Measurement for Task 4: National Greenhouse Gas Database

The desired result of Task 4 is the creation, by the end of 2004, of a functional database for receiving and storing reports on GHG emissions and reductions from entities that will be required to comply with the emission cap beginning in 2008. Creating the database ahead of the requirements in the legislation will serve two important purposes: one, it will allow those companies who are already reducing emissions to being reporting them, which means that we will see early success in the achieving the goals of the legislation, which will lead to more support for and awareness of those goals; two, it serves to jumpstart reduction of CO₂ emissions, which is the ultimate aim of the legislation.

Table 8.3: Performance Indicators for the National Greenhouse Gas Database

PERFORMANCE INDICATOR	MEASURES
Input	Expenditures, FTEs
Output	Deadlines met Number of entities reached through guidance department
Efficiency	Productivity (FTEs)
Quality	Feedback from pilot testing
Outcome	Functional data base that meets the requirements of the legislation Impacts on entities Emissions reductions

Measurement

The data necessary to measure the progress toward the goal of having the database up and running will be collected in written progress reports. Progress reports will contain detailed information on the work being conducted on each aspect of the database program.

Conclusion

The first year after implementation of the Climate Stewardship Act is critical to its success. The operationalization of the National Greenhouse Gas Database a full year in advance of the legislation’s requirements will provide a the program with momentum and create an incentive for entities covered under the legislation to begin reducing their emissions three years before the first reports are required by law. It is essential that the first Tasks be accomplished efficiently and that, by the end of the first year, the system meets the highest technical and political standards. The performance measurement system will ensure that these standards are met. The input of independent expert consultants at each phase of the project will enhance the quality of the database and provide a critical, independent and impartial evaluation of the program and the database.

SUMMARY

In order to prevent or mitigate the anticipated impacts of climate change, the Climate Stewardship Program will reduce United States' GHG emissions via a market-driven cap-and-trade program. The EPA will be the lead agency for all facets of the Climate Stewardship Program, which will be housed within the Clean Air Markets Division of the EPA. During its first year of implementation, beginning January 1, 2004, four Tasks will be completed to further the understanding of climate change and to lay the foundation for the cap-and-trade system. Tasks 1 and 2 promote research on climate change, green technologies, and international climate policy through NSF funding and the issuance of two reports: the report on Technology Transfer and the report on the Kyoto Protocol. The information synthesized in these reports will provide a basis for moving forward on climate change in a cost-effective manner. Tasks 3 and 4 establish a comprehensive system for measuring and inventorying GHG emissions and reductions, and develop the National Greenhouse Gas Database. Pilot testing of the National Greenhouse Gas Database will ensure that the Database is fully functional and ready for reporting by January 1, 2005. This will facilitate the successful implementation of the cap-and-trade program to reduce GHG emissions, resulting in a 39% reduction of GHG emissions by 2016 (Bailie, 2003). The reduction in GHG emissions will help to mitigate the negative impacts of global climate change.

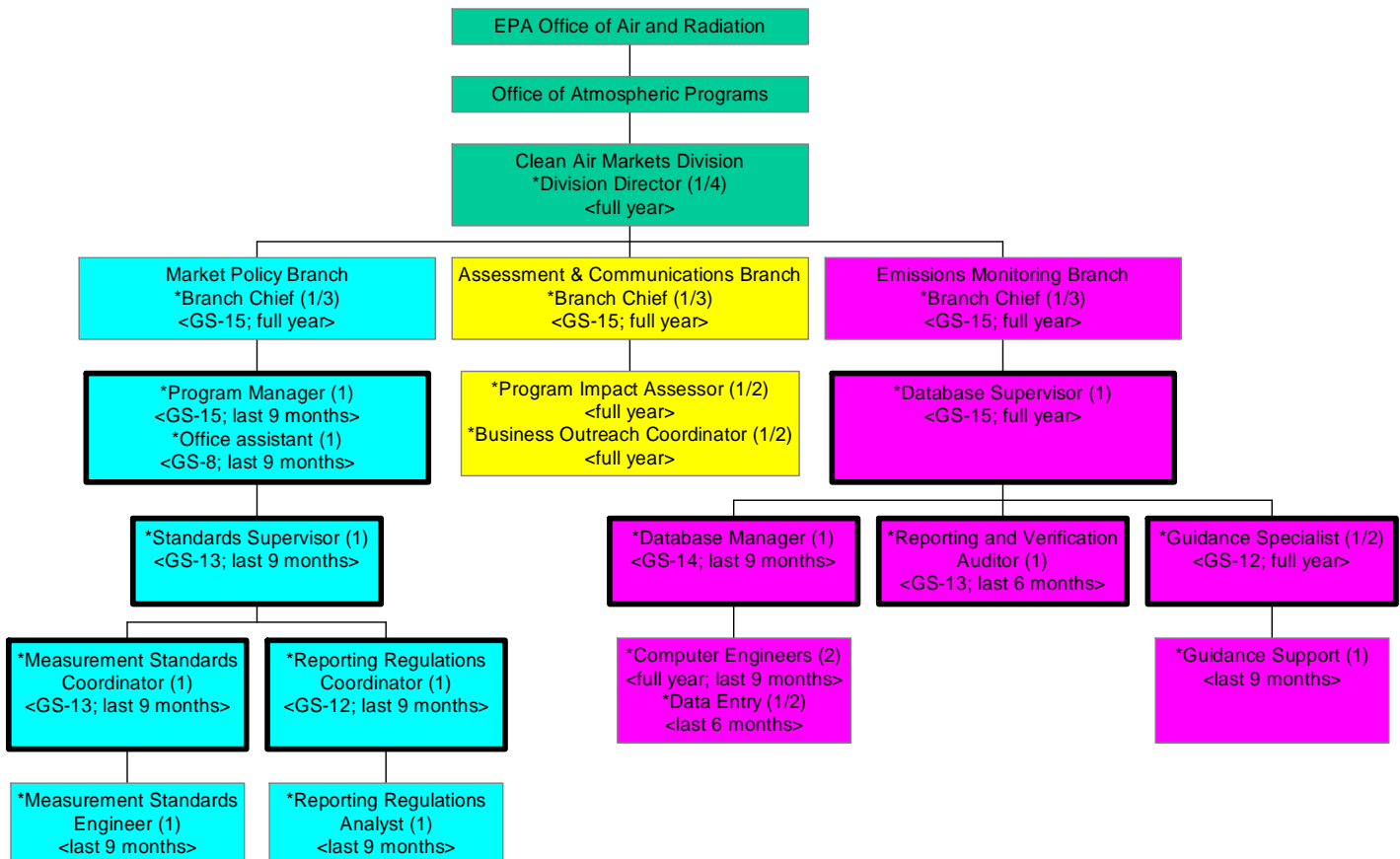
APPENDIX A: Greenhouse Gasses and Global Warming Potentials

GREENHOUSE GASES	SOURCES	GWPs
Carbon Dioxide (CO ₂)	Fossil fuels, respiration	1
Methane (CH ₄)	Landfills, cattle, fossil fuels	23
Nitrous Oxide (NO _x)	Fertilizer, sewage treatment, industry	296
Perfluorocarbons (PFCs)	Semiconductors, aluminum smelting	5,700 – 11,900
Hydrofluorocarbons (HFCs)	Refrigerant	120 – 12,000
Sulfur hexafluoride (SF ₆)	Semiconductors, circuit breaker insulators	23,900

Source: IPCC, 2001

APPENDIX B: Job Descriptions

The following is a collection of job descriptions for the key, new supervisory employees of the Climate Stewardship Program for year one implementation. In the following organizational chart, job titles, proportional job time spent on the program, length of employment in year one for the program, and GS-level are provided for these supervisory employees (outlined in black).



Program Manager

Hiring Organization:	Environmental Protection Agency
Position:	<hr/> Program Manager <hr/>
Series/Grade:	GS-0340-14/15
Salary Range:	\$79,344.00 TO \$121,330.00
Promotion Potential:	GS-15

DUTIES AND RESPONSIBILITIES:

Program Manager is responsible for assuring that the various objectives required by the Climate Stewardship Act are implemented; shares fully with the Division Director in the planning, organizing, policy, implementation, management, direction, and control of the Program. Specific duties include: directs the planning and other related staff work involved in the review, development, and execution of new or modified plans and programs for the overall Climate Stewardship Program; accomplishes or directs the actions involved in organizing the Division programs; receives input from sub-office heads, Branch Chiefs, and administrative staffs and determines the allocation and utilization of resources required to accomplish the Climate Stewardship Program within the parameters established by legislation and Agency policy; accomplishes or directs the actions involved in completing assigned projects, redirecting work, establishing priorities, and changing program emphasis; coordinating the Division program with internal and external organizations, determining or recommending the compromises to be made, and maintaining effective relations with interested groups; establishes liaison with and meets with key officials of EPA, other Federal and non-Federal agencies, representatives of private industry, management and professional groups, members of environmental organizations and the general public to ascertain problems and advise and coordinate on all aspects of the Program; establishes or directs and monitors the establishment of controls to review the accomplishment of the Program; determines the effect on the program of proposed or enacted Federal legislation, new or proposed program requirements, new or improved technology, court decisions; directs the day-to-day operations of the programs, such as by interpreting policies to subordinates and EPA management officials. The primary difference between grade levels is the degree of supervision, the level of training and guidance provided and the complexity of assignment. Extramural resources management duties comprise less than 25% of the duties of the position and consist of contracts management, grants/cooperative agreements, and/or Interagency agreements.

Standards Supervisor

Hiring Organization:	Environmental Protection Agency
Position:	Supervisory Standards Specialist
Series/Grade:	GS-0028-13/14
Salary Range:	\$69,054.00 TO \$106,086.00
Promotion Potential:	GS-14

DUTIES AND RESPONSIBILITIES:

Incumbent serves as supervisor on the development, implementation, and evaluation of measurement standards and reporting requirements of the Climate Stewardship Program. Applies expert knowledge and understanding of how standards and regulations are developed and administered to ensure quality of standards promulgated. Communicates with colleagues, Agency management, Department of Commerce, Department of Energy, and other contacts outside the Agency to gather, develop, and analyze standards and regulations. Participates and keeps informed on policies, programs, and procedures of the EPA and other federal agencies which have emissions measurement and reporting implications. Remains knowledgeable on latest measurement technologies and reporting protocols. Organizes, conducts, and/or participates in meetings on standards issues. Demonstrates a high degree of skill in communicating, cooperating and interacting with senior management and staff throughout the Agency, as well as customers and stakeholders outside the Agency.

Measurement Standards Coordinator

Hiring Organization: Environmental Protection Agency
Position: Measurement Standards Coordinator
Series/Grade: GS-0343-13/13
Salary Range: \$69,054.00 TO \$89,774.00
Promotion Potential: GS-13

DUTIES AND RESPONSIBILITIES:

Is responsible for coordinating the development of emissions and emissions reductions measurement standards for entities covered by the Climate Stewardship Act. Coordinates with National Institute of Technology and Standards of the Department of Commerce for development of appropriate emissions measurement standards. Confers with Department of Agriculture regarding sequestration measurement standards. Performs liaison work with individuals in a variety of organizations on emissions measurement standards proposals, research projects, regulations, policies, program issues, resources, etc.

SPECIALIZED EXPERIENCE REQUIREMENTS:

Defined as experience that equipped the applicant with the particular knowledge, skills and abilities to perform successfully the duties of the position, and that is typically in or related to the work of the position. This would include work that involved duties such as measurement standards in accordance with the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), the Clean Air Act (CAA) and other environmental and safety policies, guidance, agreements and requirements; preparing documents and reports for regulatory authorities; and assessing environmental factors.

Reporting Regulations Coordinator

Hiring Organization: Environmental Protection Agency
Position: Reporting Regulations Coordinator
Series/Grade: GS-0028-12
Salary Range: \$58,261.00 TO \$75,740.00
Promotion Potential: GS-12

DUTIES AND RESPONSIBILITIES:

Serves as an expert in the area of regulatory/policy development for compliance matters related to the Climate Stewardship Act. Advises and assists on the development, execution and monitoring of regulations pertaining to monitoring, reporting, and verifying of emissions and emissions reductions data. Serves as an expert on statutory and regulatory enforcement policy issues in general with responsibility for review, analysis, coordination of proposed, new or revised regulations and guidance documents. Applies an in-depth and broad knowledge of program practices, procedures and precedents and uses a high level of professional judgment in determining practicability, appropriateness and acceptability of program guidelines. Performs comprehensive analysis of regulations concerning compliance assurance activities for emissions reporting by the industrial, transportation, and energy sectors, or as they relate to reporting and verification issues stemming from the Climate Stewardship Act. Represents EPA and program in explaining reporting regulations to nationally known experts and leading national representatives at national gatherings and in day-to-day communications. Provides technical advice and assistance to the Program Manager, Branch Chief, and Division Director.

SPECIALIZED EXPERIENCE: Applicant must have one year of experience in statutory and regulatory development issues, particularly those related to emissions reporting.

Database Supervisor

Hiring Organization: Environmental Protection Agency
Position: Supervisory Database Specialist
Series/Grade: GS-0028-15/15
Salary Range: \$95,987.00 TO \$124,783.00
Promotion Potential: GS-15

DUTIES AND RESPONSIBILITIES:

The Database Supervisor oversees the creation and management of the National Greenhouse Gas Database under the Climate Stewardship Act. The Database Supervisor is required to work closely with managers and staff from within EPA, other federal agencies and other external organizations. The Database Supervisor responsibilities include directing and advising efforts to establish and maintain a single database that contains emissions and emissions reductions for entities covered by the Climate Stewardship Act. Provides overall direction to projects and initiatives and ensures that overall direction is consistent with Climate Stewardship Program priorities, such as accurate and timely reporting of emissions by entities, through reporting audits and by reporting guidance documents for entities. Is responsible for the review, solicitation, negotiation, award, administration and, as required, the termination of contracts and contractual actions for database development using formally advertised and/or negotiation procedures. Supervisor ensures activities are coordinated with related activities and functions within the Office, the Agency and other federal agencies and manages strategic and annual planning for the database and associated systems, processes, and data maintenance. Ensures that the activities are appropriately represented in Program, Branch, and Division planning activities. Analyzes and evaluates the effectiveness of programs or operations in meeting established goals and objectives. Performs the administrative and personnel management functions relative to staff supervised. Establishes guidelines and performance expectations for staff, which are clearly communicated through formal employee performance expectations. Provides informal feedback and evaluates employee performance. Provides advice and counsel to workers related to work and administrative matters. Effects disciplinary measures as appropriate.

This position directs more than one kind of work, each kind representing a requirement for a distinctly different additional body of knowledge, and or which this position provides both technical and administrative supervision. The position works in an operation in which work processes and procedures vary constantly because of the impact of changing technology, creating a requirement for extensive training and guidance of the subordinate staff.

Database Manager

Hiring Organization: Environmental Protection Agency
Position: Database Manager
Series/Grade: GS-0028-13/14
Salary Range: \$69,054.00 TO \$106,086.00
Promotion Potential: GS-14

DUTIES AND RESPONSIBILITIES:

At the full performance level, the Database Manager will contribute to the Climate Stewardship Program by performing the following: consult on and lead modification of the existing Acid Rain Program Database for the National Greenhouse Gas Database as mandated by the Climate Stewardship Act, oversee testing of the beta version of the database, and data entry and management upon full implementation. The Database Manager will evaluate database formation and management methods and schedule and serve as project officer for contract efforts dealing with the preparation and implementation of database creation, usage and maintenance.

QUALIFICATION REQUIREMENTS:

Degree in computer science or engineering. In addition to the above basic requirement - candidates must have at least one year of specialized experience which is in or related to the line of work of the position to be filed, such as database management systems, and which has equipped them with the particular knowledge, skills, and abilities to successfully perform the duties of the position.

Reporting and Verification Auditor

Hiring Organization:	Environmental Protection Agency
Position:	Reporting and Verification Auditor
Series/Grade:	GS-0510-13/13
Salary Range:	\$69,054.00 TO \$89,774.00
Promotion Potential:	GS-13

DUTIES AND RESPONSIBILITIES:

Serves as the senior level auditor who provides leadership in the development and implementation of reporting and data integrity techniques and controls for the Climate Stewardship Program's emissions and emissions reductions reporting. Will eventually lead a team that will be responsible for enforcement, verification and monitoring the reported emissions of the database. Needs to work closely with other staff involved with setting standards, and creating the greenhouse gas database including some staff at the Department of Energy. Provides professional guidance to Program staff preparing and analyzing system reports and data and is one of the Agency's primary professional contacts with external organizations such as other government agencies and covered entities on matters concerning greenhouse gas emissions reporting issues.

Conceives and devises plans, methods and procedures for evaluating emissions data integrity and recommends solutions to organization or procedural problems related to reporting. Engages in studies of emissions data management and proposes improvements that impact present operations and reporting techniques. Performs periodic reviews to evaluate the accuracy, completeness and timeliness of emissions reports recorded in the Agency's system. Necessary actions are initiated to correct operations that reflect low quality of performance. Requires knowledge of the continuous emissions monitoring system (CEMS) and database systems.

Guidance Specialist

Hiring Organization:	Environmental Protection Agency
Position:	<hr/> Guidance Specialist <hr/>
Series/Grade:	GS-1035-09/09
Salary Range:	\$41,497.00 TO \$41,498.00
Promotion Potential:	GS-12

DUTIES AND RESPONSIBILITIES: Serves as a guidance specialist in the Emissions Monitoring Branch of the Clean Air Markets Division. The Guidance Specialist represents the Agency in relations with covered entities; prepares guidance documents and handbooks for entities detailing measurement and reporting requirements. Establishes and maintains working relationships with covered entities and relevant print and broadcast media to disseminate information to entities.

Basic QUALIFICATIONS REQUIREMENTS: All applicants must have one year of specialized experience equivalent to the GS-07 level in the Federal service. Specialized experience is in or related to the development and coordination of public outreach activities, preferably dealing with environmental management programs. The specialized experience must have included the analysis and communication of regulatory requirements. Combinations of successfully completed graduate level education and specialized experience may be used to meet these requirements.

Office Assistant

Hiring Organization:	Environmental Protection Agency
Position:	<hr/> Office Assistant <hr/>
Series/Grade:	GS-0318-08
Salary Range:	\$35,252.00 TO \$45,743.00
Promotion Potential:	GS-8

DUTIES AND RESPONSIBILITIES – Serves as staff assistant to the Program Manager and will be responsible for managing the day-to-day activities of the Climate Stewardship Program. Communicates with the supervisor and co-workers in both informal conversation and formal presentations and delivers short briefings and presentations concerning administrative, clerical and other non-technical matters. Receives, schedules, refers, and contacts members of the staff, agency, and persons outside the agency ranging from other government agencies to the general public. May be involved in high level contacts with visitors and callers from such organizations as: congressional offices, members of the news media, state and local officials, high ranking officials in the field or industry, public action groups, attorneys, presidents of major national or international firms or organizations. Processes incoming and outgoing materials such as correspondence, memoranda, and other forms of written communication. Performs the following types of duties: edits letters, composes letters and reviews correspondence for accuracy and completeness. Performs office automation duties using such software applications as electronic mail, desk-top publishing, calendar, spreadsheet, database, and/or graphics. Schedules appointments, coordinates meetings, and/or schedules conferences. Researches and provides background on subject matter of meetings without direction. Attends meetings, prepares meeting minutes, and follows up on action items with appropriate staff members independently. Obtains and monitors the use of services, supplies, or equipment for the office. Answers questions concerning policies and procedures related to support/office services and new projects, requests, and shifts in priorities and commitments. Maintains official office files. Provides assistance to the Guidance Specialist for bulk mailings and mailing database.

QUALIFICATION REQUIREMENTS – Works in a complex organization with a formalized system of internal procedures including extensive reporting requirements. Sample tasks may include receiving all visitors and telephone calls to the organization, ascertaining the nature of call or business of visitors and determining appropriate action; keeping the supervisor's calendar and scheduling appointments and meetings upon own initiative based upon personal knowledge of the workload and current issues of importance; responding to requests for information concerning organization's functions; preparing responses on schedule from source material; arranging for conferences, including such matters as location, schedule, agenda, and attendance list; maintaining control records on incoming correspondence and action documents and following up on work in process to ensure timely reply or action; and reviewing documents prepared for signature of or requiring coordination by the supervisor for conformance with regulations, grammar, format, and special policies of the organization.

APPENDIX C: Detailed Budget

TASKS 1 & 2		
Personnel Services	FTE	USD
Program Manager	0.08	9,100
Program Assistant	0.08	3,431
OTPS		
Overhead		1,754
TOTAL	0.15	14,285

TASK 3		
Personnel Services	FTE	USD
Division Director (CAMD)	0.13	18,125
Market Policy Branch Chief	0.17	22,275
Program Manager	0.34	40,949
Program Assistant	0.34	15,438
Standards Supervisor	0.68	71,608
Measurement Standards Coordinator	0.68	60,597
Measurement Standards Engineer	0.75	48,750
Reporting Regulations Coordinator	0.68	51,125
Reporting Regulations Analyst	0.75	48,750
Total Market Policy Branch	4.37	359,492
Emissions Monitoring Branch Chief	0.17	22,275
Database Supervisor	0.10	12,478
Reporting and Verification Auditor	0.05	4,489
Total Emissions Monitoring Branch	0.32	39,242
Assess. & Commun. Branch Chief	0.17	22,275
Program Impact Assessor	0.15	15,000
Business Outreach Coordinator	0.15	10,500
Total Assess. & Commun. Branch	0.47	47,775
OTPS		
Consultants (independent standards verification)		50,000
Travel (2 trips @ \$1000/trip)		2,000
Overhead		65,049
TOTAL	5	\$581,683

Task 4		
Personnel Services	FTE	USD
Division Director (CAMD)	0.13	18,125
Market Policy Branch Chief	0.17	22,275
Program Manager	0.34	40,949
Program Assistant	0.34	15,438
Standards Supervisor	0.08	7,956
Measurement Standards Coordinator	0.08	6,733
Reporting Regulations Coordinator	0.08	5,681
<i>Total Market Policy Branch</i>	<i>1.07</i>	<i>99,032</i>
Emissions Monitoring Branch Chief	0.17	22,275
Database Supervisor	0.90	112,305
Database Manager	0.75	79,565
Computer Engineer 1	1.00	60,000
Computer Engineer 2	0.75	41,250
Data Entry	0.25	11,250
Reporting and Verification Auditor	0.45	40,398
Guidance Specialist	1.00	41,498
Guidance Support	0.75	26,250
<i>Total Emissions Monitoring Branch</i>	<i>6.02</i>	<i>434,791</i>
Assess. & Commun. Branch Chief	0.17	22,275
Program Impact Assessor	0.35	35,000
Business Outreach Coordinator	0.35	24,500
Business Outreach Assistant (2)	0.50	25,000
<i>Total Assess. & Commun. Branch</i>	<i>1.37</i>	<i>106,775</i>
OTPS		
Consultants		200,000
<i>Database modification</i>		<i>50,000</i>
<i>Database pilot testing (independent firm)</i>		<i>150,000</i>
IT hardware		50,000
<i>Servers (\$5000/unit)</i>		<i>20,000</i>
<i>Other equipment (firewalls, etc.)</i>		<i>30,000</i>
DB software (estimate for add'l licenses)		20,000
Training (4 trainings @ \$5000/training)		20,000
Publications (10,000 copies @ \$0.50/piece)		5,000
Information sessions (\$1500/session)		4,500
Travel (10 trips @ \$1000/trip)		10,000
Overhead (12% of OS)		92,221
Total OTPS		401,721
Task 4 Total	9	1,060,444

Line Item Budget	
Personnel Services (including overheads)	\$1,294,911
OTPS	\$361,500
TOTAL	\$1,656,411

APPENDIX D: Master Calendar Outline

I. Program Missions (Outline)

- 1.0 Establish Headquarters
(January 1, 2004 – March 1, 2004)

- 2.0 Hiring of Staff – (January 1, 2004 – September 1, 2005)
 - 2.1 First Quarter - (January 1, 2004 – April 1, 2004)
 - 2.2 Second Quarter (January 1, 2004 – April 1, 2004)
 - 2.3 Third Quarter (April 1, 2004 – July 1, 2004)
 - 2.4 Fourth Quarter (July 1, 2004 – Sept. 1, 2005)

- 3.0 Climate-Related Research Tasks:
(January 1, 2004 – July 1, 2004)
 - 3.1 Kyoto Protocol Report (DOC)
(January 1, 2004 – July 1, 2004)
 - 3.2 Technology Transfer Barriers Report (DOC)
(January 1, 2004 – July 1, 2004)
 - 3.3 Designate Priority Research Areas
(July 2, 2004 – August 2, 2004)

- 4.0 Communications and Outreach
(January 1, 2004 – December 31, 2004)

- 5.0 Measurement Standards
(April 1, 2004 – December 31, 2004)

- 6.0 Reporting Rules & Regulations
(April 1, 2004 – December 31, 2004)

- 7.0 Establish National Greenhouse Gas Database for early reporting
(April 1, 2004 – December 31, 2004)

- 8.0 Pilot testing of Comprehensive System
(May 1, 2004 – December 31, 2004)

II. Master Calendar (Arranged by Mission)

- 1.0 Establish Headquarters**
(January 1, 2004 – March 1, 2004)
 - 1.1 Office & Utilities
(Jan. 1, 2004 – Mar. 1, 2004)

- 1.2 Install Computers/IT hardware
(Jan. 1, 2004 – Mar. 1, 2004)

- 2.0 Hire/Staff** (January 1, 2004 – October 1, 2004)
 - 2.1 First Quarter - (January 1, 2004 – Feb 15, 2004)
 - 2.1.1 Post First Quarter Job Openings
 - (Jan. 1, 2004 – Jan. 15, 2004)
 - 2.1.1.1 Assessment & Communications Branch: Assistants (2) (by Assessment & Communications Branch Chief)
 - 2.1.2 Evaluate Applications
 - (Jan. 15, 2004 – Jan. 29, 2004)
 - 2.1.3 Interview Selected Applicants
 - (Jan. 30, 2004 – Feb 5., 2004)
 - 2.1.4 Final Decisions
 - (Feb. 6, 2004 – Feb. 10, 2004)
 - 2.2 Second Quarter (Jan 1, 2004 – Apr. 1, 2004)
 - 2.2.1 Post Second Quarter Job Openings
 - (Jan. 1, 2004 – Feb. 1, 2004)
 - 2.2.1.1 Market Policy Branch: Program Manager (by Market Policy Branch Chief)
 - 2.2.1.2 Market Policy Branch: Office Assistant (by Market Policy Branch Chief)
 - 2.2.1.3 Market Policy Branch: Measurement Standards Coordinator (by Market Policy Branch Chief)
 - 2.2.1.4 Market Policy Branch: Reporting Regulations Coordinator (by Market Policy Branch Chief)
 - 2.2.1.5 Market Policy Branch: Measurement Standards Engineer (by Market Policy Branch Chief)
 - 2.2.1.6 Market Policy Branch: Reporting Regulations Analyst (by Market Policy Branch Chief)
 - 2.2.1.7 Emissions Monitoring Branch: Database Manager (by Emissions Monitoring Branch Chief)
 - 2.2.1.8 Emissions Monitoring Branch: Guidance Support (by Emissions Monitoring Branch Chief)
 - 2.2.1.9 Emissions Monitoring Branch: Computer Engineers (2) (by Emissions Monitoring Branch Chief)
 - 2.2.2 Evaluate Applications
 - (Feb. 2, 2004 – Feb. 27, 2004)
 - 2.2.3 Interview Selected Applicants
 - (Mar. 2, 2004 – Mar. 15, 2004)
 - 2.2.4 Final Decisions
 - (Mar. 15, 2004 – Mar. 26, 2004)
 - 2.3 Third Quarter (Apr. 1, 2004 – Jul. 1, 2004)
 - 2.3.1 Post Third Quarter Job Openings
 - (Apr. 1, 2004 – Apr. 30, 2004)

- 2.3.1.1 Emissions Monitoring Branch: Reporting and Verification Auditor
(by Emissions Monitoring Branch Chief and Market Policy Program Manager)
- 2.3.1.2 Emissions Monitoring Branch: Data Entry (2) (by Emissions Monitoring Database Supervisor)
- 2.3.1.3 Database Software/Hardware Consultant (by Emissions Monitoring Branch Chief and Market Policy Program Manager)
- 2.3.1.4 Database Pilot Testing Consultant (by Emissions Monitoring Branch Chief and Market Policy Program Manager)
- 2.3.2 Evaluate Applications
 - (May 1, 2004 – May. 16, 2004)
- 2.3.3 Interview Selected Applicants
 - (May 17, 2004 – June 5, 2004)
- 2.3.4 Final Decisions
 - (June 15, 2004 – June 30, 2004)
- 2.4 Fourth Quarter (July 1, 2004 – Sept. 1, 2005)
 - 2.11 Post Fourth Quarter Job Openings
 - 2.12 Evaluate Applications
 - 2.13 Interview Selected Applicants
 - 2.14 Final Decisions

3.0 Climate-Related Tasks

- 3.1 Report on Kyoto Protocol Impacts (DOC)
 - 3.11 Liaise with DOC for Report Status
(by Office Assistant to Division Director, once every month:
Jan. 15, 2004 – June 15, 2004)
 - 3.12 Receive Report from DOC (by Market Policy Branch - Office Assistant by
July 1, 2004)
- 3.2 Report on Green Technology Transfer (DOC)
 - 3.21 Liaise with DOC for report status (by Office Assistant to Division
Director once every month; Jan. 15, 2004 – June 15, 2004)
 - 3.22 Receive report from DOC (by Market Policy Branch - Office Assistant by
July 1, 2004)
- 3.3 Designate Priority Research Areas (by Market Policy Branch Chief)
 - 3.31 Liaise with DOC for Report Status
 - 3.32 Receive Report from DOC on Priority Research Areas

4.0 Communications, Outreach & Impacts Research

- 4.1 Create a communications strategy (by the Assessment Communications Branch Chief, Business Outreach Coordinator and the Market Policy Program Manager; meetings to brainstorm, evaluate, and finalize strategies during a one month span)
 - (Jan. 5, 2004 – Jan. 30, 2004)
- 4.2 Publish/Update Website (by Business Outreach Coordinator and Assessment and Communication Assistants; one month to publish and bi-monthly up-dates)
 - (Apr. 15, 2004 – Dec. 15, 2004)

- 4.3 Compile Directory of Contacts: volunteers, non-profits, advocacy groups (by entire Assessment & Communication; refer and add to existing EPA business/industry directory)
- 4.4 Press Release/Website/Newsletter Update
 - (Apr. 15, 2004 - Dec. 15, 2004)
- 4.5 Conduct training seminars for EPA regions (2) – TBD (by Business Outreach Coordinator, MP Program Manager, and Program Impact Assessor, and Assistant; will occur twice Fall 2004 and Winter 2004). The two regions are TBD, but in 2005 seminars will occur in numerous EPA regions. Will train voluntary business executives and computer engineers along with TBA governmental employees, how to use new database/communication software, new standards, new reporting regulations, and verification/auditing protocols.
- 4.6 Public Comment and Feedback on CSA Program (by Program Impact Assessor and Business Outreach Assistants; information gathered and recorded from website surveys, questionnaires, and external media)

5.0 Measurement Standards for Greenhouse Gas Emissions

- 5.1 Consultations with DOC (by Measurements Standards Coordinator; The primary responsibility of measurement standards belongs to the DOC. The EPA, Measurement Standards Coordinator must systematically contact DOC to review existing standards and updates created from the DOC. Since standards already exist, the goal is for the DOC to complete the new standards by June 1, 2004)
 - (Jan. 1, 2004 – June 1, 2004)
- 5.2 Internal assessment of standards (Pre-testing) (by Consultant –TBA)
 - (May 5, 2004 – June 1, 2004)
- 5.3 Finalize measurement standards to be promulgated (by Measurement Standards Coordinator and Consultant; review results of testing and making any required modifications)
 - (June 2, 2004 – June 29, 2004)
- 5.4 Final review by EPA, DOE, DOC, NIST, USDA (Meeting(s) between Standards Supervisor, Measurement Standards Coordinator, and representatives from previously listed departments; final outline and review of modifications and new parameters.)
 - (July 5, 2004 – July 21, 2004)
- 5.5 Publish measurement standards (by Standards Supervisor; submit hardcopy to Division Director and Branch Chiefs and post on Internet)
 - (July 21, 2004 – July 30, 2004)
- 5.6 Publish guidebook for standards (by Guidance Specialist, Guidance Support, and Standards Supervisor; Guidance will send copy of guidebook to Standards Supervisor for review and editing)
 - (July 26, 2004 – July 30, 2004)

6.0 Reporting Regulations

- 6.1 Compile existing reporting regulations from DOC and EPA (by Reporting Regulations Coordinator and Reporting Regulations Analyst; EPA begins

gathering existing reporting regulation drafts from DOC and the EPA's Acid Rain Program.)

- (Apr. 6, 2004 – Apr. 26, 2004)
- 6.2 Design reporting forms (by Reporting Regulations Coordinator and Reporting Regulations Analyst)
 - (Apr. 26, 2004 – May 7, 2004)
- 6.3 Design verification protocols for reported emissions and reductions (by Reporting Regulations Coordinator and Reporting Regulations Analyst)
 - (May 10, 2004 – June 4, 2004)
- 6.4 Internal assessment of Reporting Regulations (Pre-testing) (by Standards Supervisor, Reporting Regulations Coord., Reporting Regulations Analyst, and Consultant)
 - (July 14, 2004 – July 14, 2004)
- 6.5 Public consultation of proposed reporting regulations (by Reporting Regulations Analyst and Public Impact Assessor; must last for one month – surveys, questionnaires, internet)
 - (July 15, 2004 – Aug. 11, 2004)
- 6.6 Finalize regulations (by All; modifications - including review by EPA, DOE, DOC, NIST, USDA)
 - (Aug. 12, 2004 – Aug. 30, 2004)
- 6.7 Publish Reporting Regulations (by Reporting Regulations Coord. and Office Asst. – submit hardcopy to Division Director, Branch Chiefs, and Program Manager and post on Internet)
 - (Aug. 30, 2004 – Sept. 20, 2004)
- 6.8 Publish Guidebook for Reporting Regulations (by Guidance Specialist and Support; Guidance will send copy of guidebook to Program Manager and Standards Supervisor for review and editing; final hard copy to Division Director, Branch Chiefs, and Program Manager and post on Internet)
 - (Sept. 13, 2004 – Oct. 15, 2004)

7.0 National Greenhouse Gas Database for Early Reporting

- (Apr. 15, 2004 – Dec. 31, 2004)
- 7.1 Evaluate existing database from Acid Rain Program (by Database Supervisor, Program Mgr., Computer Engineer, and Database Consultant)
 - (Apr. 15, 2004 – Aug. 4, 2004)
- 7.2 Identify modifications needed for Greenhouse Gas Database (by Consultant)
 - (Aug. 2, 2004 – Aug.27, 2004)
- 7.3 Make modifications to hardware/install software (by Consultant)
 - (Sept. 1, 2004 – Oct. 12, 2004)
- 7.4 Test software and hardware (by Consultant)
 - (Oct. 11, 2004 – Nov. 15, 2004)
- 7.5 Make corrections to database (by Consultant and Computer Engineers)
 - (Nov. 8, 2004 – Dec. 3, 2004)
- 7.6 Create verification, auditing protocols and tested by consultant (by Reporting and Verification Auditor, and Consultant)
 - (Aug. 16, 2004 – Oct. 8, 2004)

- 7.7 Internal assessment of database (Pre-testing) (by Database Testing Consultant)
 - (Dec. 6, 2004 – Dec. 31, 2004)

8.0 Pre-Testing (by Consultants)

- Jun. 15, 2004 – Dec. 31, 2004
- 5.2 Internal assessment of standards
- 6.4 Internal assessment of Reporting Regulations
- 7.7 Internal assessment of database
- 8.5 Final Report

III. General

- 0.1 Weekly Branch Meetings
 - 0.1.1 Market Policy Branch (Program Manager meets with Market Policy Branch subordinates)
 - 0.1.2 Assessment and Communication Branch (Program Impact Assessor meets with Business Outreach Coordinator)
 - 0.1.3 Emissions Monitoring Branch (Database Supervisor meets with Emissions Monitoring Branch subordinates)
- 0.1 Monthly Program Meetings
 - 0.1.1 MP Branch Chief meets with Program Manager
 - 0.1.2 AC Branch Chief meets with Program Manager
 - 0.1.3 EM Branch Chiefs meets with Program Manager
- 0.3 Quarterly Meetings & Progress Reports (by Division Director and all Branches)
- 0.4 Mid-term Evaluation

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