SITING OF MAJOR FACILITIES

presentations at the 104th meeting of the

Ohio River Valley

Water Sanitation Commission

May 9, 1979

MEMBERS OF THE COMMISSION*

ILLINOIS
R. S. Engelbrecht, Ph. D., Professor of Environmental Engineering, University of Illinois
Daniel Malkovich, Editor and Publisher, *Outdoor Illinois*
Michael P. Mauzy, Director, Illinois Environmental Protection Agency

INDIANA
Robert A. Holt, Chairman, Stream Pollution Control Board
Ralph C. Pickard, Assistant Commissioner for Environmental Health, Indiana State Board of He
Robert O. Yoho, M. D., State Health Commissioner

KENTUCKY
Frank C. Campbell, Vice President and Chief Engineer, Louisville Water Company
C. Frank Harscher, III, Secretary, Department for Natural Resources and Environmental Protec
Frank L. Stanonis, Ph. D., Professor, Geology and Geography, Indiana State University

NEW YORK
Robert L. Barber, Assistant Professor of Government and Economics, Jamestown Community Colle
Robert F. Flacke, Commissioner, Department of Environmental Conservation
(Vacancy)

OHIO
Christine M. Carlson, League of Women Voters
Lloyd N. Clausing, Director of Utilities, City of Portsmouth
James F. McAvoy, Director, Ohio Environmental Protection Agency

PENNSYLVANIA
Wesley E. Gilbertson
Clifford L. Jones, Secretary, Department of Environmental Resources
Gail Rockwood, Vice Chairperson, Citizens Advisory Council to the Pennsylvania Department of Environmental Resources

VIRGINIA
Warren L. Braun, State Water Control Board
Millard B. Rice, State Water Control Board
Kenneth B. Rollins, State Water Control Board

WEST VIRGINIA
Edgar N. Henry, Director, West Virginia Water Development Authority
George E. Pickett, M. D., M. P. H., State Director of Health
(Vacancy)

UNITED STATES GOVERNMENT
Richard C. Armstrong, Chief, Engineering Division, U. S. Army Engineer Division, Ohio River
Norman H. Beamer
John C. White, Regional Administrator, Region IV, U. S. Environmental Protection Agency

OFFICERS

Warren L. Braun, Chairman
R. S. Engelbrecht, Ph. D., Vice Chairman
Albert J. Brooks, Treasurer
Leo Weaver, Executive Director and Chief Engineer

LEGAL COUNSEL

Leonard A. Weakley, Taft, Stettinius & Hollister

EXECUTIVE DIRECTOR AND CHIEF ENGINEER EMERITUS

Edward J. Cleary

* As of August, 1979

SITING OF MAJOR FACILITIES

August, 1979

Ohio River Valley Water Sanitation Commission
414 Walnut Street Cincinnati, Ohio 45202

FOREWORD

Public interest in environmental issues continues to soar, and this year the Ohio River Valley Water Sanitation Commission (ORSANCO) responded by hosting a public "annual meeting," at which important environmental issues and ORSANCO's particular role were discussed. One session was devoted to the regulation and siting of major energy-related facilities. Because of widespread interest in that issue, the presentations of the meeting have been gathered into this booklet. The speeches which follow lay the groundwork upon which decisions can be made to facilitate siting of major energy-related facilities in the Ohio River corridor.

Warren L. Braun

Warren L. Braun
Chairman

TABLE OF CONTENTS

ANOTHER GREAT REHEARSAL

Boyd R. Keenan

Chairman Warren Braun demonstrated a superb sense of timing when--prior to the Three Mile Island accident and other recent developments--he chose to preface ORSANCO's 31st year with this unusual "annual meeting." The need to devise a strategy across the country for siting power plants must be evident to everyone in this room. If a strategy cannot be found that is acceptable to moderate environmentalists and developers alike, there is a possibility our federal system will become an endangered species.

This audience is also aware that no region of the nation is likely to be impacted more dramatically by future energy-related events than the Ohio River Valley. Water, coal, and probably the best sites for power plants available anywhere lie within the Valley. Some of us still argue that conservation and alternative energy sources should be given greater attention. Political instability in Iran and other oil-exporting countries and current challenges to the nuclear option should alert us to prepare for the unexpected.

Who in the energy field has not thought the unthinkable--that we might require a Pearl Harbor in energy before America recognizes how deeply the nation is divided on this broad topic? The social chaos during New York's 1977 summer blackout and the political reaction to the nuclear accident near Harrisburg, Pennsylvania, have come close to providing just such a Pearl Harbor.

We desperately need a graphic metaphor to persuade the people of America, particularly those in the Ohio Valley, that the problem of siting power plants and other energy conversion facilities is very serious. Historian Mark Van Doran, in his book on the U. S. Constitutional Convention of 1787, seems to suggest such a metaphor. As the title for his book, he chose *The Great Rehearsal.* The summer convention at Philadelphia, he argues, was really the preparation for an unprecedented experiment in democracy. A similar experiment in democracy now faces us, requiring another great rehearsal. In 1787, the challenge was to develop an institutional system that could fuse together 13 young ragtag states. Now the task of a rehearsal is for six, eight, or ten bewildered states in the eye of the energy hurricane to show the nation that confronting the power plant siting dilemma does not defy rational, institutional forms.

Boyd R. Keenan is Co-director of the Ohio River Basin Energy Study and Professor of Political Science at the University of Illinois.

Six years ago a group of Ohio Valley residents felt that some kind of rehearsal was necessary, though even they could not possibly have imagined its scope. Organized under the name, "Save the Valley," and centered between Louisville and Cincinnati, the group realized that something new was on the horizon. They admitted they did not understand it, and they felt they were getting no answers from government at any level. So Save the Valley marched on Washington. The result was a directive from the U. S. Senate Appropriations Committee to the federal EPA. The agency was told to assess possible social, economic, and environmental impacts of proposed power plants and coal developments on the lower Ohio River Basin through the year 2000.

EPA awarded grants to a group of universities to begin the three-year assessment. Now researchers from nine universities in six states are attempting to complete what is known as the Ohio River Basin Energy Study (ORBES). The Senate mandate originally cited only four states for attention: Indiana, Kentucky, Ohio, and Illinois. But upon the request of West Virginia's leaders, virtually all of that state was added to the study region, along with southwestern Pennsylvania. Also, the study region was expanded westward and northward in Illinois beyond the drainage basin boundaries to include the massive coal reserves there (Figure 1).

Shortly after the Senate mandated this study, Kentucky Governor Julian Carroll proposed in September of 1976 that governors of five of these states--all but Pennsylvania--enter into an Ohio River power plant siting plan. The governor referred to the lack of institutional arrangements to handle interstate siting problems in the future. Apparently, response from neighboring governors to the north was such that he placed the idea on a "back burner."

Two years passed before other similar proposals surfaced. But in September of 1978, the idea began moving toward the front burner. For example, on September 13, the three regional EPA administrators with responsibility for the Ohio River Valley convened near Cincinnati. Their mission was to plan a coordinated effort for future activities, particularly regarding problems related to air quality.

The very next day, September 14, ORSANCO met at Pleasant Hill, Kentucky, and it soon became evident that some spokesmen of the Bluegrass State wanted the idea of a multistate siting arrangement moved back to at least a warm front burner. ORSANCO Commissioners accepted a proposal from their colleague, Eugene Mooney, Secretary of Kentucky's Department for Natural Resources and Environmental Protection, for the Commission to create a task force to study a possible multistate agreement on siting power plants and other facilities.

Recall that this renewed interest came after the Arab oil embargo of 1973-4 and after the 1977 New York blackout, but it occurred before the Iranian revolution, before the nuclear accident, and before Energy Secretary James Schlesinger reportedly assured

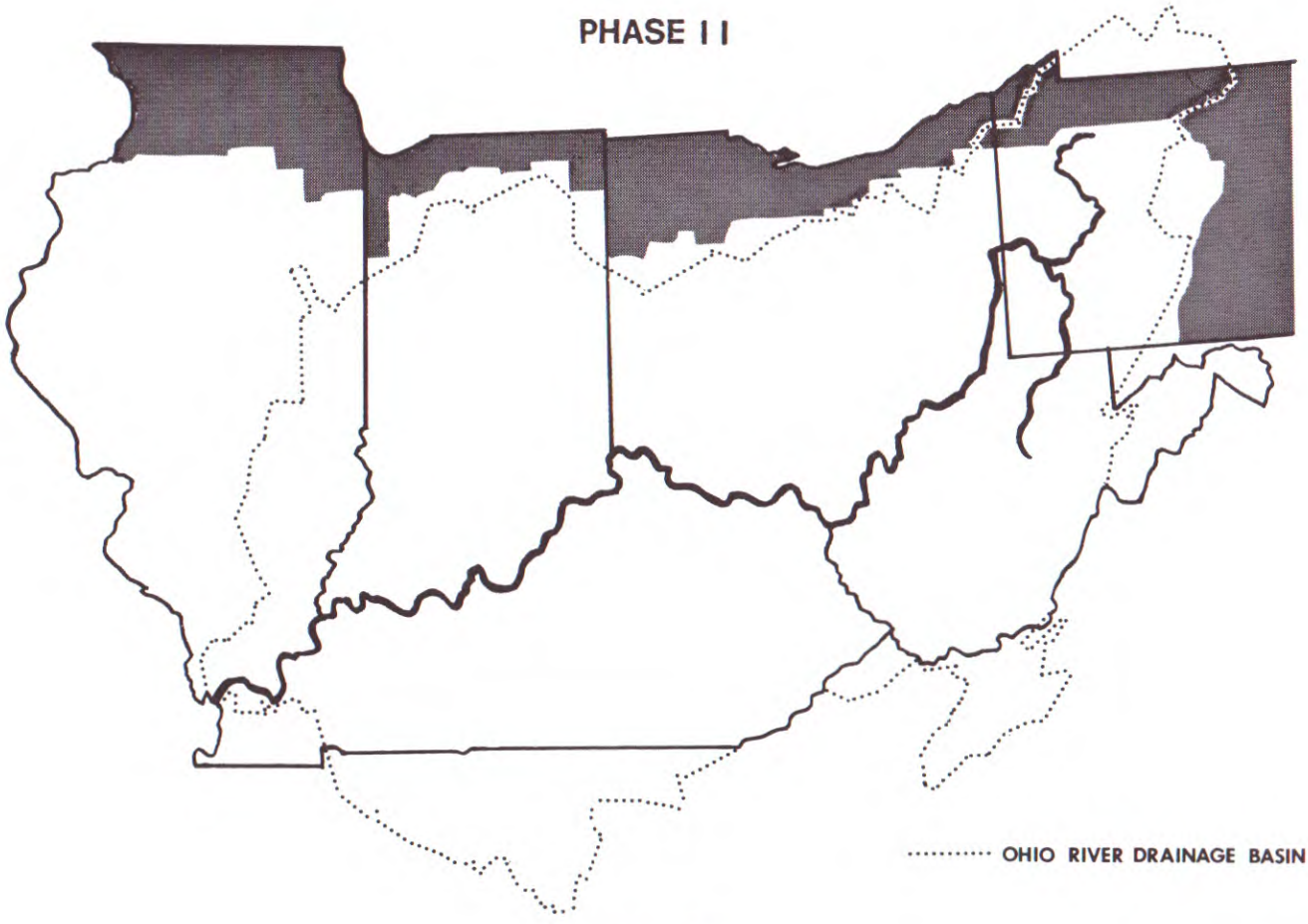


FIGURE 1

West Virginia Governor John D. Rockefeller that he would support Rockefeller's plan to burn more West Virginia coal. Apparently Schlesinger also agreed to support efforts by Rockefeller to induce oil-burning utilities along the East Coast to purchase more electric power from coal-fired plants in the Ohio Valley and Appalachia. If these reports are correct and if the electric grid technology could be made capable of wheeling electricity through power lines to the east, we could have a new set of elements--good or bad--in the future of the Ohio River Valley.

It has also been reported that Governor Rockefeller is seeking Schlesinger's support for encouraging utilities in the east to locate new power plants in the Valley and in Appalachia, close to coal reserves. So a great number of knowledgeable officials apparently have reached the conclusion that the "great rehearsal" for America's fight for energy-environmental sanity and survival will be staged in the Ohio River Valley. In a few minutes, Professor James J. Stukel, Co-director of the Ohio River Basin Energy Study (ORBES), will offer some preliminary ORBES findings which may be relevant to ORSANCO. But let me first note some general points, so he can devote his remarks entirely to the more specialized technical complexities.

Contrary to the opinions of many when the ORBES study was initiated, water supply and water quality questions relating to power plants do not now appear to be so serious as air quality challenges. Since the early industrialization of the northern portion of this valley, interstate water conflicts have attracted most of the attention, until recently. Now, ironically, with the increasing concentration of industry--particularly power plants--to the south, persistent winds often carry air emissions up the river.

We could share a laundry list of problems regarding land use, water, coal mining, labor migration, and other issues related to power plant construction. But the challenge of preserving air quality seems best to illustrate some of the difficulties ahead. You are all aware that a major new thrust of federal legislation is to assure that areas of the country with relatively clean air, such as some portions of the Ohio Valley, not be affected adversely by new industry. The philosophy behind this stance is simply to prevent all areas of the country from becoming as polluted as some older industrial centers.

To keep this from happening, Congress and EPA have set limits on levels for various air pollutants, according to a complex classification which Professor Stukel will describe. In the Ohio Valley, with such a large number of additional power plants being proposed, some interesting interstate political dynamics are becoming visible.

For example, approval of a large plant on one side of the river may mean, in effect, that the facility will use up a great deal--or perhaps all--of the available clean air, as defined by Congress, on both sides of the river. Thus, Kentucky's plans for new power plants and other industry could be thwarted by Indiana construction. Professor Stukel will show that this condition is probably not confined to immediate areas and that major competition among ORSANCO states could result.

Behind all of Professor Stukel's elegant charts a stark reality will emerge. Another frontier--the air frontier--is apparently closed on this vast continent. To the layman, it seems that there is the possibility that if present environmental laws remain on the books and a mechanism for orderly power plant siting is not developed, power production and overall economic development could be severely affected.

The ORBES charge from Congress and the EPA is not to make policy or even predict the future. Public representatives must do both. Our task is to assess impacts that might be expected from various levels of growth and various mixes of fuel use. Professor Stukel and I, as co-directors and members of the ORBES Core Team, have come to the conclusion that institutional uncertainties in the context of plausible futures do represent a threat to our national security and well-being.

Communities, states, and utilities most certainly will compete vigorously for the remaining clean air if standards remain generally high. One episode gives an indication of how economic paralysis could actually set in. Since the Arab embargo, Indianapolis Power and Light Company (IPALCO) has been planning to build a new plant on the Indiana side of the river southwest of Cincinnati. At the urging of the Commonwealth of Kentucky, Region V of the federal EPA disapproved the plant's construction. Why? Because an air quality model utilized by Kentucky suggests that IPALCO will not be able to achieve certain air quality standards. Both the State of Indiana and IPALCO claim Kentucky is really protecting a utility in that state which may wish to expand its own existing plant across the river and is seeking to save the air rights, or increment, for itself. Armed with this conviction, IPALCO took its case directly to the U. S. Court of Appeals in Chicago. Thus, probably for the first time in American history, a public utility sought a federal injunction to prevent any other utility in the region from being granted a permit until it, IPALCO, was given some legal relief. This example illustrates why we fear that competition among the states over scarce air could affect broad industrial development in the Valley.

As recently as two months ago, some of you might have suggested the answer to the dilemma would be to build nuclear plants on the river, since such installations normally do not emit noxious air pollutants. But even if public confidence in nuclear power is restored, a parallel set of legal entanglements surrounds nuclear plants in the Valley. Long before Three Mile Island, Kentucky had moved in the courts against the State of Indiana and another Indiana public utility which is constructing a nuclear plant 50 miles downstream from the coal-fired facility site just discussed.

Why the problem? The Supreme Court has held for more than 150 years that Kentucky owns the Ohio River. Kentuckians vow to fight forever to keep Indiana from shipping nuclear materials on *their* water to cool a Hoosier nuclear plant. But what happens if the

Supreme Court accepts a federal river-master's recommendation that the center of the river become the boundary of the five affected states? With or without such a change in river ownership, significant political and institutional problems lie ahead.

A major scene of the "great rehearsal" for America's ultimate energy drama will center around the choice of a vehicle to provide for systematic development of power plants and other facilities in this valley. ORBES will not recommend such a vehicle, but it will attempt to identify options and provide all possible data on advantages and disadvantages of such options.

What are these options? Some believe the electric utilities themselves, and perhaps related industries in the Valley, should be able to devise a voluntary regional system for siting plants. Others fear that nothing short of federal entry into this arena can assure the country of both adequate electric power and acceptable environmental quality. Among some, of course, there is sentiment that an interstate compact entity is required to handle the task. Still others argue that rapid development of river ports on the Ohio is becoming as troublesome as the competition for clean air. Some of these folks conclude that rivalries among communities and states over port sites, power plant locations, other industrial facilities, and clean air all argue for a new multipurpose valley-wide association or authority to aid in making vital decisions.

Finally, a host of other options emerge. One option would be to do nothing, of course. Others would be to strengthen an existing water-related planning body such as the Ohio River Basin Commission and hand it an additional assignment, or to encourage those states which do not have formal power plant siting commissions--all except Ohio--to form such commissions, creating a consortium of state siting commissions.

As university faculty members, ORBES researchers are not primarily concerned with which institutional choices are made by political and industrial leaders. Rather, we are concerned with our responsibility to provide decision-makers with all available information. In a year or so, we hope that a final ORBES report will be in the hands of ORSANCO Commissioners for whatever use they may wish to make of it. By then it is just possible that another "great rehearsal" will have indeed begun in earnest. And judging from the past vigor and rich tradition of ORSANCO, I am certain that many of you here will have leading roles in that drama.

INSTITUTIONAL PROBLEMS: PRESERVING AIR QUALITY

James J. Stukel

My presentation will focus on air quality problems that currently exist in the Ohio River Valley. The distribution of electrical generating facilities in the Ohio River Basin Energy Study (ORBES) region in 1976, the year our study began, is depicted in Figure 1. Each dot in Figure 1 represents either a coal-fired or hydroelectric unit with a generating capacity of 25 megawatts electricity or greater. The vast majority of these are coal-burning units that utilize local, high sulfur coals. The burning of these coals results in the formation and the emission of a gaseous pollutant called sulfur dioxide (SO_2). We will consider the impact of SO_2 emissions both on the Valley and the eastern part of the United States. To examine this problem, we will analyze the location and the intensity of source emissions, the fate of the emissions in the atmosphere, and the institutional implications of these emissions.

The intensity of sulfur dioxide emissions for various Air Quality Control Regions (AQCR) is shown in Figure 2. The darker areas represent those AQCR's with the highest SO_2 emissions; the moderately shaded areas represent the next lower level; and the white areas are those which have a relatively low amount of SO_2 emissions. Note carefully not only the dark regions but also the light regions--those areas where there are low SO_2 emissions.

What happens when SO_2 is emitted into the air? To answer that question, we will examine air mass trajectories for the ORBES region. What is an air mass trajectory? Picture yourself in a balloon being carried along by the air. An air mass trajectory is the path the balloon follows as it moves along with the air mass, a body of air moving in a given direction. The black lines shown in Figure 3 describe typical trajectories for a 24-36 hour period in the ORBES region. If SO_2 is emitted into an air mass, it will also move along the same paths as our balloon, or along the air mass trajectories. During transit, a fraction of this gaseous SO_2 is transformed into a sulfate, which is a particulate pollutant. It is important to realize at this point that SO_2 emissions result not only in an increase in gaseous pollutants but in total suspended particulates (TSP) as well.

Let us now mentally superimpose the air mass trajectories shown in Figure 3 over the SO_2 emission areas shown in Figure 2. It is clear that as the air mass passes over each successive emission area, the SO_2 concentration within the air mass will be increased. Further, as the air mass moves towards the northeast, a

---

James J. Stukel is Co-director of the Ohio River Basin Energy Study, Director of the Office of Energy Research, and Professor of Environmental Engineering and Mechanical Engineering at the University of Illinois.

ELECTRICAL GENERATION FACILITIES
ORBES REGION — 1976

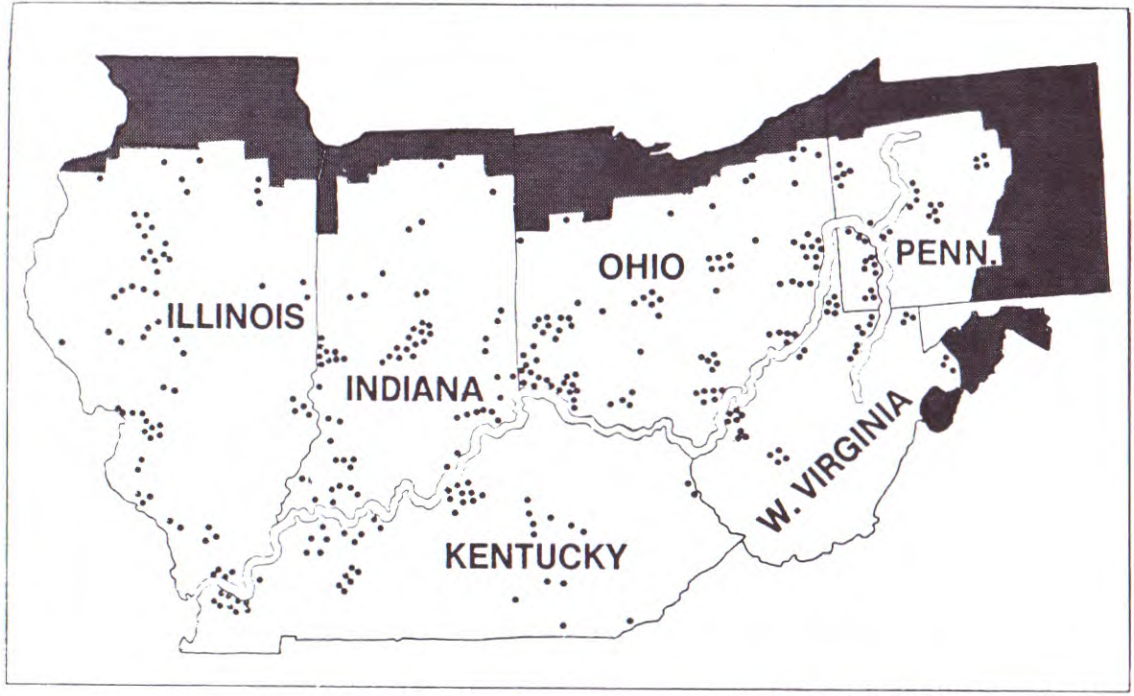


FIGURE 1

EMISSION DENSITY

SOURCES OF SO_2

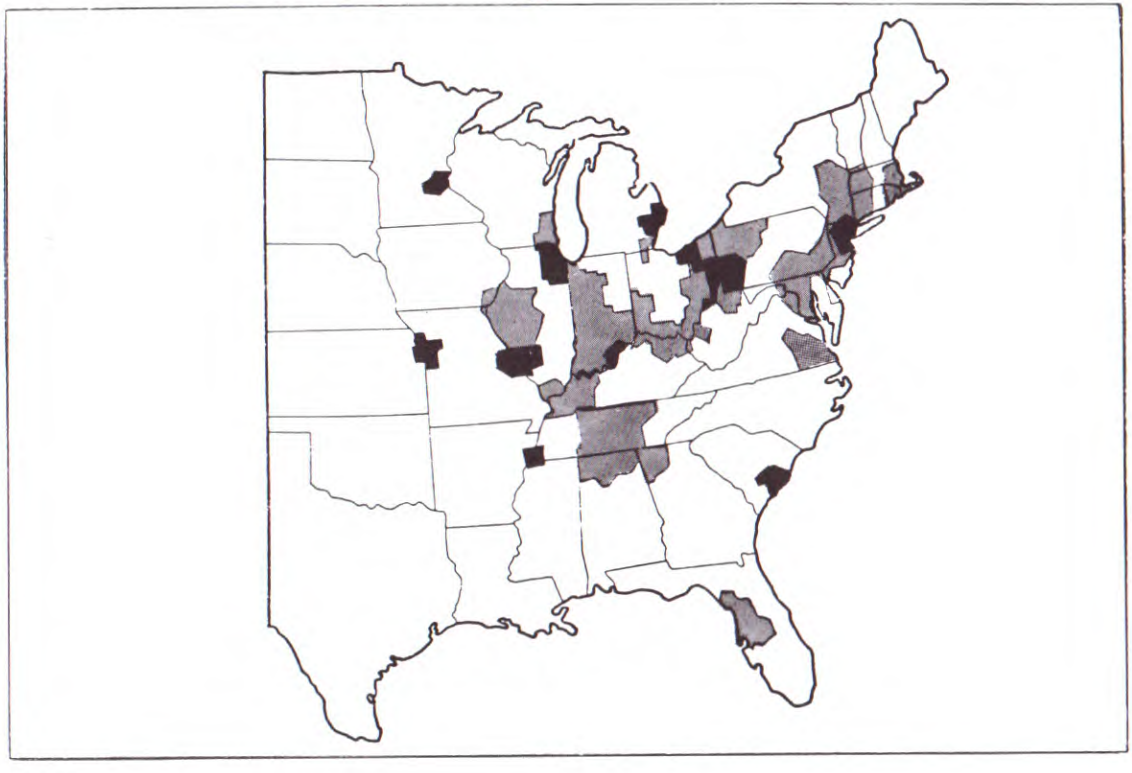


FIGURE 2

AIR MASS TRAJECTORIES
AT 600 METERS

FIGURE 3

fraction of the sulfur oxides will be converted to sulfates and the sulfate concentration in the air mass will increase. If these air mass trajectories persist long enough, a sulfate episode is possible in the ORBES region.

Has such an episode ever occurred? Yes, in August, 1974. Measured sulfate values during a four-day period in August, 1974, are shown in Figure 4. The darkest area had the highest concentration of sulfates, with measurements of 30 micrograms or greater per cubic meter. The next area, which is moderately shaded, shows measurements of 25 to 30 micrograms. Now let us compare the areas of highest measured sulfate concentrations with the areas of SO_2 emissions (Figure 1). Note that many areas with high SO_2 emissions have relatively low sulfate concentrations, whereas areas with virtually no sulfur oxide emissions have the highest sulfate concentrations. This means that the maximum impact of pollutant concentrations may occur in areas where pollutant emissions are minimal or zero.

Let us now examine the sulfate concentrations in Wheeling, West Virginia, during this time. Wheeling is of interest because (1) measured sulfate concentrations are available; (2) it is on the western border of Pennsylvania, a state that has air quality standards for sulfates; and (3) it is sufficiently far downwind of SO_2 emission sources in Illinois, Indiana, Kentucky, and Ohio to reflect the concentration of sulfates that may result from these sources. Figure 5 shows the range of measured monthly sulfate concentrations for certain months during 1974 and 1975. The break in each bar represents the average concentration observed each month. The dotted line at 10 micrograms per cubic meter is the current Pennsylvania monthly air quality standard for sulfates. Remember that Wheeling, West Virginia, is on the western border of Pennsylvania. Now suppose you are the air pollution control office or the governor of Pennsylvania and you wish to enforce your air quality standards. Figure 5 reveals that during this period average monthly sulfate concentrations passing into Pennsylvania by way of air masses equalled or exceeded the allowable concentration in Pennsylvania. Further, the average sulfate concentration for July, 1974, exceeded the 24-hour sulfate standard in Pennsylvania, which is 30 micrograms per cubic meter. The average for the entire month was greater than the allowable 24-hour standard! When it is recognized that other pollutants, such as particulates, are also carried along in air masses, it is clear that the long-range transport of pollutants from industrial development in upwind states can affect industrial development in downwind states. That, in my view, is a potentially serious institutional problem.

The Pennsylvania dilemma is one in which the air quality ambient standard for sulfates is violated. Are there any other air pollution problems where ambient standards are violated? The federal Clean Air Act requires that air which is currently clean must stay relatively clean. To realize this objective, the Environmental Protection Agency (EPA) has established a plan called the Prevention of Significant Deterioration (PSD). Under the PSD plan, EPA defines a baseline concentration of pollutants in an area and allows an increase in pollution to a certain level. The difference between the baseline concentration and the increased pollution level is called

SULFATE EPISODE

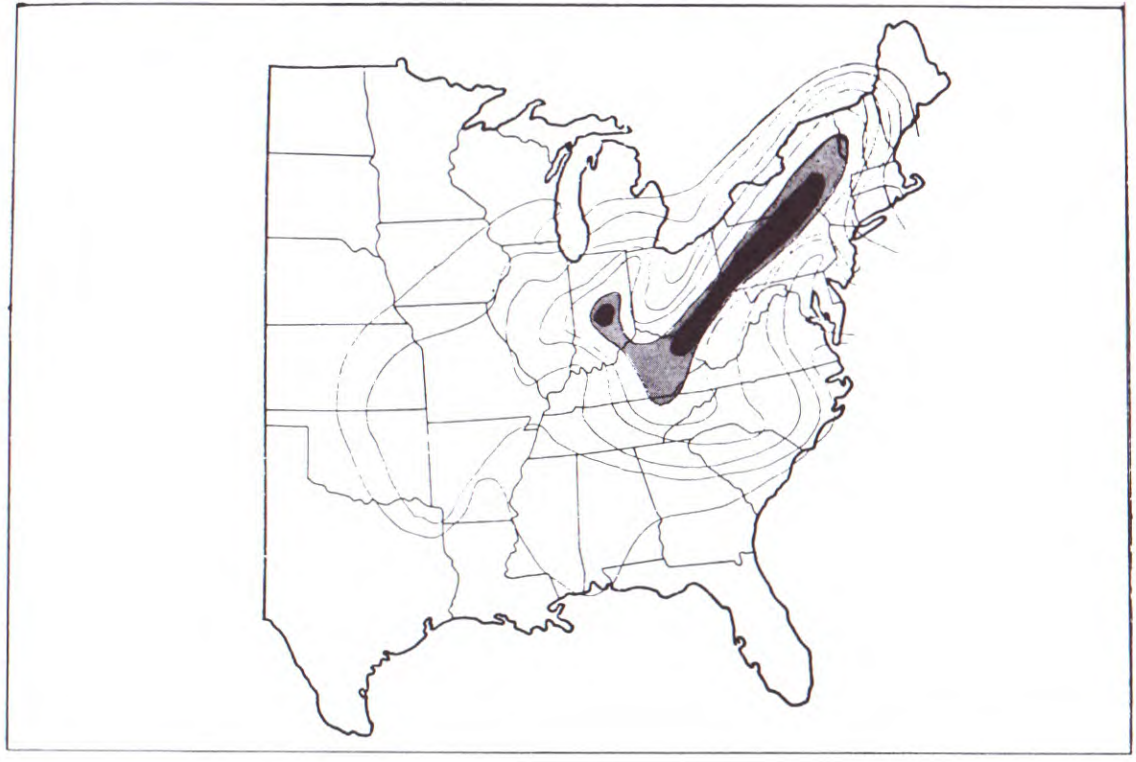
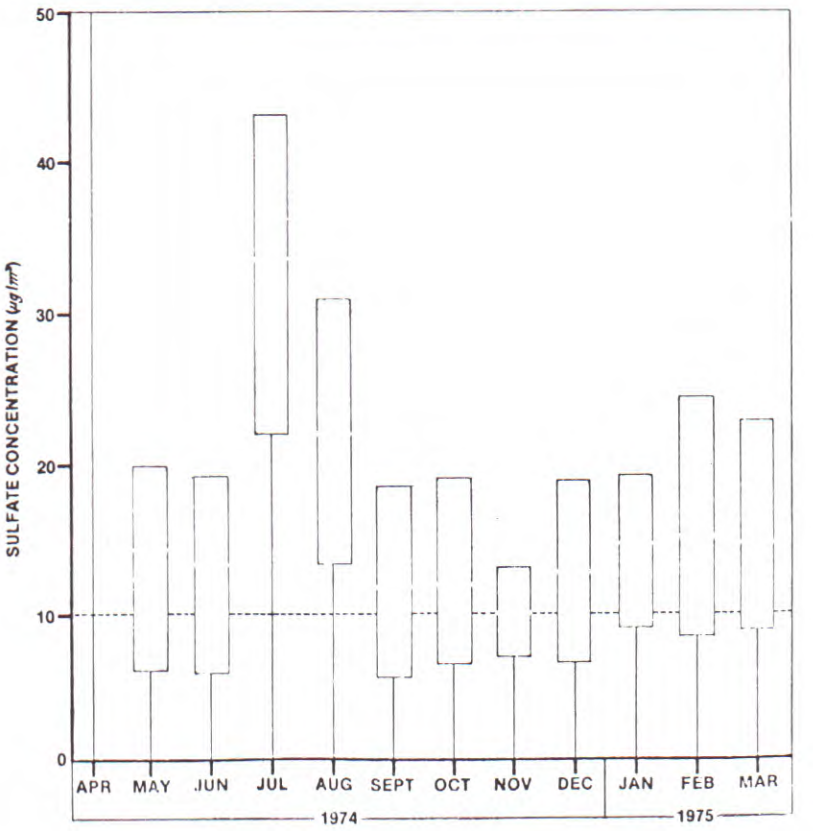


FIGURE 4

MONTHLY AVERAGE SULFATE CONCENTRATIONS

WHEELING, WEST VIRGINIA



SOURCE: Hidy, Tong, Mueller, et al., 1976

FIGURE 5

an increment. Suppose you wish to expand industrial activities in a particular region of a state. In simplest terms, EPA will establish, by modeling, a baseline pollution level for that area prior to development. The industrial developer will be allowed to degrade the air, by increased emissions, until a certain predetermined increment level of pollution has been reached. The pollutant concentration resulting from this development must always be less than the prevailing secondary ambient standard.

Now suppose you reside in Pennsylvania or West Virginia and EPA has established baseline concentrations. In addition, plans have been made to develop these states' resources over the next 20 years. At the same time, similar planning activities are underway in states upwind, e.g., Illinois, Indiana, and Ohio. Given the air mass trajectories shown earlier and the concomitant long-range transport, it is a genuine possibility that a fraction of the allowable increment established by EPA in Pennsylvania and West Virginia will be exhausted because of the long-range transport of pollutants from upwind states into these states. Thus, development plans in these states are potentially tied to development plans in the midwestern states. The challenge, then, is to locate new power plants and other industrial development in upwind states in such a way that the regional air quality is maintained and downwind states are not penalized economically.

FEDERAL REGULATIONS AND THEIR EFFECT ON INDUSTRY

John Quarles

I want to tell you a little story that I heard the other day from a friend of mine. A young farm boy from Mississippi and his friend got on a train to go east to join the Army. They had never been away from home before and they had never been on a train. After they had been riding a short while, a man came through the train saying, "Bananers, bananers, five cents apiece." The two boys decided to purchase some bananas, and each fished five cents out of his pocket, becoming the proud possessor of a banana. They really didn't know what you did with a banana, but they watched a few other passengers and quickly got the idea that the point was to open it and to eat it. One boy took a couple of bites just as the train went into a tunnel and was heard to exclaim, "Quick, Jerry, don't eat your banana! I took just two bites and I've gone plum' blind."

A great deal depends on one's perception of reality. The question before us today concerns the way we perceive reality. Do we have strong hopes for the future and an ability to deal with the problems which face us? Or are the problems so complicated they are getting out of our control? I am not quite sure whether we are going into a tunnel or not, but I think that a need exists for understanding and for action. And I am grateful for the chance to chat with you this morning about some aspects of regulating construction of new industrial plants and the overall impact that subject may have on the future development, as well as environmental protection, in the country and in this region.

The question is related to a report that I have recently issued entitled "Federal Regulation of New Industrial Plants." We ran off several hundred copies of the report and quickly found that the demand was overwhelming. Seven thousand additional copies have been or are being printed to fulfill demand, clearly demonstrating that concern over regulation of new plants has suddenly captured the attention of people in both business and the general community. There has been a profound change in this aspect of the total regulatory framework. It has been clear for some time that a body of federal environmental protection law has been evolving, but this particular part of the regulatory framework has been developing more recently, with greater speed and with less attention, at least in its overall form.

John Quarles is a partner in the law firm of Morgan, Lewis, & Bockius in Washington, D. C., and formerly held several top posts, including Acting Administrator, with the U. S. Environmental Protection Agency.

Within the last two years, Congress amended the Clean Air Act to reinforce and considerably extend the restrictions applicable to PSD (Prevention of Significant Deterioration) and nonattainment cases. EPA is now revising the NPDES (National Pollutant Discharge Elimination System) regulations, which are due out almost any day and may extend restrictions of new plants from a water pollution viewpoint. The Resource Conservation and Recovery Act was enacted by Congress just a little over two years ago; EPA is now in the process of implementing the program and has proposed major program regulations. The final regulations on the control over disposal of hazardous wastes are emerging as an extremely significant new regulatory program. Of the energy legislation enacted last year, the Electric Power Plant and Industrial Fuel Use Act sets requirements to use coal unless exemptions can be obtained, subject to extensive procedural and substantive restrictions. Though it does not have much bearing on the Ohio River states, the old 1972 Coastal Zone Management Act has just in 1978 caught on to the point that about a dozen states now have approved plans, so that any development in the coastal zone is subject to much tighter control. The Corps of Engineers permits for developments involving wetlands have also been extended.

These are the major developments that have occurred. If one looks at the record of the last two years, one cannot help but be impressed by the pace at which the regulatory framework restricting new industrial plants has been established. And the impact of those regulatory requirements is not well understood, perhaps by anyone. It certainly is only barely understood by the vast majority of people, and there are certain aspects of the system which nobody can comprehend now because we are not far enough along to have a track record to show how things will work.

Let me comment on some of the characteristics of this overall regulatory framework to have in mind as we proceed with the discussion. One characteristic is that the ground rules for granting approval of new plants are extremely technical. The decision on whether a particular plant can be approved is apt to turn on a highly technical question.

A second characteristic of this regulatory framework is that it broadens the local political process that is involved before a major plant can be approved. Most of the environmental statutes require a public hearing or at least an opportunity for a public hearing. In that sense, they overtly open up the political process. Moreover, in establishing innumerable technical requirements, the system also brings in a political aspect, in that many of the technical decisions require rather subjective judgments. This possible latitude in decision-making opens the door to another element of the political process: if the local public is opposed to a plant, there are any number of opportunities for opponents to put a foot in the door and assert that opposition.

The third characteristic of the regulatory program is that it is extremely complex. It almost defies any single individual's

understanding to be an expert on all aspects of these regulations. They include highly detailed legal requirements; they may involve significant administrative procedures; and they certainly raise all sorts of technical data issues. For anyone, whether he is a governor, a company president, a plant manager, a regulator, or a citizen, a full understanding of the various requirements that apply will be very difficult.

The complexity is intensified for a company wanting to build a plant because some of the requirements may be slightly out of sync with others, and certain of them may cause a company to respond in a way which might aggravate the difficulty of satisfying other requirements. The obvious example is that a company planning to build a plant is driven by the Fuel Use Act to select coal for fuel, a choice that may aggravate the air pollution problem. Now many plants are going to use coal anyway, and in some areas there may not be a serious air pollution problem. But that is the type of possible conflict one may encounter. The trade-offs among air pollution control, water pollution control, and control of hazardous waste disposal also raise some additional problems.

The fourth characteristic of the regulatory framework is the reason I am particularly privileged to be speaking to ORSANCO Commissioners, because it specifically focuses on the regulatory agencies. The new framework raises a manpower concern. A great deal of time is going to be required by any of the regulatory agencies in administering these highly technical, complex, politically explosive programs.

Let us turn now to the impacts of the regulations on economic growth, because these will challenge us all. One result of this new regulatory framework is that a company is going to have a longer process ahead of it as it undertakes to build a new plant--just how much longer is open for discussion and will vary from case to case. But it is reasonable to expect that it will take a company building a major plant, certainly any power plant, a couple of years to go through the regulatory process.

Because the regulatory requirements are highly technical, a company must have progressed quite far down the path in its own planning and development of the project before it can really begin the detailed information on what its engineering plans are and what its pollution control facilities are going to be. It will almost need to have completed the detailed planning and engineering work for the plant, virtually all ready to let the contractor begin work. However, the regulations require preconstruction approval. So, however skillfully a company might plan for coping with the regulatory requirements, the two to three years required to go through the regulatory process inherently are in addition to normal lead time.

For large industrial plants, this time lag has a number of repercussions affecting internal corporate planning. Companies which in the past may have worked on a five-year planning cycle for new plants are not necessarily going to be able to do that

in the future. It may take six, seven, or eight years to plan and build a new plant. A company will have to make earlier decisions as to whether or not it is going to build the next plant and, if so, at what location. It must start the work of obtaining the sites and go into the engineering and regulatory processes sooner. Certain plants might get part way down this path and be scrapped. Hopefully, not too many projects will be lost if companies plan well.

The combination of the new regulatory framework's characteristics and these aspects of delay and uncertainty are likely to have some significant effects on the nature of industrial development in the future. If you ask me to tell you what the effects will be, I pass beyond the border of knowledge and into the zone of speculation. A few things are reasonable to expect. There may be some impact on the regional distribution of industrial growth. There may be some impact on the extent to which companies build new plants, as distinguished from merely expanding existing plants or continuing to operate an existing facility which might otherwise be retired and replaced. The difficulty of obtaining sites and approvals for a totally new facility is greater than the difficulty of obtaining approval for expansion of a facility, and that might tilt the balance in a number of cases toward expanding at existing sites. Additionally, when one is going to build a new facility and, to some extent, even when one is simply expanding, the imposition of environmental constraints may make it more difficult for such development to occur in an area that is already highly industrialized and has an accumulation of pollution problems, as distinguished from going off into a less developed area of the country where the air is cleaner, the water purer, and environmental problems do not already exist.

There may be some effects on the way the economy functions regarding the internal makeup of industrial categories. Companies may be less enthusiastic about embarking on new fields. Obviously, the big companies have an easier time dealing with the regulatory framework than the smaller companies do, because they have more resources to handle it. In that sense, the environmental regulatory restrictions, particularly the restrictions on new plants, are simply another in a series of federal regulatory programs which make life tougher on small business and encourage the trend toward bigness. The biggest companies do not necessarily get even bigger, but there is additional stimulation for aggregation tendencies within the economy.

Apart from whether a big or small company builds a plant, within individual categories there is a further limitation. Monsanto or Dow, for example, are big companies; but they might be less enthusiastic about going into a new product line than they would have been in the past, because they have to make the decision to go into that product line now, say, seven years in advance. Their crystal ball-gazing as to whether there is a market is subject to a longer lead time, thereby discouraging them from making a commitment in a new area.

Overall, the new regulations may put a bit of a damper on the vitality of the economy and make it more sluggish and more rigidified. Obviously, those are undesirable consequences; however, that does not mean that the regulatory requirements are bad. There are two remaining questions: How serious are the consequences really going to be? How will they weigh against the benefits? The consequences are, as I have indicated, wide open to speculation. Regarding potential benefits, there are clear reasons why these regulatory requirements have all been established.

One can step back and make an interesting political comment on what has occurred. About five years ago, the issue of whether there should be a federal system of land-use control came to a head quite visibly within the political process. Any number of land-use bills had been introduced into the Congress: the Nixon Administration had introduced certain bills; Senator Jackson developed a bill which his committee and the Senate passed; and there were a number of bills on the House side. In 1974, those bills were killed. The idea of setting out to establish a federal system of land-use control had been rejected by the political process. Nonetheless, five years later, we have one. We have a system of controls over the way land is used, originating from federal laws, but it is not a system of controls developed either consciously or coherently. It has resulted from a series of piecemeal legislative programs, each of which was addressing an important but distinct subject. The Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act each attempted to deal comprehensively with an individual problem. When you take a crosscut of all those laws to determine how they impact a new industrial plant, you begin to see that there is an element of confusion about it all.

Without any question whatsoever, this basic framework is here to stay. There are any number of people to whom I talk frequently who think that there should not be federally mandated controls over industrial development. I do not share that view myself, though I am certainly sympathetic to the merit it has. But whether one shares that view or not, the political reality is that these programs are here to stay. They are supported by public policy and very potent political pressures, as well as by a certain amount of government inertia. They are all fairly deeply embedded in the system.

What sort of a challenge does this situation present to us? I think it presents an enormous one, a challenge which goes to the core of the American free enterprise system and the prospects for continued economic vitality in the country.

These requirements probably have a greater potential impact on the future of the economy than the pollution control requirements with which we are more familiar. Pollution control requires the expenditure of greater sums of money, and the air and water pollution programs in particular have caused the transfer of significant parts of our developing economic activity from

the production of additional goods and services to the control of pollution. The companies have carried that burden. People have not been thrown out of work in large-scale layoffs as was predicted a number of years ago. Whether or not the capital burden on companies is a drag on the economy is a tough question for economists; it is an impossible question for me. But I would submit that, by and large, the evidence indicates that the burden is being carried rather successfully. Although the requirements affecting plant construction have received less attention as part of the overall regulatory framework, they have a more significant potential impact for the vitality of the economy.

The complexity of the framework bothers me greatly. When you pick up the PSD regulations and try to battle your way through them, it has just got to hit you that this is a tough scheme under which to operate. And when you look more closely at the technical requirements to implement that system--the difficulty of doing modeling and getting agreement on what modeling results ought to be used, the time and money required, the difficulty of lining up modeling results with actual monitoring data, the problem of keeping track of the baseline and the consumption of increments and calculating how one plant here and another plant there affect a third plant beyond--it makes one wonder if there is not a simpler way to achieve good environmental control over the location of new plants. If we are going to use this basic approach, it should be simplified.

One element of the complexity which I find not only scary but really offensive is my belief that Congress has extended the reach of these regulatory programs into ridiculously small plants and to a number of situations that do not require such a degree of control. The programs exceed any reasonable expectation we can have as to the ability of the regulatory agencies to handle the work load. Experience to date has taught that application of these programs is neither a nightmare nor a cakewalk. But if one projects into the future, the work loads implicit in these requirements are very serious. To suggest to the heads of regulatory agencies that they go to their state legislatures and get more money for more manpower is a notion which I am savvy enough not even to attempt. You know the problems better than I do. But state officials should keep in mind that whatever manpower they have, more of it is going to be consumed in this line of work.

There are two things that can be done. First, high priority must be placed on reducing the confusion. We all know that when any new regulatory program is in the process of being established, there are untold numbers of questions that come up. And there is almost a life-and-death necessity for people who are on the regulatory side today to brace themselves for this prospect, to mobilize their energy to deal with it, and to chase down these questions and get them decided. We must put out pamphlets and formulate ground rules and make it clear what the requirements are.

Finally, we have to recognize that certain aspects of the highly detailed legal framework have the capacity to produce results that do not best serve society. If you come to a specific question, for instance, "Can a large plant be built in Pennsylvania east of Wheeling?" the federal law may give you an answer of, "No." That does not necessarily mean that it is a wise answer. Cooperative efforts must be made to understand the various requirements and see their future impacts. It is imperative that we plan together wisely to substitute intelligent decisions in place of the mechanical, rigid results of the regulatory system.

REGIONAL FACILITY SITING IN THE ORSANCO STATES

Eugene F. Mooney

At its January meeting, the Commission accepted the initial report of the task force to formulate a major facility siting process for the Ohio River Valley and referred that report to the Commissioners for adoption or rejection of the recommendations therein at this May meeting. However, the minutes reflect that Chairman Braun directed the task force to continue its investigations during the interim. In an effort to comply with that direction, I commenced a background study conducted by members of my department, essentially Russell Barnett, inquiring into the present status of power plant siting processes utilized by the several states. The resulting draft report surveys the status of energy facility siting procedures in the United States conducted by the states themselves and the siting procedures employed by the ORSANCO states, and attempts to extrapolate from the actual arrangements being utilized by the states some models which might be appropriate for consideration in a multistate major facility siting arrangement. I will summarize some of the report's findings.

As you know, the traditional regulatory scheme governing major facilities, primarily public utilities, has been focused on ensuring that adequate electrical power be available, at a reasonable cost, to meet growing demands. The production of electric power to satisfy demands is an extremely complicated proposition, requiring enormous capital investment and a bewildering array of technologies, while consuming huge quantities of irreplaceable energy resources. Power facilities occupy large areas of land and emit an array of pollutants into the atmosphere, into the water, and on the land. The current trend in electric power production is toward more interconnected systems with reliance on fewer but larger generating units. Intertie transmission lines of up to 765 kilovolts traverse state lines as power is used hundreds of miles from where it is produced. Coal-fired generators with capacities of 1200 to 1500 megawatts require from 20 to 1800 cubic feet per second of cooling water, 10,000 tons of coal a day, 500 to 1000 acres of land, and disposal sites capable of containing 2500 to 3200 acre-feet of waste products.

The National Environmental Policy Act of 1969 refocused attention on environmental concerns in general, and the conflicts between the demands for electric power and environmental protection have

---

Eugene F. Mooney is a former Secretary for Natural Resources and Environmental Protection in the Commonwealth of Kentucky and a former Commissioner to ORSANCO from that state. He is a professor of law at the College of Law, University of Kentucky.

been expressly, concretely, and dramatically raised from that point on, whenever decisions are required concerning the location of electric power facilities. The trade-offs that have to be made are at least of state concern, normally regional concern, and sometimes national concern. But the context and processes for making siting decisions centered primarily at the state level vary widely from state to state.

In response to the growing emergence of environmental concern focused on these large facilities, 26 states have adopted some form of power siting legislation since 1970. Many others exercise control over energy facility decisions through licensing guidelines promulgated by utility regulatory commissions, requirements for state environmental impact assessments, regulations applying to developments of regional impact, coastal zone management regulations, limitations pertaining to critical environmental areas, and a host of other informal controls. But state siting statutes often condition issuance of construction permits for certain kinds of facilities, primarily electric power facilities, on an assessment of the compatibility of the proposed land use with the surrounding areas and with state and federal laws, as well as the physical, technical, and economic suitability of the proposed site for the specific use that is contemplated. Assessments of compatibility most commonly require extensive documentation and culminate in the issuance of an official piece of paper which authorizes construction to commence at a particular site.

Compatibility and suitability, while not totally unrelated, pose altogether different questions for analysis, however. Evaluation of site suitability requires considerable information about the physical characteristics of the site--soil suitability, flood potential, air increments, and so on--in addition to a wide range of economic and technological parameters. Assessment of compatibility, on the other hand, involves analysis of the site's relationship to a larger geographic area, and it includes considerations which flow not only from normal suitability criteria, but also from energy needs, public attitudes, environmental controls, and extant legal and political restraints.

Regulation of decisions concerning the location of energy facilities, then, has received special statutory treatment at the state level only during this past decade. Such efforts almost wholly relate to electric power plant sitings, and state involvement thus far has been restricted essentially to coal-fired electric generating and transmission facilities. In most states, basic siting decisions are still made totally by the private sector, with only incremental state review of the decisions. Federal laws such as the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act mandate states to regulate air and water quality, and a great many states have assumed and exercised the so-called primacy directive. State environmental and/or natural resources agencies review proposed coal-fired electric generating facilities in order to ensure that state environmental protection regulations related to those federal acts and other state legislation are not being violated. But these reviews are often incremental

in nature, being directed at a single, functional area of concern--air quality, water quality, waste disposal, and so on--with no overall environmental analysis conducted.

Facility siting reviews, as distinguished from these incremental environmental reviews, are almost the exception instead of the rule among states. Siting organizations authorized in 26 states are organized to function in a variety of manners, reflecting differences in state governmental organizations, problems, and political attitudes. In states with very few land-use and environmental constraints in locating energy facilities, minimal controls have been imposed. In other states, where the competition for resources has severely restricted available sites, where a history of state government involvement exists, and/or where energy facilities may have potentially severe environmental impacts, siting legislation may be quite stringent. Maryland, for example, has a program to purchase identified potential energy facility sites.

In most states, power plant siting authority rests exclusively with the commission which regulates public utilities; thereby, an existing regulatory entity with expertise in the power industry is utilized. In this type of organization, certificates of public convenience and necessity are usually the primary tool for imposing state review of siting decisions. The state review may be directed solely toward energy needs, as in Virginia or West Virginia; or it may include some environmental assessments, as in Illinois.

In other states, the siting authority may be vested in both environmental and energy agencies. In these states, mandatory consultation with or participation of an environmental protection agency in the review of the site permit applications is provided. Commonly, then, two certificates are required: one for convenience and necessity--the so-called construction permit--and the other attesting environmental compatibility. In Kentucky, for example, the state environmental agency acts in an advisory capacity to the utility regulatory agency, which issues both the certificate of convenience and necessity and a certificate of environmental compatibility.

The third organizational mechanism employed by the states is the establishment of either an independent utility siting agency or an energy planning agency with siting authority. In theory, such an agency exercises jurisdiction over all aspects of utility siting and construction within the state. To ensure adequate representation by a range of involved state agencies, interdisciplinary commissions--with representatives from the public and from state commerce, environmental, health, and energy agencies--review and certify sites. Ohio has such an organization.

As an independent siting agency's process becomes more expeditious, however, the problem of justifying both staff and budget intensifies. Workloads are contingent upon construction schedules, and long periods may occur when little or no construction of major facilities occurs. To surmount this problem, then, many states do not retain permanent staffs to work exclusively on utility siting,

but instead use outside consultants or personnel from other interested state agencies.

Funding for siting operations is obtained from various sources. There may be a reliance solely on the general revenue funds of the state, or a surcharge may be levied on the state's utilities to support the utility regulatory commission or siting authority, with a portion allocated to utility siting tasks. Still another method is to levy a filing fee on the applicants for a fixed or variable amount. There is a wide variety of methods in which these fees are determined, based on various formulas using construction costs, generating capabilities, or both. Fees may range up to $150,000 for a power plant application, such as in New York. A completely new trend is to set aside a portion of these monies to be available for intervention into the siting process by interested local governments and/or the general public.

Characteristic activities of facility siting mechanisms vary widely depending upon whether one or another of these basic organizational structures is used. Forecasting, or the determination of future power need, is integral to energy facility siting and may be performed in a variety of ways. In the most rudimentary of the regulatory structures mentioned, the projection of need is made by the applicant and seldom challenged very effectively. With respect to an independent siting authority, however, it may be that the agency carries the capability for determining future power demands independently of the applicant or its representations. A recent trend is to have state energy planning agencies prepare annual five to twenty-year forecast reports. In New York and Ohio, for example, the Departments of Energy annually prepare forecast reports which describe energy demands and peak load requirements, and also inventory facilities present and planned. These reports may be used as part of a state's new role in energy planning and development of state energy policies.

The authority and scope of utility siting legislation vary widely among the states, and a compilation has been made in the report which demonstrates the range. In most states, only privately owned generating plants are regulated and, for the most part, only electric plants and transmission lines. Some few states--five--certify the siting of gas transmission lines. And some others, almost as few in number, require some sort of a siting process for other major energy facilities, non-electric in shape. The differing jurisdictional structures, namely what kinds or sizes of facilities are subject to siting requirements, vary greatly. Fifteen of the 26 states have so-called one-stop legislation. And while definitions of this concept are easy, implementation has proved extremely difficult. In theory, a one-stop agency provides a centralized location from which a utility may obtain any permits necessary for the siting of a facility. Six states have so-called two-stop operations, where both the public service commission of that state and some other agency, usually the state environmental protection agency, have equal review and approval authority over different aspects of the facility. Four states simply have agencies which serve

as clearing houses for information; in such an arrangement, one agency receives and dispenses the requisite information to other state agencies, who act independently in reviewing and evaluating the information.

In all of the procedures, the culmination of whatever siting determination occurs is a piece of paper which manifests approval for the construction of the particular facility. And in almost all states, an operating permit for that facility requires an independent separate round of applications and, to some extent or another, approval. In the course of this process, all states require some sort of environmental information. This information could be as simple as a summary of the study performed by the utility. In other cases, rather comprehensive reports are required to include such things as social and economic impacts, as well as comprehensive environmental analyses. In Ohio, for example, cost-benefit analyses are considered on an equal basis with environmental factors. Only Maryland performs totally independent environmental studies of its own for the purpose of site banking, which is what it calls its process.

Seventeen states require investigation and presentation of some sort of a siting alternative. The type of alternative ranges from sites and routes to equipment and technologies and, in some states, analyses of conservation and reserve margins. For example, Minnesota and North Dakota require not only alternatives for transmission line routes, but also preliminary corridor options. Both utilize avoidance criteria and exclusion areas; that is, they denominate areas of critical concern through which transmission lines cannot pass. Montana requires evaluation of alternative sources of energy and uses of the proposed site. Investigations of joint industry use of site locations and utilization of waste heat are also required. In New York, any site alternatives not proposed by the utility or sources of power not discussed may be entered in evidence at a public hearing by any party, in order to undercut the industry's presentation. California and Wisconsin, among others, require an investigation and planning of conservation programs as viable alternatives to capacity expansion. Other states require investigations into advances in power generation technology and transmission improvement, efficiencies of alternative methods of energy utilization, expanded use of wastewater as cooling water, and the siting of facilities in extant corridors or on already existing sites.

Public hearings are required or provided for in 19 of these 26 states, and nine other states provide for public membership on the site review board. In most of the states, participation by the public is limited, however. The public either has little knowledge of or expresses apathy toward utility siting activities. Ohio sends out periodic news releases; other states use regular newsletters in an attempt to generate interest. Nevertheless, it is obvious that the most active groups on a statewide basis in most if not all states are environmental organizations and individuals whose interests are directly affected in a given siting case. In Kansas, individual land owners are contacted to encourage this involvement. But, in general, participation appears to be directly

related to the size and nature of the project and where it happens to be sited.

All states allow citizens some form of input in the siting decision processes. New Hampshire and Washington require an assistant attorney general to act as counsel for the environment and the public for the duration of energy facility siting proceedings. Citizens' advisory councils have been created in several states, such as Minnesota, North Dakota, Wyoming, and Wisconsin, in order to allow the public direct influence on the decision-making process. Some states attempt to assure a balanced approach to facility siting by ensuring that the certifying panel is composed of members from various backgrounds, including state and local officials. And, it is interesting to note that some states, for example, Arizona and New Hampshire, limit public participation and hold hearings only if requested. There are other aspects of the public participation dimension, not the least one of which is how these things get paid for and by whom.

It is obvious from this summary of the wide variety of ways in which the states in this country approach major facility siting problems in an organizational context that a very careful study should be made of how these kinds of organizational arrangements can be utilized to create theoretical models usable on a regional basis in a multistate context. Nevertheless, it appears from even this superficial summary that the wide variety of situational arrangements can be compressed into a few theoretical models, and some enumerated processes identified which are normally performed, irrespective of location and irrespective of the particular governmental arrangement. A multistate arrangement could utilize exactly the same kinds of theoretical approaches and choose from among the variety of control arrangements and review procedures that the American states have already developed on a trial-and-error basis.

Institutionalization of a multistate planning process in the siting of energy facilities is quite obviously beset with all manner of deterrents. Decision-makers in each state must continue to be influenced by local considerations, but not necessarily at the expense of regional concerns. There may be differing state laws governing energy facility siting, or the lack of such laws altogether. Insufficient communication among states is another problem, even for those that adjoin one another. And, an absence of overall development planning, as well as the inevitable competition for industry and a clean environment, both present difficulties that must be surmounted. But in my judgment, they can be.

The models of state siting programs which we will set forth in our report could be utilized by an interstate organization to implement a regional or multistate facility siting arrangement. We have identified the primary characteristics of the ORSANCO states' existing siting processes. A no-break departure from what everyone is now doing would be necessitated by expanding our concerns outside our state boundaries. At a minimum, the Ohio Valley states should improve communications and coordination among their existing institutions in the region, quite possibly through the

establishment of some form of an early warning system for energy facility projects, in a manner similar to ORBC's 90-day review process or Ohio's advance letter of intent. This option could involve as little as an effort by all concerned to exchange information and keep others in the region knowledgeable about future actions. Or it could extend to the establishment of a formal clearinghouse simply for information on energy and environment-related affairs, with the strengthening and/or redirection of existing interstate organizations.

Secondly, minimal siting criteria and/or standard assessment information could be identified in a manner similar to that employed by the Nuclear Regulatory Commission for nuclear facilities. Participating states would use these standard criteria in their own internal decision-making processes, however they wished to arrange them. A formal or informal comment opportunity could be institutionalized wherein states adjacent to a given major facility site would be given an opportunity to comment on the siting decision by the certificating state. Existing federal laws such as the Clean Air Act and the Clean Water Act already impose minimum environmental guidelines that must be met before construction permits are approved. Nonattainment in the ORSANCO region is designated on the basis of national ambient air quality standards, and designations will influence siting decisions for future fossil fuel plants in this area. The Clean Water Act may already require dual certification among states adjoining the Ohio River, notwithstanding how the Supreme Court holds on the question of who owns the Ohio River.

Implementation of the formal siting authority will continue to rest with individual states. Nevertheless, appropriate roles could be identified for a multistate entity to perform--if nothing else--the rudimentary chores of information exchange and criteria development. One approach to multistate site designation that could be used by the states in the region would be to work together to identify criteria for exclusion and avoidance areas, or candidate regions and/or sites for the Ohio River Valley corridor. Each state would then adopt and implement the criteria internally for its own portions of the region. Coordination of such designations and information sharing among participating states with common interests in particular areas or candidate regions could be facilitated through an appropriate multistate arrangement or even perhaps an appropriate multistate entity.

The exact approaches to be chosen are obviously dependent solely on the willingness of the ORSANCO states collectively to address the problems associated with major facility siting. The cumulative siting experience of the states in this country is not extensive, because of the relatively recent enactment of facility siting legislation, the limited jurisdiction of many of the laws involved, the small number of facilities constructed each year, and the diversity among regulatory agencies in implementing the existing statutes. The cumulative experience on regional facility siting at either the federal or the state level is almost zero.

A test demonstration project recently initiated by the Southern States Energy Board (SSEB) for the Nuclear Regulatory Commission in North and South Carolina may become the model for future regional siting. SSEB will monitor and work with the two states and Duke Power Company to document a regional process for determining the need for power and to evaluate a site selection methodology for that utility to use in siting its future plants in either or both of those states. The overall objective of the demonstration process is to work with the states in an actual project to find ways to improve the effectiveness and the timeliness of the regulatory process. Phase one of this demonstration project develops site plant alternatives through a logical identification of potential sites. Phase two concerns the evaluation of the site plant alternatives by state and federal agencies and the general public, with inputs being used to select the two best fossil and nuclear site combinations. Phase three is to be an actual selection by Duke Power Company of the site for its next thermal baseload power station. If, as I believe will happen, the project culminates in a successful demonstration of federal and state agencies and a private industrial concern cooperating in building a facility, there should be no argument left that could be raised against institutionalization of a multistate process for use in the Ohio Valley area for the siting of major facilities.

Eight ORSANCO states share the challenge of producing and transporting adequate energy supplies, while at the same time ensuring that resultant environmental degradation is minimized or at best equitably distributed. The Ohio River is the common resource tying our eight states together in a dependent relationship. The water flows to the southwest and the air flows to the northeast and all of it crosses all of our eight states. The river, with its heavy flow and deep channels, provides water for the generation of electricity and, more importantly, an avenue for fuel transportation. Collectively, the ORSANCO states represent the major coal-producing region of the nation. Each of the states faces the necessity of stimulating economic growth to provide new jobs and the opportunity for a high standard of living, while at the same time ensuring a clean environment. The river valley is and will remain a prime location for energy and industrial development, with accompanying economic benefits and environmental costs. We must arrange some sensible way equitably to share the benefits and burdens that go along with such development.

In conclusion, it is my feeling that unless some rational, logical, and relatively prompt response is made to these issues, then we will find ourselves again or still ruled by Murphey's laws. You'll recall Murphey's laws are: first, if anything can go wrong, it will; second, everything takes longer than you think it will; third, nothing is as simple as you hoped it would be; and finally, left alone things will invariably go from bad to worse.

ORSANCO

OHIO RIVER VALLEY
WATER SANITATION
COMMISSION

414 Walnut St. • Cincinnati, Ohio 45202

BULK RATE
U. S. POSTAGE
PAID
Cincinnati, Ohio
Permit No. 7812