REPORT OF THE

VIRGINIA COAL AND ENERGY COMMISSION

TO

THE GOVERNOR

AND

THE GENERAL ASSEMBLY OF VIRGINIA

SENATE DOCUMENT NO. 28

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF PURCHASES AND SUPPLY
RICHMOND

1978

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Report of the

Virginia Coal and Energy Commission

To

The Governor and the General Assembly of Virginia

Richmond, Virginia

December, 1977

To: Honorable Mills E. Godwin, Jr., Governor of Virginia

and

The General Assembly of Virginia

I. INTRODUCTION

A. Creation of the Commission.–The Coal and Energy Commission originally began as a group of concerned individuals interested in the potential for coal liquefaction and gasification who worked in an ad hoc capacity, submitting a report to the Governor and General Assembly during the 1975 Session including S.J.R. No. 109 sponsored by Senator J. Harry Michael, Jr. This resolution requested formal status and funding for the Virginia Coal and Energy Commission to study the development and utilization of Virginia's coal including exploration, mapping and transportation of coal resources.

S.J.R. No. 109

Creating a commission to study the development and utilization of Virginia coal; allocating funds therefor.

WHEREAS, the ad hoc Virginia Coal and Energy Board wa formed in February of nineteen hundred seventy-four to work specifically on coal gasification and related areas; and

WHEREAS, this Board has met on numerous occasions, ha worked diligently and has submitted a report to the Governor and the nineteen hundred seventy-five Session of the General Assembly; and

WHEREAS, there is a need to continue the work of this Board to further the study of the development and utilization of coal as Virginia's number one energy resource; now, therefore, be it

RESOLVED by the Senate, the House of Delegates concurring, That there is hereby created the Virginia Coal and Energy Commission. The Commission shall study all aspects of coal as an energy resource of the Commonwealth and make specific suggestions or legislative recommendations on exploration, mapping, development and transportation of coal. The Commission shall specifically continue the study on coal liquefaction and gasification and make appropriate recommendations.

The Commission shall be composed of nineteen members, five to be appointed by the Speaker of the House of Delegates from the membership thereof, two to be appointed by the Committee on Privileges and Elections of the Senate from the membership of the Senate and twelve to be appointed by the Governor from the State at large. The Commission shall be composed, insofar as it may be practicable, of the same persons who were members of the ad hoc Virginia Coal and Energy Board in nineteen hundred seventy-four. The members so appointed shall elect from their membership a chairman and a vice-chairman.

Legislative members of the Commission shall receive such compensation as set forth in § 14.1-18 and all members shall be reimbursed for their actual expenses incurred by them in the performance of their duties in the work of the Commission. For such other expenses as may be required, including secretarial and other professional assistance, there is hereby allocated from the general appropriations to the General Assembly the sum of three thousand dollars. All agencies of the State shall assist the Commission in its work.

The Commission shall submit to the Governor and the General Assembly an interim report no later than November one, nineteen hundred seventy-five, and a final report no later than November one, nineteen hundred seventy-six.

B. Membership of the Commission.—The members of the Commission are as follows: Senator J. Harry Michael, Jr., Charlottesville; Delegate C. Don Dunford, Tazewell; Senator Peter K. Babalas, Norfolk; Delegate J. Paul Councill, Jr., Franklin; Delegate Garry G. DeBruhl, Critz; Delegate Joseph A. Johnson, Abingdon; Delegate W. Ward Teel, Christiansburg; Edmond M. Boggs, Richmond; Cecil W. Bolling, Pound; Charles A. Christophersen, Richmond; B. C. Cooper, Big Stone Gap; Ernst W. Farley, Jr., Richmond; Herbert O. Funsten, Williamsburg; Mark R. Kilduff, Richmond; Harden Lacy, Williamsburg; Louis R. Lawson, Jr., Richmond; Marvin M. Sutherland, Richmond and W. Luke Witt, Richmond. Ms. Susan T. Gill of the Division of Legislative Services served as staff during the year and drafted the Commission's report to the Governor and General Assembly.

C. Principle Areas of Study.—The Commission turned its attention to the following issues during the last year: 1) easing the impact of federal requirements for conversion from oil or natural gas to coal, 2) geothermal

exploration and rights, 3) effects of S.B. No. 406 passed during the 1977 General Assembly establishing mineral rights of methane released from coal seams as the property of the real surface owner, and 4) the progress of the Virginia Center for Coal and Energy Research established by S.B. No. 761 in the 1977 General Assembly.

II. AREAS OF STUDY

A. Conversion from oil or natural gas to coal.—The Commission was aware that the Federal Energy Administration issued "Prohibition Orders" to seven of Virginia's major industries to convert from oil and gas to coal. Six of these which replied to Commission questions as to the effects of conversion included Continental Forest Industries, Allied Chemical, Chesapeake Corporation, FMC, Avtex Fibers and Anheuser Busch.

In view of the continual increase in dependency on foreign oil imports from other nations as a primary energy source in the United States, it is not surprising to the Commission that the federal government is pressuring businesses to convert from oil in particular. With the increasing shortage of natural gas and the severity of last winter it is also understandable that an alternative source of fuel is more than desirable; it is necessary. At this point Virginia consumes oil as a major fuel with a heavy emphasis also on natural gas. However, the Commonwealth is fortunate to have abundant reserves of coal which it may effectively utilize. However, the conversion process is a costly one as was evidenced in testimony given a Commission meeting.

Ironically, some of the abovementioned industries were required to convert from coal to oil and natural gas in recent years in order to meet State Air Pollution Control Board Standards. The industries are willing to cooperate but are faced with problems the greatest of which are related to financing. In addition of the millions of non-productive dollars necessary to meet the mandate from the Federal Energy Administration, industries are faced with a number of State and federal constraints. Representatives from Continental Forest Industries reported that the high cost of converting old equipment with a limited useful life requires an expenditure with little long-range benefit to the industry. The estimate for conversion of two boilers presently using oil with a limited life span was estimated at $13,800,000.00. The cost savings, however, in the conversion do not counter the anticipated increased yearly expenditures of $521,000.00. The problem of disposal of fly ash generated from coal burning boilers was noted. Solid waste disposal sites are difficult to locate and are needed for disposal of these wastes generated from the coal burning process. Other industries which testified before the Commission reported financial problems of the same magnitude and agreed that steps leading to conversion would not be taken without pressure from the federal government. The industries all requested some form of assistance from the State level in coping with the problems of conversion.

B. Geothermal Exploration.—The Commission was made aware of the work of Dr. Chastain at Virginia Polytechnic Institute and State University

on the result of an ERDA grant for $500,000.00 to pursue geothermal exploration in Virginia. The Bureau of Land Management has leased 19,000 acres in Western Virginia for $1.00 per acre with the provision for subsequent royalties from commercial development. Fifteen states have already passed legislation relating to Policies for Geothermal Exploration which has potential as a significant energy source. If Virginia were to pass legislation before geothermal energy production became a reality in the Commonwealth, then problems similar to those relating to mineral rights associated with methane extraction from coal seams may be avoided. The Bureau of Land Management believes that the geothermal rights should be owned by the owner in fee and have been leased accordingly as with coal or gas. The Commission began to delve into this area late in 1977 and plans to pursue it in 1978 in hopes of avoiding problems with future mineral rights.

C. Mineral rights relating to methane gases.–The Commission agreed as the result of its deliberations during 1976 to introduce legislation establishing the mineral rights regarding methane, propane and other migratory gases as the property of the owner of the surface real property beneath which the migratory gases are or may be located. S.B. No. 406 was introduced by Senator Michael and passed with the hope that a court case might test the law, resulting eventually in a final court decision. During the past year more and more coal companies have become aware of the legislation, but no court cases have been filed. It is the Commission's hope that litigation will be the end result. This is the only means by which the extraction and utilization of methane gas for profit can be expedited.

D. Progress of the Virginia Center for Coal and Energy Research.–Senate Bill No. 761 was introduced in the 1977 General Assembly by Senator Michael to create a Virginia Center for Coal and Energy Research at Virginia Polytechnic Institute and State University and to create the Virginia Coal Research and Development Advisory Committee. As a result of the passage of this legislation and a $5,000.00 appropriation to Virginia Polytechnic Institute and State University, the Virginia Center for Coal and Energy Research was established with Dr. Walter R. Hibbard as director. The Commission has met with Dr. Hibbard and representative from Virginia Polytechnic Institute and State University throughout the year and has offered to lend assistance in terms of additional legislation which the Center might need in order to function more effectively. Several members of the Coal and Energy Commission have been asked to serve on the Virginia Coal Research and Development Advisory Committee which should ensure close ties between the Commission and the Center. These members are: Mr. Louis Lawson of the State Energy Office, Mr. Mark Kilduff of the Division of Industrial Development and Dr. Herbert Funsten of the College of William and Mary. Also, the Coal Research Institute within the Center will be headed by Dr. Richard Lucas who also regularly attends Commission meetings while serving in an adivsory capacity.

III. RECOMMENDATIONS

A. That the membership of the Commission be increased to include one

member representing the Virginia Coal Industry.

B. That legislation be introduced in the 1978 General Assembly to ease the burden of industry conversion from oil and natural gas to coal through exemptions on capital value required for conversion from taxation (with a local option). For example, if it were necessary for an industry to spend $15,000,000.00 for conversion from oil or natural gas to coal, than this non income-productive capital should not be subject to assessment for tax purposes.

It should be noted that Senator Michael requested the Division of Legislative Services to draft the appropriate legislation. It was felt that the legislation would require a constitutional amendment. An exploration of the situation and the decision which Senator Michael made not to introduce legislation can be found in Appendices I and II to this report.

Respectfully submitted,

J. Harry Michael, Jr., Chairman

C. Don Dunford, Vice-Chairman

Peter K. Babalas

Edmond M. Boggs

Cecil W. Bolling

Charles A. Christophersen

B. V. Cooper

J. Paul Councill, Jr.

Garry G. DeBruhl

Ernst W. Farley, Jr.

Herbert O. Funsten

Joseph A. Johnson

Mark R. Kilduff

Harden Lacy

Louis R. Lawson, Jr.

Marvin M. Sutherland

W. Ward Teel

W. Luke Witt

APPENDIX I.

7 February 1978

The Honorble C. Don Dunford
General Assembly
Richmond, Virginia

Dear Don:

You will recall our discussions about trying to work out a tax exemption for conversion equipment for those energy consumers who are required to convert from oil or natural gas to coal.

We sent this request on to the Division of Legislative Services for the drafting of appropriate legislation. Unfortunately, we ran into a strong snag when Mrs. Sally T. Warthen advised me that we have a constitutional problem standing in the way of the passage of such legislation. In brief, it appears that such legislation will require a constitutional amendment to Article X, § 6 (d). Enclosed is a copy of her letter.

Under the circumstances, I think about all we can do is back off and take a fresh look at this, with the hope that we can find some way to work the thing through without the necessity of the amendment.

I am sorry to have to send on this news, but I don't believe we can argue very successfully with the conclusions Sally has reached.

Cordially,

J. Harry Michael, Jr.

APPENDIX II.

January 10, 1978

The Honorable J. Harry Michael, Jr.
414 Park Street
P. O. Box 1070
Charlottesville, Virginia 22902

Dear Senator Michael:

Re: Bill Request No. 1245 - Exemption for Conversion Equipment

Your request for the bill suggested by the Coal and Energy Commission which would exempt from taxation all capital value generated by conversion of an industry from oil and gas to coal has found its way to me. I am having some trouble with it.

Although it is difficult to decipher the report which proposes the legislation, it appears that an exemption from local property taxation is intended. Such treatment was afforded in a similar area, for pollution control equipment and solar energy equipment, in Article X, § 6 (d) of the Constitution. Unfortunately, a constitutional amendment would be necessary to extend this policy to conversion costs, as it would be another exception to the principal set forth in Article X, § 1 that all property shall be taxed.

If you like, I can draft a resolution proposing a constitutional amendment. I will hold your request until I hear from you.

Sincerely,

Sally T. Warthen

APPENDIX III.

COMMENTS OF MR. HARDEN LACY REGARDING

II. AREA OF STUDY

A. Conversion from oil or natural gas to coal.–

COAL CONVERSION: POLICY AND IMPLEMENTATION

Under the Energy Supply and Environmental Coordination Act of 1974 (ESECA), the Federal Energy Administration (FEA) (now reorganized under the Department of Energy) was empowered by Congress to prohibit eligible electric utilities and industries in this country from burning oil and natural gas as their primary energy source. On June 30, 1977, prohibition orders were issued by the FEA to seven major industries in Virginia. In an effort to evaluate the impact of these orders, the Commission sent inquiries to the industries affected, six of which responded: Allied Chemical Corporation, Hopewell; Anheuser Busch, Williamsburg; Avtex Fibers, Front Royal; Chesapeake Corporation, West Point; and Continental Forest Industries, Hopewell.

To fully appreciate the responses received by the Commission, a brief consideration of the policy goals underlying ESECA and their implementation is beneficial. As the title of Act implies, Congress was concerned with two major issues of national scope in formulating ESECA:

1. the curtailment of the nation's dependence on imported oil in the wake of the 1973 Arab oil embargo;

2. the continued improvement and preservation of the country's environment.

The first concern is reflected in ESECA's coal conversion scheme in which electric utilities and major fuel burning installations (MFBI may be defined as any installation consuming more than 100 x 106 BTU/Hr.) presently using oil or natural gas as their primary fuel source may be ordered to convert to coal. The conversion to coal is readily explained. Coal is this nation's most abundant domestic fossil fuel, estimated at total domestic coal resources of three trillion tons. At present production rates, such resources could last five thousand years. However, not all of this supply is recoverable. Given today's prices and current technology and existing environmental constraints, economically recoverable reserves are estimated in the range of 250-300 billion tons. These reserves could last at least 300 years. A three hundred year supply of domestic coal compares favorably with both the present proven reservers of domestic oil and gas, which are estimated at only about eleven times current annual productions, and the unreliable and costly sources of foreign oil. For this reason, coal was an obvious countermeasure to the nation's continued dependence upon

imported oil.

A number of reasons have been suggested as to why Congress targeted electric utilities and MFBI conversion. A substantial amount of oil is consumed and imported by the utilities and MFBI. Coal could be substituted as a primary energy source while shifting low pollution oil and natural gas to homes and businesses where, in contrast to powerplants and MFBI, continuous emission control is unavailable. Conversion is designed to result in fuel cost savings (although some industries responding to the Commission took issue with this assertion, infra).

The second major policy consideration - the improvement and preservation of the nation's environment - had by 1974 been gaining popular support for a decade. The growing concern over the environment, particularly along the populous eastern seaboard, had led New York and other northeastern cities, beginning in 1964, to impose sulfur emission limitations upon major pollution sources. Initially, the limited control technology necessitated the use of low sulfur coal which was available only at premium prices. But in 1966, residual fuel oil was exempted from oil import quotas applicable to the east coast. Oil could be cheaply imported and desulfurized so that by the early 1970's, it had replaced coal as the fuel source of most east coast utilities. This conversion to oil was in some cases economically attractive to the utilities and industries involved (discussed, infra), but among the populace at large, support for conversion was grounded in concern for the environment and public health. Congress, increasingly aware of this concern, realized that without substantive environmental safeguards, a coal conversion program would be unacceptable.

These major policy considerations energy independence and preservation of the environment - are evident in the scheme Congress devised for determining whether a utility or MFBI is to be prohibited from burning oil or natural gas as a primary fuel source. Under ESECA, the FEA:

1. shall, by order, prohibit any powerplant and

2. may, by order, prohibit any major fuel-burning installation other than a powerplant, from burning natural gas or petroleum products as its primary energy source

provided certain conditions are met. The FEA must find:

1. that the burning of coal by the powerplant or installation, in lieu of petroleum products or natural gas, is practicable and consistent with the purposes of ESECA

2. that coal and coal transportation facilities will be available during the period the order is in effect

3. that in the case of a powerplant, the prohibition order will not impair the reliability of service in the area served by the plant

4. that the plant or installation must have the capability and necessary equipment to burn coal.

Congress also empowered the FEA to order that any powerplant or MFBI in the early planning process (other than a combustion gas turbine or combined cycle unit) be designed and constructed so as to be capable of using coal as its primary energy source. FEA may also order plants presently burning coal not to switch to oil or gas.

The distinction between the issuance of a prohibition or construction order and the order's actually taking effect should be noted. The FEA determines the issuance of a prohibition order but the Environmental Protection Agency (EPA) controls its effectiveness. Here Congressional balancing of the policy considerations disscused above comes into sharp focus. Before a prohibition order issued by FEA becomes effective, EPA must find that the utility or MFBI can burn coal and still comply with the applicable State Implementation Plan (SIP) air pollution requirements. If EPA makes such a finding, the order becomes effective. But if compliance is not possible, the plant or installation must seek a "compliance date extension", a temporary suspension of existing SIP emission and coal content restrictions that cannot be met. EPA must grant the extension where:

1. The plant or installation is unable to burn available coal and meet existing emission and coal content restrictions.

2. During the extension period, the plant installation will be able to meet "primary standard conditions," - the emission limitations and coal content restrictions which EPA determines are the most lenient it can impose on a plant or installation without its contributing to a violation of a primary ambient air standard.

3. EPA has approved a compliance schedule for the plant or installation. The schedule must require that the utility or MFBI meet as soon as practicable (but no later than December 31, 1980), the SIP emission limits applicable when the schedule was submitted.

Finally, EPA must determine the earliest date on which the plant or MFBI will be able to meet the prescribed primary conditions. Only upon that date can the prohibition order and compliance extension take effect. But even with a compliance date extension, a plant or MFBI located in an Air Quality Control Region (AQCR() where a primary ambient standard is exceed, must meet the SIP emission limit for that pollutant. (ESECA refers to this requirement as a "regional limitation").

FEA orders affecting conversion, designing of new facilities to burn coal or allocation of coal to converted plants is also subjected to the provisions of the National Environmental Policy Act of 1969 (NEPA), if in effect for more than one year. These provisions have been implemented by FEA in a three step procedure. The first step, the issuance of an impact statement for the entire coal conversion program, was completed in 1975. Step two requires that before any prohibition order is issued, public

hearings are to be conducted giving interested parties an orpportunity to comment on the site specific impacts of the order. Finally, after the order is issued but before the notice of effectiveness is served, FEA analyzes the environmental impacts and either (a) finds that conversion of the plant or installation will not have a significant impact on the quality of the human environment or (b) issues an impact statement covering site-specific impacts.

INDUSTRY CONCERNS.

The six industries responding to the Commission's inquiries did so in early August 1977, slightly more than a month after FEA had issued its prohibition orders. Obviously the responses raise concerns at a very early stage of the implementation procedure outlined above. Some of the problems expressed by the industries may be resolved at a later stage of the proceeding; others may remain and, in time, lead to a decision against the effectiveness of the prohibition orders. It is also possible that considerations not yet identified may emerge and prove of crucial importance. Collectively, however, the responses touched upon a broad range of significant industry concerns.

COST OF CONVERSION

As noted earlier, many of the facilities now targeted for coal conversion, beginning in the mid 1960's, found that conversion from coal-fired boilers to oil and natural gas was economically attractive. The attractiveness lay in the antiquated conditions of the boilers themselves, many of which had been installed in the 1940's and early 1950's. No longer capable of efficiently buring coal, these boilers could receive a new "lease on life" through the relatively simple conversion to oil or natural gas. In many cases, it is these same out-of-date units which must be reconverted to coal under ESECA.

If conversion to coal is required, it will be necessary to re-tube these boilers, to purchase and install new coal pulverizers, feeders and ash handling equipment and to find new coal storage and ash disposal sites. In order to meet existing air quality standards, mechanical dust collectors, new high efficiency electrostatic precipitators and possibly flue gas desulfurization equipment, or "scrubbers," will have to be installed. New coal unloaders, conveyors and elevators may also have to be purchased. The installation or upgrading of spur and branch lines for rail transportation may be necessary to accommodate incoming coal. Conversion, then, constitutes more than a mere refurbishing of existing equipment; a major construction program will have to be undertaken. Figures submitted to the Commission by responding Virginia industries indicated that expenditures for the conversion program would range from approximately $9 million to $14 million based upon costs indexed to January 1978.

The argument in support of such large capital outlay in the projected

savings in fuel costs by the conversion from oil to coal. Several industries emphasized, however, that this projected savings is just that - a projection; and, given the fluid state of the coal industry, the uncertainty of the projection is pronounced. Furthermore, inroads into the anticipated savings in fuel cost can be expected in the added labor, maintenance and energy costs to run coal-handling equipment. Increased property taxes (resulting from improvements to existing site land, or the acquisition of new land for coal stock piling, solid waste disposal, etc.), and insurance costs also take their toll. On balance, even considering the projected savings in fuel costs, none of the industries responding would make the investment for converison to coal on its own initiative, without government command.

PLANT JEOPARDY

Related to boiler conversion is the problem of plant jeopardy. Boiler conversion will necessitate a temporary shutdown of the unit involved for some installations where one or more principal boiler units must be converted, shutdown may entail a cessation of the entire plant operation, jeoparding employee income, and, of course, representing enormous losses to the industry.

Two factors, however, may mitigate this threat. One is the existing practice of the industries to shut down their boilers at some point in the year for routine maintenance. Conversion of the boiler may necessitate only a relatively short extension of down time beyond that necessary for the usual maintenance program. If down time is more extensive, rental boilers provide a possible, although by no means certain, solution.

COAL PRODUCTION AND TRANSPORTATION.

As noted earlier, one impetus for the coal conversion program was the unreliability of foreign oil imports. Conversion to coal, itself, however, may at least initally raise problems related to fuel supply. The timetable for conversion udner ESECA, although relaxed by amendments in 1975 and 1977, is fairly precipitous thus placing unusual demands upon the coal industry and the rail transport facilities which will handle most of the coal.

The coal industry has been in a decline since the end of World War II and there are concerns over the ability of the industry to gear up for the conversion program. The coal industry insists that the job can be done, given such concession as tax incentives, special subsidies to meet the the capital requirements, a relaxation of the Clean Air Standards to permit greater use of high sulfur coals, and loan guarantees and investment tax credits to spur manufacturing of large coal mining and stripping equipment. Historically, however, the coal industry has proven to be incapable of rapid increases in production. The sheer magnitude of the capital, manpower and equipment necessary for such an increase makes its realization remote.

While truck, water barge and slurry pipelines are possible modes of coal transport, the railroads will probably handle most of the new coal

produced under the conversion program. Like the coal industry, the railroads have been in decline and current financial difficulties may pose a serious threat to securing the additional capital necessary to meet the conversion demand for additional locomotives and hopper cars and the necessary upgrading of branch lines. As in the case of coal production, federal subsidies have been proposed to assist the railroads.

AVAILABILITY OF EMMISSION CONTROL EQUIPMENT

The demands ESECA's timetable places upon the coal industry and railroads will also be felt among manufacturers of emission control equipment. Since industries burning oil or natural gas do not require mechanical dust collectors or electrostatic precipitators, the demand for new and upgraded precipitators and collectors may well outpace the supply. The strain placed upon the manufacturers of emission control equipment, however, is somewhat alleviated by ESECA's delayed compliance schedule. Under the revised timetable, industries with compliance date extensions would have to meet only primary standard conditions prior to December 31, 1985. By that date, when the more stringent SIP limitations must be observed, current problem of emission control availability should have abated.

The delayed compliance schedule will not, however, help those plants and installations contending with a synergistic or "cluster effect," caused by the conversion to coal of a number of units in the same geographic area. If current sulfur dioxide standards are violated as a result of a multiple conversion in a limited area, sulfur "scrubbers" will be required immediately. In Virginia the possibility of a cluster effect is being investigated at Hopewell where Allied Chemical Corporation, Continental Forest Industries and Virginia Electric and Power Company's plant at Chesterfield, a few miles away, may all be burning coal.

AVAILABILITY OF COAL HANDLING EQUIPMENT

While problems associated with the availability of emission control equipment may be somewhat alleviated by the relaxation of compliance deadlines, ESECA's ambitious conversion program provides no similar relief for the manufacturers of coal equipment. The responses received by the Commission gave no firm indication of the difficulties or delays in obtaining coal handling equipment. Perhaps because the industries were burning coal or recently as the late 1960's and early 1970's the equipment in use at that time (pulverizors, feeders, unloaders, conveyors, elevators and ash handlers) may be at the site or in storage. The cost analysis of some of the responding industries, in fact, included expenditures for the refurbishing of such equipment. If prior experience with artificial demand stimulated by a federal program is any indication, however, significant delivery delays can be expected for those industries requiring new equipment.

ENVIRONMENTAL IMPACT

Several concerns raised by the responding industries can be classified as environmental in nature:

1. Stockpiling of Coal. All except one of the industries responding to the Commission had, at one time, burned coal as their primary fuel source. Stock piling of coal had been completed, land previously used for coal storage was freed for plant expansion. Thus, suitable stock piling sites may no longer be available. The resulting strain upon land use is a major problem, especially in light of the sixty to ninety day coal reserve that is normally kept on hand.

2. Solid waste disposal. The ash removed from boilers and precipitators and the sludge removed from scrubbers is usually taken to ash ponds where solid matter settles out while the water either evaporates, flows into a water source, or is recycled. The overflow, infiltration and percolation from the ponds affects water quality since waste from coal fired boilers contains little biogradable matter and thus can accumulate in a slow moving or small body of water.

The quality of ash and sludge produced by a coal burning facility can be enormous. Ash ponds, therefore, may require several acres of site land, compounding the strain upon the land use. One solution raised by the industries was simply to transport the waste back to the mine site by rail and dispose of it in exhausted coal mines. From an economic standpoint, however, the proposal does not seem to be feasible at present.

3. Airborne emmissions. Perhaps because it was such an obvious concern associated with coal conversion, Congress, in formulating ESECA, dealt extensively with the emission of airborne pollutants from fossil fuel-burning facilities. ESECA, as discussed above, contains elaborate provision to keep deterioration of air quality within limits. These provisions are stringent and, in the face of this country's increasing dependence on foreign oil and the obvious difficulty industry will face complying with the requirements, the trend has been to relax ESECA'a emmission limitations.

Under the original provisions of the Act, the deadline for compliance with SIP limits was December 31, 1979. Amendments adopted in 1977, however, provide compliance delays to the end of 1980 and, where warranted, to December 31, 1985.

The trend is also reflected in the movement of some states to ease their SIP limitations. Virginia was one of many states to adopt SIP limits more stringent than necessary to meet national ambient air standards. Thus, its SIP limit is lower than the industry's "primary standard condition" (which represents the maximum emission permissible for a given industry consistent with primary ambient standard compliance in the area). ESECA requires that the industry must, nevertheless, be in compliance with the stricter SIP limits by the end of 1980. The Act also provides that EPA shall inform a state whether its SIP provisions on stationary sources could be relaxed without interferring with any national

ambient air standard. Virginia's State Air Pollution Control Board has submitted SIP revisions to EPA following the issuanace of prohibition orders in June 1977.

EVALUATION

The response received by the Commission indicated that a distinction can be drawn between industry attitude toward the underlying policies of the coal conversion program and the scheme formulated to implement those policies. Not one of the respondents took issue with the pressing need to curtail the country's reliance upon imported oil, nor was opposition expressed to the emphasis upon exploiting domestic fuel sources while imposing environmental safeguards to protect the public health and the environment.

Reaction to the implementation plan under ESECA, however, ranged from cooperativeness to concern depending upon the circumstance of the particular industry. The industries expressing the concerns discussed above objected that they would not embark on a coal conversion program in the absense of government command. This objection might be dismissed in the face of the urgent need to reduce dependence on foreign oil, but the industry argument does not end there.

While objecting to the conversion to coal, one MFBI responding to the Commission is, nevertheless, presently studying replacement of its targeted power boilers with high efficiency units capable of utilizing coal and wood refuse as a fuel source. This particular installation, a paper mill, is also considering replacement of two existing thermally inefficient recovery units (boilers which utilize kraft liquor as their primary energy source), which would result in an estimated reduction of 225 thousand barrels of oil per year in mill-wide requirements. The reduced oil requirements are in keeping with the national policy upon which ESECA is based. The industry argues that, if the reduction is comparable to that under the Act and represents no greater environmental threat than would conversion to coal, why should this industry-conceived plan not be enforced? The objectives of ESECA will be implemented more rapidly with industry cooperation than without. A step toward eliciting that cooperation would be a government inmplementation plan flexible enough so that alternative schemes such as this might be considered.

Another point raised was that ESECA in its present form, in some cases, may actually hinder the very objectives it proposes to further. The capital requirements for conversion are substanial even for the major utilities and MFBI targeted under ESECA. And while it is true there are various federal financing programs designed to assist with the cost of pollution control equipment, these programs are more for small businesses where the cost represents an unusually large and unique expenditure. For large industries and utilities which must borrow heavily and continually in the financial market for their construction programs, federal financing of conversion will not be a significant factor. Given the restrictions within which a utility or installation must operate in the financial market, the cost

of conversion may entail a diversion of capital from on-going construction programs. If the program thus affected happens to be a nuclear powered electrical generating facility, for example, ESECA, it is argued, is actually undermining the very policy it is designed to further. Construction of nuclear powered generating plants contribute to our energy independence and, although open to argument, such facilities may be less objectionable from an environmental standpoint than is coal conversion, at least in the limited context of clean air. Under ESECA's conversion scheme, however, the possibility of actually undermining on-going programs of compatible objectives is not taken into account.

CONCLUSION

In view of this country's increasing dependency upon imported oil and Virginia's significant reliance upon oil and natural gas, the Commission reiterates its position that alternatives to imported oil and to natural gas or primary fuel sources must be developed. The Commission recognizes that ESECA fosters that development but concludes that in light of the responses received from various Virginia industries affected by prohibition ordrs issued under the act, steps should be taken to ease the burden that conversion represents to at least some of the respondents. These steps, listed under Part III of the Commission's Report in Recommendations B, C and D, would ease the impact of conversion upon the industries affected, provide a degree of flexibility in implementing the national goal of energy independence and address environmental ramifications of coal conversion beyond that of airborne emissions. The Commission offers these recommendations in the hope that they might hasten implementation of the policy which ESECA embodies energy self-sufficiency for the United States.

III. RECOMMENDATIONS

A. That the membership (SAME AS NOW IN DRAFT REPORT)

B. That legislation be introduced (AS THE DRAFT NOW STANDS)

C. That the FEA, in determining whether the prohibition orders issued to powerplants and MFBI in Virginia are to become effective, give careful consideration to industry initiated plans for the reduction of oil and natural gas consumption.

D. That FEA and EPA should be empowered to consider site specific impacts of conversion in addition to air pollution. Conversion poses a significant threat to water quality and land use. Standards dealing with these impacts should be made a substantial aspect of the issuance and enforcement of prohibition orders.