

guarded by the administration. But we do know that before he was apparently muzzled by the White House, EPA Administrator Douglas Costle estimated the acid rain increases in New England would be as much as 16 percent. There will certainly be comparable increases in other pollutants.

Clean air is more than a desirable esthetic. It is a resource. Industries buy and sell it, just as they buy and sell clean water, crude oil, virgin ores and other commodities. When some of that clean air is consumed, it is no longer available to other industries in a State or region.

The air in most of these affected States is cleaner than in many parts of the country. I cannot speak for the Carolinas or the Middle Atlantic, but New England air is cleaner because we paid for it. We—our governments, our businesses, and our citizens—laid cash on the barrel head and bought ourselves basins of clean air. We installed pollution control devices. We regulated the growth of our industries. We restrained the greedy impulses of some groups. We paid for our clean air with hard cash and hard work.

The Federal Government under this bill takes that clean air away from us. The Federal Government has no more right to that clean air than it does to the money in your pocket. But worse, when the Federal Government under this bill takes that increment of clean air, it eliminates the room for new industrial growth which our region has preserved.

The Federal Government is, in effect, saying to us that we cannot have new paper mills or new tanneries or new anything else. We can have—and all we have under the pending bill—are powerplants that burn coal and put more dirt into the air.

There is a difference between what the Federal Government has the power to do and what it has the right to do. I know that the distinguished manager and the other supporters of the bill may prevail today. But every Member of the U.S. Senate who votes against my amendment had better be prepared to stand on this floor and defend his State someday. Today, it is the forests of Vermont or the clear air of Maine, but tomorrow the battlefield can just as easily be the Pacific Northwest or the vast Middle West.

Right now, in more than 100 different offices around the Senate, speakers are carrying my words. The persons on whose desks the speakers sit are probably ignoring what I say, even though this is an issue of vital importance, not just to my State, but to theirs as well.

Are the staffs of the Senators from Alaska, California, Oregon and Washington listening?

Are the staffs of the Senators from the energy-rich West, where water is a more precious resource than gold itself, listening?

Are the staffs of the Senators from Mississippi or Louisiana or Alabama or the other Deep South States listening? Their interests are at stake here too.

I hope the Senators of New England are listening, because it is our States that lie on the altar of energy today.

But do the Senators of the Middle Atlantic or the South Atlantic or the great farmbelts of the Midwest understand?

We are not talking about sacrificing only New England, we are talking about the precedent of sacrificing any State or any region to the God of Energy.

Any reasonable person would conclude that circumstances must demand such an extraordinary precedent. You would think that minimizing pollution from these facilities is impossible or next to it; or that the costs are astronomical. That was what I thought initially, but I was wrong.

Pollution from the plants can be held at present levels and it can be held there inexpensively.

Is 20 years worth of clean air worth the price of one and one-half aircraft carriers?

Is saving room for industrial growth worth 2 years of the budget for Congress?

Apparently the supporters of this bill think not. And I suppose that is easy enough for them to say, because they have no stake in my part of the country.

The cost of keeping our clean air in the bank is small. Emissions could be held virtually constant, at a relatively small cost. The Library of Congress has stated that my amendment would add as little as \$670 million to this bill or as much as \$2.36 billion.

Is that too high a price to pay for a decade or even two or three decades of clean air in New England?

The supporters of this bill have said that my State is still protected by the Clean Air Act. But in fact, these plants are exempt from many key features of the Clean Air Act.

NEW SOURCE PERFORMANCE STANDARDS

The supporters of this bill have said that imposing environmental controls would delay the conversions. But in fact, these conversions could be achieved quickly, even if sophisticated pollution control equipment were required.

The supporters of this bill have said that imposing environmental safeguards would drive up electricity rates. But in fact the most expensive equipment could be installed and rates could still go down, not up, due to high cost of oil.

If the Senate can sacrifice the economy or the environment of New England, the same can happen in other parts of the country as well.

The great rivers of the Pacific Northwest can be slowed by hydropower to silent pools with dead fisheries.

The great and fertile plains of the Midwest and the Dakotas can be exhausted for alcohol.

The air and water of the Old West can be poisoned by a policy that turns those States into the boiler rooms of America.

The historic beauty of the Atlantic States and their rugged fishermen and farmers can be sacrificed for the sake of offshore oil.

The lakes of the upper Midwest can be killed by acid rain.

The Deep South can find its energy prices driven skyward and forest yields

cut because of the insatiable energy demand of other regions.

Are these unrealistic possibilities?

I, for one, cannot believe they are unreal after examining this bill. It expresses a willingness as I perceive it to sacrifice the environment and the economy of New England even when that is unnecessary.

But more important than the cost is the precedent. We have clean air in New England because we have paid for it. We have striven for years to produce an environment which is cleaner than many areas and has room for economic growth. We have worked and sacrificed because those things are important to us.

When the Members of the Senate come to the floor later to vote on my amendment, they are not voting for the forests and streams of New England. They are voting for or against the special character of their own States. It is merely a coincidence that on this particular day the interests of New England are at stake.

Tomorrow or the next day or the year after, the interests may be yours. If the Congress can take the room for economic growth in New England or mortgage the quality of life in Vermont, it can do the same for other States and areas.

Mr. President, it seems to the Senator from Vermont that my colleagues have a clear choice. If they want to keep the air as clean as it is now in this country, they will vote for the Stafford amendment. If they are willing to let it become somewhat dirtier than it is now, they can vote for the Tsongas amendment. If they are willing to take the risk that the air will become a great deal dirtier than it is now, they can vote against both Stafford and Tsongas amendments and for the committee amendments.

Mr. President, I yield to the distinguished Senator from Maine.

Mr. MITCHELL. Mr. President, I rise to express my support for the Stafford amendment, of which I am a cosponsor. I believe this amendment is essential to the ultimate success of the coal conversion program. It will minimize the severe environmental impacts that will otherwise occur in Maine and all of the other States in the Northeast.

As we all know, most of the 80 powerplants to be converted under the pending legislation are in the Northeast, including three units located in Maine.

The environmental impacts of this coal conversion program are staggering. They are apparent to anyone who looks at the facts.

Yet from the day this legislation was proposed, throughout the legislative process thus far, no meaningful environmental safeguards have been included as a condition of the \$3.6 billion of Federal grants and loans that will finance these conversions.

Let me identify some of the specific environmental impacts, as estimated by the Environmental Protection Agency:

An increase of 285,000 tons of sulfur oxides annually;

An increase of 155,000 tons of nitrogen oxides annually;

A 15-percent increase in sulfur emis-

sions and a 31-percent increase in nitrogen oxide emissions from utilities in New England;

An increase of 16-percent in acid deposition in Maine and other New England States.

Mr. JOHNSTON. Will the Senator yield for a question?

Mr. MITCHELL. Yes.

Mr. JOHNSTON. Is it correct that those estimates by the Environmental Protection Agency first of all assume that all 107 plants proposed in the original proposition were included even though now that is down to 80? That is the first question.

The second question is: Is it not a fact that they assumed a 100-percent filling of the SIP's with respect to each of these plants when, in fact, the actual plan would call for something less than 80 percent?

Mr. MITCHELL. My understanding is that the answer to the first question is that it is not based upon an assumption of 107 plants but on 80 plants.

On the second one, it is based on a worst case analysis which is, of course, permitted under the existing legislation.

The reason for the increase in nitrogen oxide emissions is that there are negligible oxide emissions from oil-burning facilities, but coal produces large quantities of the substance. Nitrogen oxides from existing coal-burning utilities are largely uncontrolled; this is the reason that the coal conversion legislation will result in such large increases.

The acid rain increases are particularly disturbing. This phenomenon results from the transport of pollutants through the atmosphere by prevailing winds. During this transport the pollutants are transformed into acid compounds that are eventually deposited on land and water as acid precipitation. Maine and all the rest of New England are already receiving acid rain from pollution generated far from our borders.

Scientists believe that acid rain may cause a sharp decline and possible extinction of fish populations in streams and lakes. The acidity may also damage soil, resulting in reduced crop and forest yields.

Other effects attributed to acid rain are:

An eightfold increase in the acidity of Maine lakes in the past 40 years;

The probability that dozens, perhaps hundreds of Maine lakes will not be capable of supporting fish life in a few years; and

The loss of fish already in 90 percent of the Alpine lakes in the Adirondack Mountains.

This legislation forces the Northeast to pay the environmental price of reducing the Nation's dependence on oil. That is unacceptable and it is unnecessary, Mr. President.

I believe that converting these 80 facilities is in the national interest and I support it. It would reduce dependence of this country and my State on foreign oil. However, without the amendment proposed by Senator STAFFORD, myself and others this goal will be frustrated, not advanced.

If communities are presented with the fact that their air and water resources will be deteriorated beyond repair by a proposed coal conversion in their area, they will justifiably oppose it.

State and community leaders will also oppose coal conversions without meaningful pollution controls because the increased emissions of sulfur and nitrogen oxides may freeze out new industrial growth in the affected Northeast regions.

The tragedy of this legislation is that we can convert to coal cleanly. This amendment would accomplish this in the following ways:

Converting powerplants would have to hold their sulfur emissions to the levels currently being emitted;

These powerplants would also have to minimize emissions of nitrogen oxides, which would otherwise be completely uncontrolled;

These pollution reductions would be accomplished through the application of the "best practicable emission limitation," to be determined by the Environmental Protection Agency on a plant-by-plant basis;

If the plant chooses to meet its emission limit by installing pollution control equipment, Federal grants would pay for 75 percent of the total conversion costs, instead of the 25 percent in grants available in any other case;

Where the installation of pollution control technology is chosen, the powerplant would be eligible for a waiver of its emission for the time necessary to install the equipment.

This amendment insures maximum flexibility in the determination of the way in which each plant reduces its emissions. The emission control level at each plant would be based on factors specific to that plant, such as age, site limitations, availability of low-sulfur coal in the region, cost of compliance, and emission levels achievable at that plant.

The best practicable emission limit could be installation of scrubber technology, use of low-sulfur coal, preparation of the coal before it is burned, or more stringent control of other facilities in the area to offset the additional pollution from a coal conversion.

This proposal in essence, requires the converting utilities to maintain an environmental status quo in return for a Federal investment in their capital costs of conversion.

It will be said that we cannot afford the additional cost of this amendment. I say that we cannot afford a coal conversion program without the environmental safeguards this amendment would provide.

The powerplants that convert to coal as a result of the pending bill will operate for the next 10, 20, or even 30 years. The decision made on this amendment will determine whether or not the Northeast is forced to have its environment involuntarily degraded for that period of time in the name of energy expediency.

Our clean air, our lakes, our fish and wildlife, our forests, our soil, are among our most valuable assets. They represent a way of life that we in New Eng-

land have successfully protected thus far. I urge my colleagues to respect the importance of these resources not only to the people of the Northeast, but also to the country as a whole, by adopting the Stafford amendment.

(Mr. LEAHY assumed the chair.)

Mr. MITCHELL. Mr. President, let me give a more detailed explanation of this amendment.

The objectives of Senator STAFFORD's amendment are first, to hold the sulfur oxide emissions from converting powerplants to the levels they are existing today, and second, to minimize nitrogen oxide emissions from the converting plants.

There are negligible nitrogen oxide emissions from oil-burning facilities, but coal produces large quantities of the substance. Nitrogen oxides from existing coal-burning utilities are largely uncontrolled; this is the reason that the coal conversion legislation will result in such large increases. Available retrofit technology is not capable of holding NO_x emissions to existing levels, which would be close to zero emissions. The amendment therefore, will only minimize NO_x emissions. There will still be an increase of about 20 percent in NO_x levels annually, compared to a 40-percent increase without the Stafford amendment.

BEST PRACTICABLE EMISSION LIMIT

The mechanism by which the amendment will accomplish its purpose is the requirement that each plant comply with a "best practicable emission limit," to be determined by the Environmental Protection Agency for each individual powerplant.

This approach was chosen to provide flexibility in the method by which each plant will meet its cleanup requirement.

Each individual requirement will be based on such factors as the amount of cleanup that can be achieved at a given plant, the age of the facility, site limitations on the installation of control equipment, and the cost of compliance. In short, the emission limit will reflect what is practicable or feasible at that plant.

The powerplant may choose how to meet its given emission limit. It might choose to buy low-sulfur coal to avoid installing control equipment; it could elect to clean up dirty coal before burning it, through "coal-washing" which takes out some of the sulfur; it could elect to install controls on the stacks of the plant—scrubbers—that "scrub" the sulfur out of the emissions before they are released from the stack.

Another control alternative is to leave the converting facility's emissions only partially controlled, and get the rest of the required cleanup from other facilities in the area. This concept, called "offset," permits an industrial source to "offset" the pollution it will add to an area with further cleanup of another source in the vicinity, so that there is no net emissions increase.

SULFUR CONTROL TECHNOLOGY

For many years, the efficacy and dependability of scrubber technology has been hotly debated by the electric utilities and the EPA. It is now fact that the technology is available and does work.

As of December, 1979, 65 scrubbers were in operation in this country, and another 42 are under construction.

There is no question but that scrubbers raise the capital costs of conversion as well as operation and maintenance costs for the utility. The advantage of installing a scrubber is that the utility need not depend on sometimes uncertain and always expensive sources of low sulfur coal; it can use plentiful dirty coal available at much lower prices. This is the advantage of control technology from an environmental point of view as well: the method of control is not thwarted by factors beyond the utility's control, such as a miner's strike at a low sulfur mine.

INCENTIVE FOR SCRUBBERS

The Stafford amendment encourages the installation of scrubbers as the method of compliance with "best practicable emission limit" by raising the Federal grant from 25 percent to 75 percent of total conversion costs if the utility chooses to comply with a scrubber.

NITROGEN OXIDE CONTROL METHOD

Nitrogen oxide emissions from existing powerplants can be controlled by modification of the combustion process.

The "best practicable emission limit" would most likely be "low NO_x burners", because this is the only feasible nitrogen retrofit technology available at a reasonable cost.

The converting plants will have to install new burners in most cases anyway, so the Stafford amendment would result in the installation of the cleaner burner.

EPA estimates the total cost of a best practicable emission limit requirement for nitrogen oxides to be about \$25 million.

COSTS OF THE AMENDMENT

It is difficult to estimate the total cost of the additional requirements in the amendment for two reasons. First, the amendment gives utilities the flexibility to choose how they will comply and it is obviously not possible to predict their choices. Second, there is disagreement about the costs of each control method among the utilities, the Department of Energy and the Environmental Protection Agency.

The Congressional Research Service estimated the cost of this amendment to be between \$670 million and \$2.4 billion. The low represents no scrubbers chosen; the high represents a choice of scrubbers everywhere, with each plant receiving a 75 percent Federal payment of conversion costs.

There will be opposition to raising the \$3.6 billion cost of the coal conversion legislation at all. However, the Federal Government is requiring these conversions; the decisionmaking processes of States and localities are being significantly preempted. One of the prices that will be paid by States and localities is environmental degradation, without the Stafford amendment. It seems reasonable to also provide Federal funds to minimize the amount of degradation from this mandatory program.

Failure to control the increased emissions from the proposed coal conversion

program has significant ramifications. Many of the converting facilities are old, and are close to the end of their useful lives. Without this Federal coal conversion subsidy, many of the facilities would be replaced with new plants subject to more stringent new source performance standards. Now, however, the old plants will continue to operate and to be substantial polluters in an area for 10, 20, or even 30 years.

Beyond the actual environmental effects of these increased levels of sulfur- and nitrogen oxides, the additional pollution will consume the air resources available for economic growth in the Northeast.

CONTRADICTORY ESTIMATES OF EFFECTS OF COAL CONVERSIONS

The Department of Energy and EPA disagree about the emissions increases from the coal conversion legislation. This results in differences with respect to estimates of increases in acid rain in the Northeast also.

The differing emissions estimates are due to different assumptions used by each Agency in its calculations.

DOE estimated an increase of 128,000 tons of sulfur annually from the Administration proposal while EPA estimated an increase of 330,000 tons of sulfur annually from the administration bill.

DOE and EPA agreed on the arithmetic but disagreed on the appropriate figures to compare when predicting the sulfur increase.

EPA compared the current actual emissions from plants with the maximum allowable emissions permitted under each State implementation plan after conversion to coal.

DOE compared current actual emissions of these plants with 80 percent of maximum allowable emissions under State plans after conversion to coal. DOE then reduced this quantity by one-third, based upon EPA's statement that roughly two-thirds of the emissions are likely to fall over land, and one-third over sea. DOE used 80 percent of allowable emissions in order to reflect a "safety factor" in utility attempts to comply with an emissions limit.

EPA's numbers reflect a worst case analysis, as well as its anticipation that present State Implementation Plan requirements may be relaxed further for many of the converting plants.

EPA believes that DOE's additional adjustment for the proportion of emissions that goes "out to sea" is not appropriate. Since the same proportion of today's actual emissions goes "out to sea", the relationship of today's actual emissions to the potential increases under the bill would not change, whether or not the "out to sea" fraction is discounted. The percentage increase in regional emissions is more relevant to acid rain concerns than the absolute magnitude of the increase.

Mr. JOHNSTON. Mr. President, I announce to my colleagues that it is my intention, after the expiration of a reasonable time for debate on these two matters, which are very closely related, to move to lay the Tsongas amendment on the table. I, therefore, invite any of our colleagues who would like to be

heard on the amendment to come and speak as expeditiously as possible.

(Mr. MITCHELL assumed the chair.)

Mr. JOHNSTON. Mr. President, I shall be brief. These are two what we call in the trade "killer" amendments. They are killer amendments because the bill still cannot stand this kind of expenditure and still be a workable bill.

Mr. President, what we are trying to achieve, or what we should be trying to achieve when we spend dollars for clean-up, is to get the most cleanup for the fewest dollars and to do so in the most equitable, the most efficient way. Neither one of the pending amendments, which are first cousins to one another, accomplishes that, Mr. President.

According to the Department of Energy, the total SO₂ produced in all 80 powerplants here is 111,000 tons per year. Mr. President, I have previously identified over 30 individual powerplants in this country, most of which are in the Midwest—some in Tennessee and Missouri—which are downwind from the State of Maine and other Northeastern States, which, individually, produce more than 200,000 tons in some cases—which is double the total amount in this bill—300,000 tons per year in other cases. Mr. President, if my colleagues would think for a minute about the implications of those figures—let me repeat them, because they bear repeating. There are over 30 powerplants in this country, each of which, individually, produces two and three times the total amount of SO₂ that this bill produces. Individually, Mr. President.

So what we have here is an amendment in the case of the Stafford amendment which DOE says would virtually double the cost of this bill—more than double the cost—and in some cases, produce absolutely no results.

Mr. President, let me repeat what the three criteria ought to be when we spend money to clean up existing plants. Those are, first, the age of the plant. Why should we be spending Federal dollars on plants which have a usable life of 15 to 20 years, which is the average life of the plants under phase 1 here?

In 15 to 20 years we are going to spend another \$2 billion to \$3 billion to clean them up, and they wear out at the end of 15 to 20 years.

If we had unlimited dollars in this country, if we could spend \$100 billion, or whatever the figure is, on cleaning up existing plants around the country, fine. Let us clean them all up. Do not give any attention to where they are or how many years they have left.

Mr. President, we do not have unlimited dollars. So let us not put those dollars on plants which have a useful life of 15 to 20 years, but on the plants that have a useful life of 30 to 40 years, because there are some of these Big Berthas that have 2 to 3 million tons per year SO₂ plants, that do have a useful life of 30 to 40 years.

The second criteria, Mr. President, for expenditure of dollars is location of the plant.

If we are going to pick and choose between plants, clean up one and not the other, and that is what we are doing,