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Implementing Acid Rain Legislation

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CONTENTS

SUMMARY

The broad-ranging provisions in Title IV of The Clean Air Act Amendments of 1990 (P.L. 101-549) raise myriad implementation issues, particularly with respect to the system of tradeable "allowances." This system provides an economic mechanism by which emitters of sulfur dioxide (SO2) can determine the most cost-effective way to meet reduction requirements. Issues include the role of States, particularly public utilities commissions; unfinished rulemaking, including defining repowering technologies and developing revised fossil fuel utility SO2 and NOx New Source Performance Standards (NSPS); and operational issues, including pricing of allowances, auctions, and the Phase 1 allowance pool.

The allowance system represents a new turn in environmental policy in directly addressing the issue of pollution control costs. In doing so, it presumes that cost-effectiveness will be the driving factor in SO2 control decisionmaking

by utilities, State regulators, and Federal agencies. While the economics of this new system has been extensively debated, the legal, regulatory, and industry structure contexts in which the new system of tradeable allowances will operate may need further definition if various conflicts develop. For example, the industry structure is designed to focus first on the reliability of electricity supply; to the extent that the uncertainty of the allowance system interferes with that priority, it may be bypassed.

Title IV, Acid Deposition Control, sets goals for Jan. 1, 2000, of reducing annual sulfur dioxide (SO2) emissions by 10 million tons and annual nitrogen oxides (NOx) emissions by 2.0 million tons from 1980 levels. Beginning in the year 2000, total utility SO2 emissions are limited to 8.9 million tons and total industrial SO2 emissions are limited to 5.6 million tons.

Title IV is implemented through a two-phase process. Under Phase 1, owners/ operators of 110 facilities listed in the law are required to reduce emissions by about 3.5 million tons annually by Jan. 1, 1995. Under Phase 2, all utility facilities greater than 25 megawatts (Mw) are affected by the bill. To maintain emission reductions beyond the Phase 2 compliance date (Jan. 1, 2000), the law essentially caps SO2 emissions at existing individual sources through a tonnage limitation, and at future plants through the offset requirement.

The mechanism for achieving the reductions is a comprehensive permit and emission allowance system. An allowance is a limited authorization to emit a ton of SO2. Facilities receive allowances based on specific formulas contained in the law. These allowances may be traded or banked for future use or sale. Allowance sales and auctions are to be held to ensure liquidity in the allowance market.

Despite debate about the economics of this new system and the addition in the statute of various provisions -- such as the auction systems -- to improve the potential for success of the allowance system, difficulties and conflicts have emerged. Such conflicts could be sufficiently serious to interfere with the economic logic underlying the allowance system.

MOST RECENT DEVELOPMENTS

In October, EPA released a report updating progress on implementing the acid rain provisions of the Clean Air Act. By August 1, all utilities had met permitting deadlines; EPA issued 182 permits for sulfur dioxide emissions. In addition, EPA has also received compliance plans from all the utilities subject to reductions. Finally, EPA-approved continuous emission monitors have been installed on 247 of the 292 units required to install such equipment.

BACKGROUND AND ANALYSIS

P.L. 101-549, Title IV -- Provisions of Acid Rain Law

The broad-ranging provisions in Title IV of The Clean Air Act Amendments of 1990 (P.L. 101-549) raise myriad implementation issues. As enacted, Title IV sets goals for Jan. 1, 2000, of an annual reduction of 10 million tons of SO2 and of 2.0 million tons of NOx emissions below 1980 levels. Total utility SO2 emissions are limited to 8.9 million tons beginning in 2000 and total industrial SO2 emissions are limited to 5.6 million tons. (Total SO2 emissions in 1980 were approximately 24 million tons; utility SO2 emissions were approximately 16 million tons.)

Implementation -- SO_2

Title IV is being implemented through a two-phase process. For Phase 1, the statute lists 110 of the largest and most polluting electric utility facilities; those have a generating capacity of more than 100 megawatts (Mw) and emit at a rate greater than 2.5 lb. of SO2 per million Btus (mmbtu). By Jan. 1, 1995, the owners/operators of these facilities must curtail SO2 emissions based on a 2.5 lb. SO2 per mmbtu rate times their annual average fuel consumption during 1985-87 (called the baseline). It is anticipated that this will reduce SO2 emission by about 3.5 million tons. (See Table 1.)

Phase 2 lowers the threshold emissions rate from 2.5 lb. to 1.2 lb. per mmBtu and the facility size affected to 75 Mw, which will increase the number of affected facilities by about an order of magnitude (these facilities are often called

the "big-dirties," or Group 1 units). In addition, powerplants at lower emissions rates and smaller facilities (between 25 and 75 Mw), also face limits on emissions.

Generally, powerplants emitting at less than 1.2 lb. of SO2 per mmbtu are permitted to multiply the lesser of the actual or allowable 1985 SO2 emission rate by their 1985-87 baseline times 1.2 (then divided by 2000 to convert into tons), or replace their 1985-87 baseline and the 1.2 multiplier with a baseline number based on fuel consumption at a 60% capacity factor (from 2000-2009 only; after that, the first calculation is the only option).

Small units (from 25 Mw to 75 Mw) must meet tonnage limitations based on either 1.2 lb. of SO2 per mmBtu times their 1985-87 baseline if the utility system is greater than 250 Mw or the lesser of their actual or allowable 1985 SO2 rate times their 1985-87 baseline if the utility system is less than 250 Mw.

Units under 25 Mw and simple combustion turbines are exempted from the reduction requirements, although they may opt in the program if they so desire.

Overall, when the Phase 2 reductions are in place on Jan. 1, 2000, total emissions should meet the statutory-required limits.

Table 1. SO2 Utility Emission Reductions Under P.L. 101-649

	Facility (emission rate = lbs. per mmbtu)	**Comply By Reduction/Cap**
Phase 1	> lOOMw and >2.5 lb. SO2(2.5 x baseline)*	Jan. 1, 1995 3.5 million ton reduction
Phase 2	> 75Mw and > 1.2 lb. SO2 (1.2 x baseline)*	Jan. 1, 2000 8.9 million ton cap
	>75Mw and < 1.2 lb. (lesser of actual or allowable emission rate in 1985 x baseline x 1.2 or use different baseline based on consumption at a 60% factor -- latter option from 2000 to 2009 only)*	
	25Mw to 75 Mw (either 1.2 x baseline if whole system is >250Mw or lesser of actual or allowable 1985 rate x baseline if whole system is <250Mw)*	
	(<25Mw exempt from reductions)	
After Phase 2	all facilities>25Mw	cap existing units; offsets for new units; NSPS for new units

***Baseline = annual average fuel consumption during 1985-1987. Formulas require division by 2000 to convert to tons. Note that there are many cases where different formulas, specified in the law, apply.**

Allowances

To introduce some flexibility in the distribution and timing of reductions, the law creates a comprehensive permit and emissions allowance system. An allowance is a limited authorization to emit a ton of SO2 emissions for a calendar year; facilities receive allowances either under statutory formulas, or by purchase or trade in a market to be set up by EPA regulation.

For existing powerplants -- those in operation at enactment -- allowances are issued by EPA; the allowances will be allocated in accordance with the formulas discussed above (Table 1). New powerplants -- those which commence operation after enactment -- will receive no allowances, except under specific limited circumstances. (Also, as discussed later, EPA is to revise New Source Performance Standards (NSPS) for future powerplants.) In order to operate after the year 2000, when emissions are capped, the se new units will have to obtain allowances (offsets) from

those units allocated allowances. The allowances may be traded nationally during either phase, or may be banked for later use or sale. The law also permits industrial sources and powerplants to go under the allowance system and to sell allowances to utility systems under regulations to be developed by EPA.

NOx-for-SO2 trading is to be studied, but is not permitted.

Special adjustments to allowances. Powerplants with emissions rates between 1.2 lb. and 2.5 lb. may receive an adjustment to their allowance allocation if they have low 1985-87 baseline numbers. In addition, units that commenced or commence operation between Jan. 1, 1986, and Dec. 31, 1995, have special formulas or allocations for their allowances.

Because the acid rain program particularly affects the Midwest (which has high SO2 emissions and will bear high cleanup costs) and the West (which has low SO2 emissions and hence few allowances that could be made available to account for growth), the Act redistributes a total of approximately 8.9 million SO2 allowances to the Midwest in Phase 1 and to clean units in Phase 2. Specifically, about 3.5 million of these allowances are earmarked for Phase 1 powerplants choosing to install 90%, control technology. Such units may delay Phase 1 compliance from 1995 to 1997 and receive two allowances for each ton of SO2 reduced below a 1.2 lb. per mmBtu level during 1997-1999. In addition, during Phase 1, 200,000 allowances annually are to be distributed to units (except Department of Energy-contracted facilities) in Illinois, Indiana, and Ohio. The specific sources of these allowances are not specified in the law, and are not included in the 3.5 million ton reserve identified above.

For Phase 2, about 5.3 million additional allowances are allocated over a 10-year period to relatively clean plants (2000-2009). These provisions generally allow most facilities below 1.2 Ibs. of S02 per mmBtu to increase use by about 20%, allocate some additional allowances to low-medium SO2 emitters with low baseline calculations, and grant some allowances for predominately natural gas-fired units. In addition, the Act provides a special option for States that have State-wide emission rates of 0. 8 Ibs. per mmBtu or less. Finally, 50,000 permanent allowances are allocated annually among 10 Midwestern States. These 50,000 additional allowances are not subject the 8.9 million ton emissions cap.

Sales/auctions. Beginning in 1993, the law provides for sales and auctions to improve the liquidity of the allowance system and ensure the availability of allowances for utilities and independent power producers who need them. A fund consisting of 2.8% of Phase 1 and Phase 2 allowance allocations is set aside for sale. From 1993 to 1999, 25,000 allowances are to be sold annually at a fixed price of $1,500 an allowance; beginning in 2000, the sale will offer 50,000 allowances annually. Independent power producers have guaranteed rights to these allowances under certain conditions. In addition, 150,000 allowances will be offered annually at auction during 1993-1995, and 250,000 from 1996-1999. This will be an open auction with no minimum price. Utilities with excess allowances may have them auctioned off, and any person may buy allowances.

Emissions Caps

To maintain emission reductions beyond the Phase 2 compliance dates, the law essentially caps SO2 emissions at individual existing sources through a tonnage limitation, and at future plants through the allowance system. First, emissions from most existing sources are capped at a specified emission rate times an historic average fuel consumption level. Second, since plants commencing operation after enactment must obtain allowances for any SO2 emissions, with minor exceptions their emissions must effectively be offset by additional reductions at existing facilities allocated allowances. The utility SO2 emission cap is set at 8.9 million tons, with some exceptions, just over half the 1988 utility emissions of approximately 15 million tons.

The law also requires EPA to inventory industrial emissions of SO2 and to report every 5 years, beginning in 1995. If the inventory shows that industrial emissions may reach levels above 5.60 million tons per year, then EPA is to take action under the Act to ensure that the 5.60 million ton cap is not exceeded (1988 industrial emissions of SO2 were approximately 5.9 million tons).

Implementation -- NOx

The law requires EPA to set specific NOx emission rate limitations -- 0.45 lb. per mmBtu for tangentially fired boilers and 0.50 lb. per mmBtu for wall-fired boilers--unless those rates can not be achieved by low-NOx burner technology. Tangentially and wall-fired boilers affected by Phase 1 SO2 controls must also meet NOx requirements. EPA is to set emission limitations for other types of boilers by 1997 based on low-NOx burner costs. In addition, EPA is to propose and promulgate a revised New Source Performance Standard (NSPS) for NOx by Jan. 1, 1994.

Excess Emissions

The law provides that if an affected unit does not have sufficient allowances to cover its emissions, it is subject to an excess emission penalty of $2,000 per ton of SO2 and required to reduce an additional ton of pollution the next year for each ton of excess pollutant emitted.

Clean Coal Technology

The law authorizes a 4-year extension (to Dec. 31, 2003) of the Phase 2 compliance deadline for repowering clean coal technology, and exempts DOE clean coal projects from the NSPS and the major modification provisions of the Clean Air Act.

Studies and Reports

Title IV includes a number of studies and reports focused on acid rain issues, including a national acid lakes registry, reports on monitoring of acid rain in Canada, studies of high altitude lakes in Wyoming and of the use of buffering agents in that State, a report on clean coal technology exports, and a special clean coal demonstration project.

In addition, Title IX, Clean Air Research, provides for a continuation of the National Acid Precipitation Assessment Program and for specific studies of acid rain impacts in the Adirondacks and in Western States.

Implementation Schedule

Many of the important regulations for Title IV were required within 18 months of enactment. These deadlines were tight because of the 1995 compliance date for Phase 1 and the time needed by utilities to develop compliance strategies. As illustrated by the list below of regulations required within 18 months of enactment, EPA has had a large task. In December 1991, EPA proposed rules with respect to several of these issues (see 56 *Federal Register* 63002). The statutory deadline for these regulations was May 15, 1992. On Oct. 27, 1992, EPA issued several final rules on the acid rain program, and proposed another.

SO2 Allowance Transfer System: includes requirements for the allocation, transfer, and use of allowances (Title IV, Section 403(b) -- final rule published Jan. 11, 1993);

SO2 Allowance Issuing, Recording and Tracking System: establishes a system for issuing, recording, and tracking allowances and specifies necessary procedures and requirements for an orderly and competitive functioning of the allowance system (Title IV, Section 403(d)(1) -- final rule published Jan. 11, 1993);

Energy Conservation Measures Eligibility: prepared by EPA in consultation with DOE, lists energy conservation measures and renewable energy sources which may be treated as qualified energy conservation and qualified renewable energy measures (Title IV, Section 404(g)(4) -- final rule published Jan. 11, 1993);

NOx Emission Limits: establishes annual allowable emission limitations for NOx for tangentially fired and dry bottom wall-fired boilers (Title IV, Section 407(b)(1) -- final rule issued Feb. 28, 1994);

Permit Program: in accordance with Title V (Permits), implements a Federal permit program to issue permits for affected sources (Title IV, Section 408(c)(3) -- final rule published Jan. 11, 1993);

Process Source Program: establishes a program under which the owner/operator of a process source of SO2 may become an affected source under Title IV, including baseline, data and monitoring requirements, and any other requirements necessary to implement the program (Title IV, Section 410(d) -- rule for combustion sources proposed September 1993); and

Continuous Emissions Monitoring: specifies requirements for monitoring systems, including recordkeeping and reporting requirements (Title TV, Section 412(a) -- final rule published Jan. 11, 1993).

Implementation Questions

With the passage of Title IV of the Clean Air Act of 1990, environmental policy has taken a new turn in directly addressing the issue of pollution control costs. In doing so, the new title presumes that economics as manifested in a new tradeable allowance system will be the driving factor in decisionmaking by utilities, State regulators, and Federal agencies. While the economics of this new system has been extensively debated, and various provisions -- such as the auction systems -- have been added to improve the potential for success in the economic sense, the legal, regulatory, and industry structure contexts in which the new system will operate may need further definition if various conflicts develop.

These conflicts could be sufficiently serious to interfere with the economic logic underlying the allowance system. The legal, regulatory, and industry structures have different values, of which economics is only a part. For example, the industry structure is designed to focus first on the reliability of electricity supply, both now and in the future. To the extent that the uncertainty of the allowance system interferes with that priority, it may be bypassed. By the same token, State regulatory commissions have several interests besides economics, including equity and protection of consumers. If the results of allowance transactions do not serve these interests, participating utilities may have to operate in an unfavorable regulatory environment. Consequently, because of these different values involved in decisionmaking affecting the allowance program, the ultimate outcome of the program may represent a compromise involving less cost-effectiveness than a pure economic strategy might imply. In any case, the program will likely evolve dynamically as other actors involved actually make decisions.

In October, EPA released a report updating progress on implementing the acid rain provisions of the Clean Air Act. The report indicates that significant progress has been made on the mechanics of the program. By August 1, all utilities had met permitting deadlines -- EPA issued 182 permits for sulfur dioxide emissions. In addition, EPA has also received compliance plans from all the utilities subject to reductions. Finally, EPA-approved continuous emission monitors have been installed on 247 of the 292 units required to install such equipment.

Regulatory Issues: How Will Allowance Transactions be Regulated?

State Public Utility Commissions. In defining the nature of an allowance, Section 403(f) specifies that the allowance system does not affect the regulatory authority of the Federal Government or the State, including prudency reviews. Traditional electricity rate regulation on the allowance system is discussed explicitly, but there is little analysis of the potential impacts of such regulation on the functioning of the allowance system. In the Senate Committee report, a public utility commission (PUC) response to allowance transactions is postulated:

> Since these arrangements [cost-savings through allowance trading] would permit both parties to reduce their respective new compliance costs, public utility commissions would not only be inclined to approve such actions, but would have strong incentives to encourage them. Indeed, both public utility commissions seeking to protect consumers from unnecessary rate increases, and shareholders concerned with profits will pressure utilities to maximize the economic benefits of allowances sales.

PUC regulatory activities with respect to allowance trading could include (1) determination of whether to overcontrol, (2) prudency reviews of investments and trading decisions, and (3) distribution of any profits or costs from investments and trading decisions. These are briefly discussed below.

Under Title IV, utilities can overcontrol facilities in order to sell the extra allowances for a profit. Extra allowances could be created by a *discretionary* decision by the utility, not a *statutory obligation.* In some States, utilities can bill consumers for construction work in progress (CWIP) and receive special tax treatment for pollution control investment -- if the investment is to meet a statutory or regulatory requirement. Discretionary spending beyond compliance might be challenged.

The degree to which discretionary spending could be challenged would probably depend on the reasons given for the investment. For example, a decision to overcontrol to meet a utility's own plans for growth might be considered reasonable and prudent by the commission, particularly if the growth in question is part of a least-cost planning strategy. By the same token, overcontrol to provide a reserve bank to cover uncertainty of demand, or to provide a ready source of allowances for qualifying facilities or independent power producers might be considered prudent given load projections.

However, overcontrol because a utility could thereby profit might be subject to challenge by the PUC as to whether the risk involved is appropriate for ratepayers to undertake. In such cases, the PUC might decide that the shareholders should bear the cost of overcontrol, not the ratepayers.

In any case, the utility may not know whether overcontrol is a ratepayer or shareholder responsibility until the rate case is decided. Whether this would be a significant disincentive to overcontrol may depend on the riskiness of the investment and how confident the utility is that it would actually receive the profits from any favorable trading transaction.

The second question, prudency reviews, is partially intertwined with the first. Presumably, prudency issues will revolve around whether the utility was prudent in complying with the law in terms of its investments and trading transactions. Hence, transactions could be reviewed to determine whether the utility bought (sold) allowances at the lowest (highest) costs, or at the right time if the utility contracted to buy (sell) the allowances in advance at a fixed price. Indeed, as suggested by the Committee report, a PUC could challenge utilities that do not make cost-effective trades that lower the cost of compliance.

Ultimately, the PUC may determine the distribution of costs and profits between ratepayers and shareholders of any investments or trades. Many utilities and analysts assume that if utilities make a profit on overcontrol investments by shareholders or trading transactions, the PUC would adjust their rate of return (ROR) so ratepayers would share some of the gain. The argument for adjusting the ROR could be based on that fact that the powerplant (which is the source of the allowances) was paid for by the ratepayers. Therefore, the ratepayers might have a right to at least some of any profits flowing from a sale of excess allowances despite the shareholders' investment in the overcontrol measures. By the same token, if overcontrol investments or trading transactions were not optimal in hindsight, the shareholders might foot the bill. In short, the investment and trading risk would likely be with the shareholders, the profits with the ratepayers. How much this may occur is not predictable, but if the perception persists, the incentive of utilities to overcontrol might be reduced.

Which, and how many, PUCs would in fact encourage trading is unclear. The Ohio PUC has adopted a resolution encouraging trading. As stated in the order, utilities that overcontrol to generate extra allowances "would not be penalized by this commission for their overcompliance where their incremental costs of overcompliance are less than the costs of compliance for potential emissions permit trading partners, where there is a reasonable probability of an overall benefit, both in terms of efficiency and the environment, and where the costs of overcompliance are not excessive relative to the costs that other emitters would incur in complying themselves."

However, the Ohio PUC's determination of the appropriate compliance strategy for American Electric Power has come under fire from industrial consumer and environmental groups. After discussions between the PUC and AEP about compliance strategies, in November 1992, the PUC approved a plan calling for the installation of SO2 scrubbing technology on AEP's huge Gavin facility. This decision was seen by the PUC to be least-cost to consumers and to help the State by preserving jobs in Ohio's high-sulfur coal fields. This use of overcompliance has been attacked by the Sierra Club, among others, as more expensive than a strategy based on fuel-switching, increased demand-side management, and allowance purchases. In March 1993, the Sierra Club and the Industrial Energy Consumers of the Ohio Power Co. separately appealed the PUC decision approving AEP's plan to the Ohio State Supreme Court. In April 1994, the Ohio State Supreme Court upheld the decision of the PUC in approving the plan for scrubbers.

In the case of Connecticut, the PUC has approved a sale of allowance from United Illuminating Co. (UI) to Wisconsin Electric Power Co. (WEPCO) based on an 85/15 split of the revenue between UI ratepayers and shareholders. For

certain specified categories of allowances, 100% of the revenue will go to ratepayers. Like all sales announced so for, the UI-WEPCO transaction does not disclose a price. In contrast, the staff of the Georgia Public Service Commission have recommended that Georgia Power be require to annually flow through to ratepayer the market value of any excess sulfur dioxide emissions allowances created rather than allow the utility to bank those allowances to offset anticipated Phase 2 compliance costs.

As more transactions occur, it is possible that more uniform treatment of allowances by PUCs may evolve. However, in a July 1994 report entitled "Cleaning the Air at Least Cost: PUC Options for Treatments of S02 Allowances," EPA expressed concern that inaction by State PUCs was stifling emission trading. The report states that only four States -- Iowa, Ohio, Pennsylvania, Wisconsin -- have issued generic ratemaking guidance, while New York has issued interim guidance. The report outlines three options that PUCs could concern in developing ratemaking guidance with respect to allowance transactions: traditional ratemaking (e.g., Ohio's approach), modest incentive ratemaking (ratepayers sharing in gains and losses), and market-value incentives (shared-savings program).

Other State Agencies. Besides State PUCs, other State agencies, such as State environmental protection or health departments may feel an oversight responsibility with respect to the implementation of the title. For example, the New York Department of Environmental Conservation is currently developing its policy with respect to allowance trading. Of particular concern to State officials is the potential under an unrestricted trading regime for allowance purchases by utilities whose emissions have a direct impact on New York's sensitive areas. Indeed, New York has sued the EPA *(New York v. EPA,* CA DC, 3/12/93) to get it and State officials to regulate allowance transactions to ensure that acid deposition goals are achieved along with emission reduction goals. This suit has been protested by the Environmental Defense Fund (EDF) who considers restrictions on trading as a threat to the entire market approach embodied in the legislation.

Federal Agencies. Although EPA will be the dominant Federal agency regulating the allocation, use, and transfer of allowances, the actions of other Federal agencies could influence the workings of the allowance market. Agencies which could figure in on allowance transactions include the Federal Energy Regulatory Commission (FERC), the Securities and Exchange Commission (SEC), and the Internal Revenue Service (IRS). For example, in Rev. Proc. 92-91 (issued Oct. 30, 1992), the IRS clarified several tax matters with respect to the holding and selling of allowances. In particular, the IRS stated that the costs of acquiring or holding an allowance must be capitalized but that allowances may not be depreciated.

Some utilities have expressed concern that a "zero base" for internally generated excess allowance results in a 35% capital gains tax on any allowance sold outside the utility's own system. Believing that such a tax penalty will discourage the allowance market place, they have called for congressional relief. (For background on tax implications, see Larry B. Parker and Donald W. Kiefer, *Implementing SO2 Allowance Trading: Implications of Transaction Costs and Taxes,* CRS Report 93-313 ENR, Mar. 12, 1993.)

Unfinished Rulemaking

Despite substantial progress by EPA toward promulgation necessary regulations under Title IV, several issues remain unfinished. These include the following.

Opt-in Regulations. In September 1993, EPA proposed rules for permitting industrial boilers (but not industrial processes) to opt into the allowance system under Section 410. However, concern has been expressed that few companies will volunteer to be regulated. It is unclear at the current time whether EPA's proposed regulations would increase or decrease the possibility of industrial boilers being included in the allowance program.

Repowering Technologies. Repowering technologies are provided a four-year extension of the Phase 2 deadline from Jan. 1, 2000, to Dec. 31, 2003 (Section 409 (b)). During this extension, such a unit is allocated allowances according to its State Implementation Plan limitation or actual 1995 emission rate multiplied by its average 1985-87 fuel consumption. After completion of the repowering, the unit receives allowances according to the formula provided earlier for group 1 powerplants. This can result in the acquisition of a large number of allowances. In addition, if the repowered unit does not increase its actual emissions for any pollutant regulated under the Act, it is not subject to the

New Source Performance Standards provisions of Section 111.

This is obviously an important incentive for utilities to consider when examining compliance and capacity expansion needs. However, under Section 402(12), it is unclear what the full range of eligible technologies is. The definition lists several eligible technologies, including atmospheric or pressurized fluidized bed combustion, but includes "any other technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of the date of enactment...". (This definition of repowering differs somewhat from that used by the Department of Energy in its Round 2 solicitation under the Clean Coal Technology program, although the examples of eligible technologies are similar.)

EPA is mandated to consult with DOE on the eligibility of technologies under the repowering provisions; the outcome is uncertain. Despite the importance of the issue, there is no statutory deadline by which EPA is to make its determination.

New Source Performance Standards. The 1990 Amendments to the CM repeal the percentage reduction requirement of Section 111. It is to be replaced with standards that --

> At a minimum, require any source subject to such revised standards to emit sulfur dioxide at a rate not greater than would have resulted from compliance by such a source with the applicable standards of performance under this section prior to such revision.

The phrasing of the provision "require any source" to meet at least the same emission rate as before has raised concern that the percentage reduction requirement was not really repealed at all. Senators Simpson, Baucus, and Chafee, after passage of the Senate version of S. 1630, expressed some reservations about whether vestiges of the percentage reduction requirements remained. However, in conference, the "require any source" phrase was not removed. Hence the actual effect of the provisions on percentage reduction and the need for utilities to install control technology on new powerplants regardless of coal sulfur content is unclear. EPA is to promulgate a new NSPS within 3 years after enactment.

Operational Issues

Pricing. Initial trading of SO2 allowances under Title IV has been bilateral and sequential -- not the multilateral and simultaneous trading that characterize a functioning marketplace. That this would occur, at least initially, was foreseen by several analysts. (See for example, Parker, Poling, and Moore. "Clean Air Act Allowance Trading," 21 *Environmental Law* 4, 1991.) The Chicago Board of Trade conducted the first allowance auction on Mar. 29, 1993, netted prices for allowances ranging from $122 to $450 per allowance. This result was less than the $300 an allowance price suggested by initial bilateral trading, and considerably less than the $500-$700 an allowance generally assumed during debate on the title.

The second allowance auction was conducted by the Chicago Board of Trade on Mar. 29, 1994. Prices for 1995 spot allowances rose on average from $156 in the 1993 auction to $159; prices for advance Phase 2 allowances rose on average from $136 in the 1993 auction to $148-9. Some analysts have suggested that the low prices for auctioned allowances do not represent low demand, but rather, a "bottom-feeding" mentality by participants who have already fixed their Phase 1 compliance plans.

In an interesting turn, Northeast Utilities has decided to donate 10,000 allowances to the American Lung Association for permanent retirement and to take the tax write-off, rather than sell them. Assuming a price of $300 an allowance, NU determined that a sale would result in an after-tax profit of $177 per allowance compared with a $123 per allowance savings on its tax liability. Assuming the State PUC agrees to the donation and the IRS agrees with the $300 an allowance value, NU and its ratepayers could receive a significant profit on these allowances without having to deal with the difficulties of putting them on the market. (For a further discussion of transaction costs, see *CRS Report 93-313 ENR*.)

Auctions. As noted above, EPA's first two auctions have been held under the auspices of the Chicago Board of Trade.

All the EPA offered allowances (175,000) were sold; however, almost none of the utility-held allowances have been sold. These privately held allowances generally have minimum prices floors that bidders have not be willing to match. With the second auction, the range of prices has tightened around $150 an allowance. This price is about $30-$40 an allowance below the price being received through private transactions.

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