



CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

November 18, 2002

S. 556

Clean Power Act of 2002

*As ordered reported by the Senate Committee on Environment and Public Works
on June 27, 2002*

SUMMARY

S. 556 would amend the Clean Air Act to establish new limits—starting in 2008—on the emission of carbon dioxide, sulfur dioxide, nitrogen oxides, and mercury from electricity-generating facilities. The bill also would require that electricity generators, including the federally owned Tennessee Valley Authority (TVA), annually purchase a number of permits equal to the number of tons of regulated emissions generated, except mercury. That is, each permit would represent the authority to emit one ton of a regulated emission for one year.

S. 556 would allocate the emission permits to different recipients who could sell them to owners and operators of electricity plants. The owners and operators of electricity-generating facilities and certain energy efficiency and carbon reduction projects also would receive a portion of the permits. Most of the permits would be allocated to the federal government for sale to power plant owners and operators. Proceeds from the sale of those government-owned permits would be distributed to household electricity consumers, workers, communities, and companies adversely affected by the new emission limits.

CBO estimates that enacting S. 556 would increase governmental receipts (i.e., revenues) by about \$113 billion, net of income and payroll tax offsets over the 2009-2012 period. CBO estimates that enacting S. 556 would result in direct spending of about \$0.3 billion in 2003, \$3 billion over the 2003-2007 period, and \$154 billion over the 2003-2012 period. Over the next six years, all of the estimated increase in spending would be by TVA to comply with pollution limits imposed by the bill. Those costs would be offset over time (perhaps 30 to 40 years) by increased rates on TVA's power sales. Beginning in 2009, the revenues collected under the bill for sale of emission permits would be spent, resulting in most of the estimated direct spending over the 2003-2012 period.

Finally, CBO estimates that implementing S. 556 would cost \$25 million in 2003, \$175 million over the 2003-2007 period, and \$371 million over the 2003-2012 period, assuming appropriation of the authorized and necessary amounts for preparing rules, implementing new pollution control programs, and air quality monitoring initiatives that would be established by S. 556.

S. 556 contains several intergovernmental and private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA). The single most costly mandate contained in the bill would cap the amount of emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides emitted by large electricity-generating facilities and would require the owners and operators of such facilities to purchase permits for the right to emit those pollutants beginning in 2009. CBO estimates that the cost to the electricity industry of meeting those emission limits could amount to as much as \$40 billion in 2009. Nonfederal public power represents roughly 8 percent of the nation's electricity generation from fossil fuels. CBO expects that public power facilities would absorb a proportional amount of the total cost borne by the sector; the remaining share would accrue to private utilities. While we cannot precisely estimate the costs of many of the other mandates in the bill, CBO estimates that the aggregate direct costs of all the mandates would be well in excess of the annual thresholds for intergovernmental and private-sector mandates established by UMRA (\$58 million and \$115 million in 2002, respectively, adjusted annually for inflation), starting in 2009.

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary impact of S. 556 is shown in the following table. The costs of this legislation fall within budget functions 300 (natural resources and environment) and 270 (energy).

BASIS OF ESTIMATE

For this estimate, CBO assumes that S. 556 will be enacted near the beginning of calendar year 2003. The following paragraphs explain our estimates of the revenues that would be collected from the sale of emissions permits and the spending associated with these revenues. Also detailed below is our estimate of the roughly \$30 million a year in discretionary costs to implement the bill. Outlays for discretionary programs are based on historical rates of spending for similar programs.

	By Fiscal Year, in Billions of Dollars									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
CHANGES IN REVENUES										
Sale of Emission Permits										
Estimated Revenues	0	0	0	0	0	0	24.1	26.8	29.6	32.7
CHANGES IN DIRECT SPENDING ^a										
Spending from Sale of Emission Permits										
Estimated Budget Authority	0	0	0	0	0	0	32.2	35.8	39.5	43.6
Estimated Outlays	0	0	0	0	0	0	32.2	35.8	39.5	43.6
Tennessee Valley Authority										
Estimated Budget Authority	0.3	0.6	0.7	0.8	0.8	0.6	0.1	-0.2	-0.2	-0.2
Estimated Outlays	0.3	0.6	0.7	0.8	0.8	0.6	0.1	-0.2	-0.2	-0.2
Total Changes in Direct Spending										
Estimated Budget Authority	0.3	0.6	0.7	0.8	0.8	0.6	32.3	35.6	39.3	43.4
Estimated Outlays	0.3	0.6	0.7	0.8	0.8	0.6	32.3	35.6	39.3	43.4

a. In addition to increasing direct spending, CBO estimates that implementing this bill would cost an average of about \$30 million a year, subject to the availability of appropriated funds, to conduct air-quality monitoring and administer the emission permits required under the bill.

Revenues from Sale of Permits

S. 556 would establish a system to cap the emission of certain air pollutants created as a by-product of the generation of electricity-using fossil fuels and would require owners and operators of electricity-generating facilities to purchase annual permits for any of the covered pollutants emitted. Under the bill, the permits would each represent the authority to emit one ton of the regulated pollutants for a year. S. 556 would allocate such permits to various groups who could sell them to the electricity industry. Electricity generators, qualified energy efficiency projects, and certain carbon reduction projects would receive about 32 percent of the permits starting in 2008, decreasing to 23 percent by 2017. The remainder of the permits would be allocated to the federal government on behalf of certain groups and for designated purposes.

In CBO's view, the pollution permitting system established in S. 556 would have an effect similar to a tax on pollution emitted by electricity generators. A direct tax on pollution would increase the cost of emitting pollution in an amount designated by the government. S. 556 would increase the cost of pollution by an amount equal to the price established in the

marketplace for pollution permits. Thus, CBO would consider the funds generated from the annual sale of permits by the government to be governmental receipts (i.e., revenues).

Based on the estimated value of permits discussed below, we estimate that the sale of permits by the government would generate net revenues of about \$113 billion over the 2009-2012 period. Although permits would be available starting in 2008, companies would not be required to provide proof of purchase until 2009 when we estimate collections and spending would start. In addition, the bill would establish penalties for firms that generate pollution in excess of the permits they hold, but CBO estimates that such penalties would be negligible because we expect firms would comply with the requirement to obtain permits.

Emission Caps. Starting in 2008, S. 556 would establish annual caps on the emissions of carbon dioxide at 2,050 million tons, sulfur dioxide at 2.25 million tons, and nitrogen oxides at 1.51 million tons. Mercury emissions would be capped at 5 tons, but there would be no permits issued or required for that pollutant. These limits would require reductions in emissions by the electricity industry of roughly 75 percent below the 1997 emissions levels for nitrogen oxides and sulfur dioxide, 90 percent below the 1997 emissions level of mercury, and a reduction to the 1990 level of carbon dioxide emissions (the 1990 level was about 12 percent below the 1997 level).

Permit Price. The revenues that would be collected under S. 556 depend on the price received from the sale of the permits. To estimate the price of pollution permits that would be issued under this bill, CBO used an analysis by the Energy Information Administration (EIA) that models a scenario similar to what would be imposed by S. 556. In July 2001, EIA issued a report titled *Strategies for Reducing Multiple Emissions from Electric Power Plants*. In that report, EIA analyzed the effects on the electricity industry of capping the four pollutants addressed in S. 556 to levels very similar to those in the bill. According to the EIA analysis, if all four pollutants were reduced to levels similar to those imposed by S. 556, the effort to meet the carbon dioxide and mercury limits would result in effectively meeting the caps on the other emissions. Thus, for this estimate, we assume that the only permit with a significant cash value would be the carbon dioxide permit. That is, electricity generators would likely be willing to pay a significant price for the carbon dioxide permit.

Although the bill also would require that owners and operators of electricity plants obtain permits for any sulfur dioxide or nitrogen oxides released during the generation of electricity, we expect that the permits for those two pollutants would have a negligible price. As a consequence of meeting the carbon dioxide and mercury caps in the bill, electricity generators would reduce the amount of sulfur dioxide and nitrogen oxides emissions below the caps established by S. 556. That action would result in a supply of permits for those two pollutants well in excess of the demand for those permits. In this situation, we expect that the permits for sulfur dioxide and nitrogen oxides would be sold at a negligible price that

would cover any transaction costs involved in the process of selling the permits. As a result, we have estimated only the value to the government of selling the carbon dioxide permits.

EIA estimated the market price of permits to emit carbon dioxide by using its model of the U.S. electricity system to estimate the permit price that forces power suppliers and consumers to make sufficient changes in investment, operations, and conservation activities to meet each of the caps. Because coal-fired generation produces the highest levels of pollution that would be reduced and regulated under the modeled scenario, EIA estimates significant reductions in the use of coal to make electricity. Currently, about 50 percent of total electricity generation in the United States is produced from coal. Under the scenario modeled by EIA and used for this estimate, electricity generation from coal would be about 40 percent lower by 2010 than it would have been without legislation to establish pollution caps. Natural gas generation and, to a lesser degree, renewable energy generation would increase under the model.

The amount of fuel switching in the electricity industry that EIA projects under a multi-pollution cap scenario relies on some significant assumptions. Specifically, the model assumes that new generating capacity would be built as needed to replace generation that would no longer be economic to operate under the pollution caps. It assumes that siting and permitting for new plants would occur without significant delays and that taking electricity plants off-line to install significant upgrades of new pollution-control technology would not affect the reliability of the electricity system. Finally, the EIA model assumes that by 2010, the combination of imports and domestic production of natural gas could increase enough to accommodate much more natural gas generation of electricity (about 70 percent above what it would have been without new pollution caps with no more than a 20 percent increase in natural gas prices). Any changes in these assumptions could change the estimate of permit prices dramatically.

Based on the information in the EIA report, CBO estimates that the price of carbon dioxide permits would be about \$23, starting in 2008, and would increase to \$32 by 2012. The permit price would increase annually because as demand for electricity grows and new firms enter the market, the availability of permits would remain the same, and in some cases, could decrease. This would increase the demand for the permits, and thus the price for the permits. In the EIA model, the value of the permits to electricity producers is equal to the cost of eliminating one more ton of the pollutant (the marginal cost) and generally reflects the lowest-cost combination of investments that electricity producers could make to capture pollutants and raise the efficiency of their coal-fired power plants and replace coal-fired plants with natural gas-fired generation. Changes in the assumptions used by EIA would yield a different estimate of permit prices.

Revenue Calculation. Under S. 556, we assume that starting in 2008 and for each year thereafter, the amount of carbon dioxide generated from electricity production would meet the 2,050 million ton cap established in the bill. To achieve that result, we expect that the government would sell all of its permits each year at the prices discussed above. Thus, we estimate that the government's 1,403 million permits (68.4 percent of the total in 2008, increasing annually) would generate about \$32 billion in 2009 because permits generated for emissions in 2008 would not be required until the following year. The lag between when emissions are generated and when permits must be obtained would continue. Overall, we estimate that S. 556 would generate gross revenues of about \$151 billion over the 2009-2012 period.

However, the cost of the permits adds to the cost of the electricity industry, which passes the cost on to consumers. When consumers spend less in the economy, the result is a reduction in corporate and individual taxes. CBO estimates that this decline in income and payroll tax receipts would equal 25 percent of the total amount of the revenue generated from permit sales. Thus, we estimate that net revenues under S. 556 would total about \$24 billion in 2009 and \$113 billion over the 2009-2012 period.

Penalties. Under S. 556, civil penalties would be assessed for failure to submit the adequate number of permits for each of the pollutants covered under the bill. Because civil penalties would be assessed at a cost of three times the market rate for a permit, we would expect most firms to comply with the bill. Currently, under the Environmental Protection Agency's Acid Rain Program, penalties are collected on emissions of sulfur dioxide and nitrogen oxides in excess of submitted allowances. Penalties currently collected under that program are less than \$500,000 a year, and CBO estimates that any additional revenues that would be collected under S. 556 also would be less than \$500,000 a year.

Direct Spending

Enacting S. 556 would increase direct spending primarily by using the proceeds from the sale of pollution permits, beginning in 2009, for assistance to electricity consumers. Some of the proceeds would be used for other purposes as well. In addition, complying with the bill would cause an increase in spending by TVA over the next several years (but that spending would be offset, over time, by increases in TVA receipts). In total, CBO estimates direct spending increases of \$3 billion over the 2003-2007 period and \$154 billion over the 2003-2012 period.

Allocation of Pollution Permits. S. 556 would allocate permits to different groups who could sell them to the electricity industry and use the proceeds for designated purposes. Electricity generators, qualifying energy efficiency projects, and certain projects designed

to remove carbon from the atmosphere would receive 31.6 percent of the permits starting in 2008, decreasing to 22.6 percent by 2017. The remainder would be allocated to the federal government for various programs. CBO estimates that spending of the proceeds from the sale of permits by the government under S. 556 would start in 2009 and total about \$153 billion over the 2009-2012 period. Such spending would be spread among various purposes designated in the bill as discussed below.

Household Electricity Consumers. S. 556 would allocate most of the permits to residential electricity consumers. Through the federal government (or its agent), consumers would receive 62.4 percent of the proceeds from the sale of permits in 2009, increasing annually by 1.5 percent. Electricity consumers could receive the proceeds from the sale of the permits as a rebate on their electricity bill or by some other means. CBO estimates that such assistance to electricity consumers would start at about \$29 billion in 2009 and increase, as the permit price and the amount of permit sale proceeds allocated to electricity consumers increases, to about \$41 billion in 2012. We estimate that spending by the government for assistance to electricity consumers over the 2009-2012 period would total about \$140 billion.

Transition Assistance. In 2009, S. 556 would allocate 6 percent of proceeds from permit sales to workers and communities that experience adverse economic impacts as a result of the emissions reductions imposed by the bill and to producers of electricity intensive products. The percentage of permit sale proceeds available to these groups would be reduced annually by one-half of a percent, reaching 4 percent in 2012 and 1.5 percent of permit sales in 2017. Either the federal government or its agent would be responsible for allocating the proceeds to these groups. CBO estimates that spending for transition assistance would start at about \$2.8 billion in 2009 and be reduced to about \$2.7 billion in 2012. We estimate that total spending for transition assistance would be about \$11 billion over the 2009-2012 period.

Tennessee Valley Authority. CBO estimates that implementing this bill would increase direct spending by the Tennessee Valley Authority by about \$3 billion over the 2003-2012 period, but should have no net budgetary impact over 30 to 40 years. TVA is one of the nation's largest electricity marketers and currently accounts for about 5 percent of the country's coal-generation capacity. For this estimate, CBO assumes that TVA would comply with the bill in the same manner as private utilities. We estimate that replacing 40 percent of its coal facilities by 2009 would cost about \$6 billion (including interest costs), but we expect that this increase would be partially offset by lower spending on pollution controls and other upgrades to the facilities being taken out of service, saving about \$1 billion relative to current law. TVA is required to recover all of its costs over time through proceeds from electricity sales. For this estimate, we assume that the agency would increase rates to recover the cost of the new investments over a 30-year period and that the additional amounts collected to recover those expenditures would total about \$2 billion over the 2003-2012

period. Hence, the net effect of those TVA actions over the 10-year period is about \$3 billion.

In addition, we expect that TVA would increase electricity rates by about \$6 billion over the 2009-2012 period, which is the amount necessary to cover the annual cost of carbon dioxide permits for its own use. We assume that TVA would purchase all of its permits from the government. Because the increase in receipts to TVA would be used to purchase the required permits, there would be no net increase in direct spending resulting from this requirement. However, the increased receipts would be counted as revenues collected by the government from the sale of its permits.

Spending Subject to Appropriation

S. 556 would authorize the appropriation of \$27.2 million annually over the 2003-2012 period for operational support, equipment, and modernization for several air quality monitoring programs managed by the Environmental Protection Agency (EPA) and supported by several other agencies. In addition, based on information from EPA, we estimate that the bill would authorize \$11 million in 2003 and \$55 million over the 2003-2007 period for new rulemakings, reports, and pollution control programs that would be established by the bill. We estimate that outlays for these purposes under S. 556 would total \$25 million in 2003, \$175 million over the 2003-2007 period, and about \$370 million over the 2003-2012 period, assuming the appropriation of the necessary and authorized amounts.

Air Quality Monitoring. S. 556 would authorize the appropriation of \$27.2 million a year over the 2003-2012 period for operational support, equipment, and modernization for several air quality monitoring programs managed by EPA and supported by other agencies. In 2002, those programs received about \$20 million. CBO estimates that implementing these monitoring programs would cost \$18 million in 2003, \$125 million over the 2003-2007 period, and about \$260 million over the 2003-2012 period, assuming appropriation of the authorized amounts.

Program Implementation. Based on information from EPA, CBO estimates that implementing S. 556 would require the appropriation of \$11 million in 2003, \$55 million over the 2003-2007 period, and \$115 million over the 2003-2012 period for rulemakings, program implementation, air quality monitoring, and reporting relating to the pollution control programs that would be established by the bill. Currently, EPA manages a program to issue rulemakings and manage and track the trading of permits for pollutants covered under the Acid Rain Program. Based on information from EPA, we estimate that the agency will spend about \$12 million on that program in 2002.

We expect that new programs established under S. 556 would cost slightly less than the current Acid Rain Program, as some pollution permitting and tracking systems through that program are currently in place. Based on information from EPA, we expect that about \$3 million a year would be spent on outside contracting for modeling and programming related to the new air quality standards and for workshops and guidance programs for regulated firms. About \$8 million a year would be spent on additional staff to manage and support the complex rulemakings, allocation of emissions permits, monitoring, and data collection and analysis required by the bill. Overall, we expect that spending for the new programs authorized by S. 556 would be \$7 million in 2003, \$50 million over the 2003-2007 period, and \$110 million over the 2003-2012 period, assuming appropriation of the necessary amounts.

INTERGOVERNMENTAL AND PRIVATE-SECTOR IMPACT

S. 556 would impose mandates by:

- Establishing national caps on emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides produced by large electricity-generating facilities and requiring the owners or operators of such facilities to purchase permits for the right to emit the substances;
- Requiring owners or operators of coal-fired generating facilities to reduce their emissions of mercury;
- Eliminating current exemptions for certain coal-fired facilities from adopting best available control technology, as determined by the EPA Administrator;
- Requiring electricity generators to monitor ambient air quality and report on local emissions of sulfur dioxide, nitrogen oxides, and carbon dioxide;
- Establishing standards intended to prevent the re-release of captured mercury;
- Requiring EPA to issue standards for hazardous air pollutants emitted from coal-fired generating facilities;
- Granting EPA new authority to establish additional emission reductions to prevent adverse local impacts, to protect public health, welfare or the environment and to protect certain sensitive ecosystems; and

- Requiring states, as part of their state implementation plans, to identify electric facilities that are significantly contributing to that state's nonattainment status under the Clean Air Act.

While we cannot precisely estimate the costs of many of the mandates in the bill, CBO estimates that the aggregate direct costs of both the intergovernmental and private-sector mandates in S.556 would be well in excess of the annual thresholds established by UMRA starting in 2009. The thresholds are \$58 million for intergovernmental mandates and \$115 million for private-sector mandates in 2002, and are adjusted annually for inflation.

Cap and Trade Program for Emissions of Carbon Dioxide, Sulfur Dioxide, and Nitrogen Oxides

Beginning in 2008, S. 556 would establish national caps on emissions of carbon dioxide, sulfur dioxide and nitrogen oxides. The bill would require the owners or operators of large electricity-generating facilities, those which have a capacity to generate 15 megawatts or more, to purchase permits consistent with the amount of annual emissions from their facility. S. 556 would establish caps on the emissions of carbon dioxide at 2,050 million tons; sulfur dioxide at 2.25 million tons; and nitrogen oxides at 1.51 million tons. Those limits would require reductions in emissions by the electricity industry of roughly 75 percent below the 1997 emissions levels for sulfur dioxide and nitrogen oxides and a reduction to the 1990 level of carbon dioxide emissions. Programs to control atmospheric emissions from the production of electricity already exist, largely under the authority of the Clean Air Act. Such programs include a mix of emissions standards, technology standards, and cap and trade programs that directly affect emissions of sulfur dioxide and nitrogen oxides, among other air pollutants. Those programs may affect carbon dioxide emissions indirectly by influencing fuel choice, but no programs specifically targeting carbon dioxide emissions currently exist.

Under S. 556, the owners and operators of large electricity-generating facilities would purchase one permit for each ton of a pollutant emitted. The July 2001 EIA analysis, upon which CBO has based its estimate of permit prices, indicated that if facilities meet the carbon dioxide and mercury limits, they also would effectively meet the caps on the other two pollutants. Therefore, the permit prices for sulfur dioxide and nitrogen oxides emissions would be negligible (covering only relevant transactions costs) if the caps on those pollutants would be applied in combination with the carbon dioxide and mercury limitations. Accordingly, CBO estimates that the cost to the electricity-generating industry of complying with the sulfur dioxide and nitrogen oxides cap and trade programs would be minimal.

CBO estimates that the price of carbon dioxide permits would be about \$23 per short ton of carbon dioxide in 2009, increasing to \$32 by 2012. CBO expects that plants will begin making expenditures to comply with the emissions caps well in advance of 2009. If the electricity-generating industry were required to purchase all carbon dioxide permits available in 2009, the cost would amount to roughly \$47 billion. However, S. 556 would allocate 10 percent of the permits to the industry in 2009 and would decrease that allocation by one percent each year until 2017. Other offsets for individual generators may exist because certain clean fossil fuel generating units, combined heat and power generators, utilities that improve the efficiency of transmission and distribution systems, and utilities involved in geologic carbon sequestration would be eligible to receive an additional allocation of permits. Thus the total cost to industry could amount to as much as \$40 billion in 2009, when the permits are first purchased, increasing to as much as \$60 billion in 2012. Because nonfederal public power represents 8 percent of the industry, CBO estimates that about \$3 billion of the cost would be absorbed by public power in 2009, increasing to roughly \$5 billion in 2012.

Standards for Mercury Emissions Generated By Coal-Fired Facilities

Mercury emissions are currently regulated only indirectly under the requirement that new plants adopt the best available control technology. In December 2000, EPA stated its intent to regulate mercury from coal-fired power plants. The agency is not scheduled to issue final regulations until December 2004. S. 556 would establish a national emissions standard, set at 2.48 grams of mercury per 1,000-megawatt hours of electricity from all coal-fired generating facilities, beginning in 2008. That standard may be raised after two years if generators are unable to reduce national emissions of mercury by electricity generators to 5 tons annually. According to the EIA analysis, achieving the carbon dioxide cap required by the bill would advance the industry's progress towards meeting the mercury limit. Additional costs above the carbon dioxide requirement could be about \$2.2 billion annually, beginning in 2008, based upon a compliance cost of approximately \$220,000 per pound of mercury emitted. The incremental cost of meeting the mercury limit contained in S. 556 could be lower if in 2004 EPA issues regulations to limit mercury emissions that would take effect prior to 2008.

Eliminate Exemptions for Coal-fired Facilities from Adopting Best Available Control Technology

The Clean Air Act Amendments of 1977 exempt generating facilities that existed prior to 1971, and plants that did not make major modifications to their facilities, from the requirements of the New Source Review program. That program requires plants to install

particular equipment to limit emissions, known as the best available control technology or BACT, as determined by the EPA Administrator. At the time, it was believed that older plants would soon be retired, but the industry has successfully extended their lives and in many cases increased their generating capacity. Starting in 2013, S. 556 would bring those older facilities (there are over 700 of them) under the same restrictions on technology that apply to newer facilities. Further, the provision would require all coal-fired facilities, upon their 40th birthday, to install BACT when modifying the facility, regardless of whether the modification is major or not. Information provided by industry and governmental sources indicates that the technology that would be installed to meet the carbon dioxide and mercury emissions caps would satisfy the BACT standard. Therefore, CBO expects that there would be no cost for complying with this mandate.

Monitoring of Air Quality and Reporting on Local Emissions.

Under S. 556, EPA would issue regulations requiring that electricity generators report information on the amount of covered pollutants emitted each year, gathered through the use of continuous emissions monitoring systems. The bill details specific requirements for monitoring of ambient air quality at large coal-fired facilities to begin January 2004, which would include stationing monitors at no fewer than two points within three miles of the facility. Currently, there are requirements for the continuous monitoring and reporting of sulfur dioxide and nitrogen oxides emissions for units regulated under the Acid Rain program and nitrogen oxides emissions programs. In addition, EPA has specified procedures for monitoring or estimating carbon dioxide emissions, although to date, such monitoring has not been required. Accordingly, some facilities are already monitoring emissions from their facilities voluntarily to comply with existing regulations. CBO does not have sufficient information on current emissions monitoring practices in the industry nor the requirements that would be contained in future EPA regulations to estimate the cost of this mandate.

Safeguards Against the Re-Release of Captured Mercury

The bill would require EPA to promulgate regulations ensuring that mercury contained in coal wastes is not re-released into the environment in either disposal or recycling of the substance. Coal wastes are a byproduct of the treatment of coal before combustion, coal combustion itself, sulfur dioxide scrubbing, and the treatment of flue gases. While a portion of the coal wastes are contained in disposal units, some of the wastes, including ash, are recycled for use in agricultural applications or in the production of wallboard and cement. In terms of coal waste disposal, among other requirements, the regulations to be promulgated by EPA would require daily covers on all active waste disposal units and permanent covers

on all inactive waste disposal units. In terms of coal waste recycling, the regulations would eliminate agricultural uses and require businesses that process or use coal wastes to limit mercury emissions. According to industry sources, those recycling applications account for roughly half of the current use of all coal combustion byproducts. At this time, neither EPA nor the industry could provide any information on the costs stemming from such regulations. Therefore, CBO cannot determine the cost of this mandate.

New Standards for Hazardous Air Pollutants

Prior to January 2006, S. 556 would require EPA to promulgate emissions standards for hazardous air pollutants emitted by coal-fired generating facilities. Because there are numerous substances to which regulations could be applied and EPA cannot provide information as to the scope of such regulations, CBO cannot estimate the impact of such regulations on affected facilities.

Additional Authority to Regulate Emissions

Pending the outcome of a three-year study on emissions allowance trading, the bill would grant EPA the authority to limit the emissions from a specific electricity-generating facility in order to avoid adverse local impacts such as the endangerment of public health, contribution to acid deposition in a sensitive area, and other degradation of the environment. In addition, S. 556 would allow the Administrator to require reductions in national emissions beyond those required by the bill if the Administrator believes the reductions are not reasonably anticipated to protect public health or welfare or the environment. And finally, beginning as early as 2008, the bill would grant EPA the authority to regulate emissions of sulfur dioxide and nitrogen oxides for the protection of sensitive ecosystems. Sensitive ecosystems identified by the bill include the Adirondack Mountains, mid-Appalachian Mountains, Rocky Mountains, southern Blue Ridge Mountains, the Great Lakes, Lake Champlain, Long Island Sound, and the Chesapeake Bay. In the event the agency uses any of the new authority granted, compliance with new limits would constitute a mandate under UMRA. However, because EPA could not provide information as to whether such authority would be used, CBO has no basis to estimate the cost for the industry to comply.

State-Reporting Requirements

States would be required, as part of their responsibilities under the Clean Air Act, to periodically report on the electricity-generating facilities that are significantly contributing

to their nonattainment status for ozone. Based on information from state air pollution administrators, CBO estimates that this new requirement would not significantly increase the costs that states incur to comply with the Clean Air Act.

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