Influence of the Energy Crisis Upon the Future of Environmental Policy

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The diametrically opposed cultural forces of economic growth and conservation of natural resources for future generations are being brought into sharp focus by the United States "energy crisis." This confrontation between energy and environmental concerns was inevitable. Broad questions must be addressed about the future of America's environment, resources, economy, security, national priorities and policy. Moreover, concern for environmental quality preservation and enhancement is being required at a time when the capability of the United States energy supply system to meet anticipated demands is already questionable for other reasons.¹

The perspective for the United States is one of declining resource supplies, accelerating demands, environmental concerns, and national security, all of which serve to constrain the ability of American society to continue past energy growth patterns and policies. For example, the consumer is now being called upon to institute energy conservation practices not for environmental reasons, but because of an absolute shortage of energy supplies.

A. Energy Use

The intensive use of energy in the United States is closely linked to the high standard of living. A relationship between the growth of GNP and of energy demand has been recognized for many years and, despite recent perturbations in the relationship, it is still a principal factor in forecasting energy demands.²

In farming and manufacturing, for example, expanded energy consumption to replace manpower has had the obvious impact of increasing productivity and ultimately resulted in higher wages, greater leisure time, and plentiful material goods.

In 1970, the United States consumed 63.8 quadrillion British thermal units (BTU's) of energy. This represented 35 percent of the total world consumption, making the U.S., which has 6 percent of the world's population, the largest energy consuming nation in the world. This also is true on a per capita basis with a consumption of 336 million BTU's for each American—double that in the United
Kingdom, which has the second largest consumption rate.\textsuperscript{3}

The relationship of energy consumption to other aspects of American society and its life style are no less pronounced. The transportation sector requires one-fourth of the primary energy supply, reflecting the mobility of the American population, patterns of metropolitan growth and market demands for diverse non-local consumer products such as food stuffs.

Production of secondary energy in the form of electricity also is expanding at the annual rate of seven to eight percent—compared to a growth in total energy consumption of only five percent. This growth in electrical demand is particularly significant because of the inherent inefficiencies in the generation and transmission of electric power which result in about a 65 percent loss of the primary energy. Nevertheless, electrical energy is inextricably associated with the comfort and convenience of the modern American lifestyle. Environmental demands in the form of clean urban transit, pumping for waste water plants and electrostatic precipitation of air pollutants promise to increase the dependence upon electric power.

Besides their products, the energy industries themselves are a force in the American society and its economic base. This sector of our economy directly employs over one million workers. This figure is deceptively small, because the industries are capital intensive. Based upon assets, 14 of the 50 largest industrial corporations in the United States are oil companies and 25 more are energy oriented chemical corporations, automotive or aircraft manufacturers, or corporations dependent upon manufacturing of electrical generating equipment. Although electrical utilities do not number among the very largest enterprises, the industry collectively holds greater assets than any other sector of the American economy.

\textbf{B. Energy in the Future}

Recent projections of energy consumption in the United States, even those which are based upon optimistic assumptions regarding technology, public policy, and growth, are unanimous in forecasting demands for natural gas and oil which significantly exceed domestic production. According to a typical recent appraisal,\textsuperscript{4} total U.S. energy consumption for 1985 will almost double the 1970 figures. Domestic supplies which satisfied 88 percent of our oil and natural gas demand in 1970 will supply only 70 percent in 1985. However, oil imports, mostly from the Eastern hemisphere, could account for 57 percent of U.S. oil supplies by 1985 or about 25 percent of the U.S.'s total energy consumption. Under the most favorable assump-
tions, even assuming progress in producing synthetic gas from coal, foreign supplies of natural gas could rise to 28 percent of the U.S.'s natural gas consumption. Even then, much of the unfulfilled demand will have to be met by other fuels. The implications of the gas shortage are significant because the production and use of natural gas have fewer adverse environmental impacts than any other conventional fuel.

If favorable assumptions are made concerning: (1) economics; (2) the resolution of current environmental and safety controversies; and (3) siting and construction delays; nuclear electric supplies could meet 16 percent of the U.S.'s total 1985 energy requirements. Hydropower, geothermal power, and oil from shale would probably account for only three percent.

Ample coal reserves exist in the U.S. to achieve energy self-sufficiency and there are no physical limitations on providing coal in the necessary quantities. However, the policy and management problems are impressive. Energy self-sufficiency will require an unprecedented production rate. Realistically, the United States would have to increase coal production by over 300 percent by 1985; from about 590 million annual tons in 1973, to approximately two billion annual tons. Moreover, should other energy sources such as oil imports or nuclear power experience supply demand deficits, coal might have to serve an even more difficult supply role of possibly four million annual tons by 1985—if energy self-sufficiency is to be achieved. Moreover, the coal supply system is faced with problems of surface mining reclamation, health and safety, transportation, and air pollution. The future is further complicated by economic uncertainty.

The envisioned role for coal in energy self-sufficiency can only be achieved through significantly expanded manpower training programs and increased productivity. Surface mining, which now accounts for one-third of total coal production, will also have to expand appreciably, particularly in the West where the abundant low sulfur coal reserves are not adapted to deep mining. However, inadequate reclamation practices in the past have led to objections to the disturbance of the land by surface mining and proposals have been made to apply stringent restrictions and even prohibitions against this method of coal extraction.

In addition, coal is the least desirable fossil fuel from an environmental standpoint. Such air pollutants as sulfur oxides, fly ash, nitrogen oxides, radionucleides, and heavy metals are produced in significant amounts when coal is burned, and major advances
control technology will be necessary to keep pace with Federal and State air quality emission standards.

The entire energy system faces inadequacies in processing and transportation. Public opposition to deep draft tanker terminals, pipelines, and refineries has exacerbated the problem. Capital requirements for development, processing and distribution of energy are estimated to be $375 billion for the industry over the 1971 to 1985 period, and this amount clearly necessitates a sound economic position.

Aside from the obvious problems of national security and international financial position which increasing U.S. fuel imports entail, there also may be eventual constraints upon increasing use of world energy resources by the U.S. at the expense of other developed countries. The technologically developed countries present consume about 85 percent of the world energy supplies. The remaining nations account for about 85 percent of the total world population and consume only 15 percent of available supplies. In 1980, however, the undeveloped countries are projected to increase their share to about 27 percent of a much increased annual world supply.7

The inevitable result of progressively increased standards of living in the less developed countries will be competition for available world wide supplies of conventional energy resources. In the absence of technological developments in new energy sources, either global shortages or regional environmental impacts, such as atmospheric pollution, may impose ultimate constraints upon energy availability in the United States.

C. The Electrical Problem

Within the broader dilemma of providing for increasing supplies within the limitations of ever more narrow physical and policy constraints, the situation of the electrical energy industries is especially acute. They face the prospect of supplying twice as much electrical energy in 1980 as they did in 1970, a growth rate which far exceeds that for energy demands as a whole.8

Electrical power generation shares all of the tribulations of its primary fuel sources. Accounting for one half of the demand for coal, it thereby inherits a measure of the environmental concerns of strip mining and the safety problems of underground mining. It also requires substantial amounts of gas and oil and is affected by shortages and prices of all of these fuels. The unique environmental and safety problems of nuclear reactors which were previously associated almost exclusively with electrical power generation have now
been extended to nuclear fuel reprocessing and waste disposal. Current environmental objections to the construction and optimum operation of hydroelectric power projects have had an impact upon this alternative energy source also.

II. ENERGY vs. ENVIRONMENT: EVOLUTION OF THE CONFLICT

A. Issue-attention Cycle

Anthony Downs has written a most perspicacious article on the evolution of public concern over environmental issues.9 His concept of "an issue-attention cycle" holds implications for the consideration of environmental lawmaking: past, present and future.

According to Downs, key domestic issues in the United States pass rather rapidly through a public attention cycle in the following sequence.

1. The pre-problem stage, which prevails when a condition exists but has not achieved general recognition.
2. Alarmed discovery and euphoric enthusiasm which results when some dramatic occurrence, often greatly assisted by media attention, raises the issue to prominence. At this stage, optimistic belief in an early solution to the problem usually exists.
3. Realizing the cost of significant progress is a gradual awakening to the complexity of the trade offs and the real social and economic costs of solutions to the problem. The realization leads to discouragement, fears of loss, or just plain boredom.
4. The post-problem stage in which an issue that has been replaced at the center of public concern moves into a prolonged limbo—a twilight realm of lesser attention or spasmodic recurrences of interest.10

Downs has cogently identified the aspects of the environmental issue which make it peculiarly vulnerable to such cyclical public attention. Perhaps because his article was prepared before the energy crisis moved well out of its own first phase, he did not comment upon the special role of energy matters in drawing early attention to the environmental issue and hastening it along its way.

Almost from the inception of the environment movement, there has been an inherent conflict between the ideologies and objectives of environmental advocates and those of economic growth represented by energy industries. The environmental costs of past practices of energy production, conversion, transportation and use have been significant both in the symbolic and emotional sense and in terms of real and measurable adverse impacts.

The defeat of the proposed construction of Echo Park and later the Bridge Canyon hydroelectric dams in the Colorado River Basin
signalled the transformation of the Sierra Club from an elite outdoorsman’s society to a prototype environmental advocate and public opinion leader. These initial confrontations between the environmental movement and the energy system were specific and oriented to individual projects. As environmental concerns became translated into active governmental policies and programs, however, the issues also became more generic in character.

Prior to 1968 when thermal pollution became a major political issue, the impact of Federal water pollution control programs on energy related activities was not especially significant. Particular concern was for waste heat discharges from nuclear power plants, resulting in a 1970 statutory requirement that no Federal license or permit be issued without an appropriate State certification that “there is reasonable assurance . . . that the activity . . . will be conducted in a manner which will not violate applicable water quality standards.”

In 1972, further Federal statutory recognition was given to thermal pollution with a provision regulating control of waste heat discharges. The provision also allowed a source to demonstrate that such limitations are more stringent than necessary to assure the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife in and on a given body of water. A mechanism also was provided in the 1972 Amendments for the control of water pollution originating from coal mining activities as area-wide sources.

Concurrently, Federal air pollution control legislation and regulations were evolving, principally in the wake of the Federal Air Quality Act of 1967 and reinforced by the Clean Air Amendments of 1970. And, as many States accelerated Federal statutory time-schedules, many electric generating facilities and systems were dealt particularly heavy blows.

In the aggregate, Federal, State and local emission requirements exceeded the estimated 1975 national capability “despite the best efforts of both government and private sectors.” Control strategies adopted by electric utilities emphasized a shift from high sulfur content coal and residual oil to principally imported oil and, where available, cleaner burning natural gas. As a consequence, what was to later prove a critical disequilibrium was introduced into the energy supply system as relates to electric power generation.

During this period a broader and less specific environmental imperative was added with the advent of environmental management policies calling for preassessment of the economic, social and envi-
The energy system, particularly, has felt the cumulative impacts of such environmental actions, in part because of the many manifestations of energy processes with their conspicuous environmental insults; and, in part, because of the many opportunities to intervene in Federal regulatory activities related to energy resource production, transportation and end use.

Environmental management concerns include the land use requirements of the electrical industry, which are overwhelming. Oil spill problems, from tanker mishaps, offshore drilling, or other sources are unique to the petroleum industry. Surface mining has a particularly repulsive appearance while it is in progress (and sometime afterwards). Deepwater terminals associated with burgeoning oil imports and refineries often threaten scarce estuarine lands at a time when past industrial depredations of the coastal zone are being recognized. In addition, suspicions about the safety of nuclear powerplants, while not on the list of traditional environmental concerns, nevertheless stem from a general public sentiment in opposition to the industry.

B. Charges and Countercharges

The burdens of environmental opposition have also extended to non-energy industries. For example, highways are more carefully planned and constructed than they used to be, and paper mills now install air and water pollution control technologies which had previously been considered to be too costly. But energy industries pos-
sess two attributes that destined them to a deciding role in the environmental policy cycle of concern.

First, they were already approaching a supply-demand deficit of crisis proportions when environmental controls struck them. They often either did not choose to or could not accommodate the added dislocations or requirements of environmental constraints.

Second, energy is so fundamental to the viability of modern society that the failure of energy systems can result in disasters of catastrophic proportions; even the credible threat of such failures can elicit dramatic responses from both the public and private sectors.

The energy industries recognized both of these attributes at a very early stage. The first sector of the energy system to sense imminent disruptions of service, for reasons previously mentioned, was the electrical utility industry. The new environmental constraints and "obstructionism" were singled out very early in the industries' public information and lobbying campaigns. Attempts were made both to use the threat of blackout as a ploy in environmental confrontations and to implicate environmental opposition in the impending electric reliability crisis.

Increasing conflict between environmental interests and the electric utilities was inevitable because of the nature of the industry and the pervasive impact of electrical systems upon the landscape. Beyond the gross acreages involved, it is important to recognize the special siting requirements of generating stations. Basically, they must be located near water, for cooling purposes; near fuel sources; and near populated areas so as to minimize transmission losses. Obviously these needs often conflict with local desires and frequently bring powerplant proposals into conflict with other social needs for land. In particular, proposals to locate major plants in ecologically and recreationally significant coastal areas, along scenic streams, and in unspoiled desert areas have led to numerous, well publicized public controversies.

The monopolistic nature of many electric power systems and the obviously critical dependence of society upon a reliable source of electricity has resulted in a structure of mixed private and public ownership and governmental regulation of the industry. A cumbersome system of certifications and permits for the construction and operation of powerplants has evolved, involving overlapping governmental jurisdictions, multiple hearings and applications. Thus, industry proposals are particularly vulnerable to challenges in the courts at many points.
Initially, because of failure to accurately forecast the phenomenal growth of demand; and, more recently, because of the factors reviewed above and delays in manufacturing and construction of equipment and facilities, the electrical industry has failed to keep pace with demand. As a result, many major systems do not have reserves of generating capacity sufficient to meet peak demands reliably.

Shortages of power in the form of interrupted service (blackouts) and voltage reductions (brownouts) have become common, and threats are even more common. The great Northeast blackout of 1965 has perhaps been the most dramatic instance thus far, but it was far from the most catastrophic which can be imagined.

In 1971, the National Academy of Engineering predicted that:

There is a substantial and growing crisis in the supply of electric power in the United States. This crisis results to a considerable extent from the conflict between society's requirements for more electric power and society's requirements for environmental protection and resource conservation. This conflict is not confined to electric power, but the electric power dilemma is sharper, more immediate, and more publicized than any other aspects of this conflict.26

The controversy was then already well underway before the energy crisis. National environmental groups were already drawing public attention to the construction of the 2,085 megawatt Four Corners powerplant in New Mexico. This complex emits daily over 300 tons of particulates into the atmosphere; as compared to total emissions of only 150 tons per day from all of the sources in New York City. Planning or construction is underway on other plants in the area which might ultimately total 5,000 megawatts. This air pollution would be coupled with strip mines, transmission networks and other impacts throughout a hitherto unspoiled desert region spanning five southwestern states.

Some of the most significant of the early court decisions defining the NEPA were associated with electric power stations.27 At a time when electrical utilities were having unquestionable problems, public sentiments were predominantly on the side of the environmentalists. The news media even tended to minimize or even ridicule industry spokesmen who warned of an impending energy crisis. The public apparently did not view next year's blackout as credible as this year's smog.28

During this period, the news media was replete with environmentally oriented articles; and public figures, almost without exception, were extolling the importance of environmental policies
Spurred on by public attention and support, government officials at all levels vied for leadership in environmental policies. Meanwhile, the courts were kept busy defining and enforcing the flood of new environmental law.

Downs' "issue-attention cycle" appears to be related to a cycle in the formation of public policy. The short-lived periods of "alarmed discovery and euphoric enthusiasm" about public issues are times when sufficient support and attention are available to compel fundamental policy changes.

Such infrequent revisions of society's priorities or values may be enunciated in one or more major statutes or landmark court decisions. Usually, long after the spotlight has passed over an issue, the new policy continues to be further defined. The boundaries are more precisely drawn and are often either extended or narrowed. Details are filled in by more specific and less dramatic legislation and legal interpretations, by administrative rule-making, by informal decisions, and by practice and tradition. While the elaboration of the policy is becoming more detailed and less flexible, public opinion also is evolving. Eventually, the policy will again be considered at variance with the public's will, and then the stage will be set for a new issue and for the definition of a new policy paradigm.

The policy paradigm stemming from the environmental issue has many notable milestones dealing with environmental quality management, air and water pollution control, noise, pesticides, and solid waste disposal and resource recovery, to name a few areas. These and other national policies are now faced with a period of reassessment as experience is gained in their implementation.

III. PORTENTS OF POLICY

A. Nature of the Policy Problem

For the foreseeable future, the further development and perfection of environmental policy seems certain to be influenced by the exigencies of the energy crisis. Adjustments in existing policies will have to be made where circumstances affecting the energy system offer few other options.

The physical facilities for the production, conversion, transportation, and utilization of energy are enormously complex and interrelated. Developed over decades, they can be modified or augmented only in incremental ways which often require significant lead times.

Moreover, the relaxation of physical or environmental constraints on the construction of new facilities and increased research and
development are important only with respect to long-term contributions. While a relaxation of environmental constraints can be achieved with the stroke of a pen, other policy constraints upon the energy systems are not so readily modified. For example, the rate structures employed in fuel and electric energy industries, many of them influenced by regulatory bodies, actually may have contributed to misallocations of energy resources and wasteful practices. The economic repercussions of sudden revisions of these policies would be difficult to predict.32

The newest policies, because they are not yet incorporated into the structure of the energy systems or the cultural and economic structures of society, are the easiest to amend or revoke. The most recent policies which impose important constraints upon the energy system are, of course, environmental policies.

B. Signs of the Times

Several policies where energy considerations tend to dominate environmental concerns are currently being formulated by Congress. These three important decisions at the Federal level are: (1) surface mining regulation; (2) the Alaska pipeline legislation; and (3) emergency energy measures.

1. Surface Mining

A federal policy to insure the reclamation of surface mined lands has been under active consideration in the Congress for some years. For obvious economic reasons, it has been strongly opposed by mining interests. The impressive support for legislation requiring surface mining reclamation is a direct consequence of the rise in public interest in environmental matters which arose primarily out of the Appalachian experience. Thus the problem has been viewed primarily as a coal mining problem,33 although it is common to the extraction of all minerals by surface mining methods. More significant, however, is the tendency, until recently, to view the formulation of a Federal surface mining policy as an environmental rather than energy policy concern. Yet both policy issues are so intrinsically interwoven as to effectively be inseparable.

Late in the 92d Congress, the House of Representatives passed a measure which would have imposed very severe restrictions upon surface mining of coal.34 There is little doubt that the enactment of the measure would have led to the termination of a substantial portion of mining in mountainous regions of Appalachia. The Senate did not consider or vote on the House bill. Faced with adjourn-
ment, the Senate Committee on Interior and Insular Affairs requested the Executive Branch to prepare a report on the probable impact of various surface mining restrictions upon coal supplies.35

Subsequently, in the 93d Congress, the Senate Interior Committee reported a measure devoid of any absolute prohibitions. The ensuing floor debate was dominated by discussion of the impact which might be expected from the bill on energy supplies.36 The bill37 as passed by the Senate, however, included a floor amendment which industry portrays as impeding the surface mining of coal in Western states. Under the so-called Mansfield amendment on land where the surface rights are held by private interests and the coal rights are held by the Federal government, approximately 45 million acres would be withdrawn from surface mining. Underground mining would be permitted, however.

In his November 7, 1973 television address, President Nixon called for "reasonable standards for the surface mining of coal." As of this writing the outcome of the legislation in the House of Representatives remains in doubt. Whatever the outcome, however, the measure may well represent the last regulatory initiative for some time imposing new environmental restrictions upon energy supply activities.

2. Alaska Pipeline

Recent legislation to permit construction of the Alaska pipeline was enacted principally to remedy a technicality in the law concerning rights of way over public lands.38 Specific provisions were enacted to prevent further legal challenges to the proposed pipeline under the provisions of the NEPA. The statutory limitation, however, was carefully designed to establish a minimal precedent and to afford the most circumscribed exemption from the NEPA's requirement for an environmental impact statement.39

3. Emergency Energy Measures

A much more sweeping and perfunctory exemption from the NEPA procedures is included in a measure recently passed by the Senate and House of Representatives, but vetoed by the President, which provided for emergency responses to the energy crisis.40 Faced with petroleum supply-demand deficits of 2.7 to 3.5 million barrels per day for the first quarter of 1974 from a Middle East embargo, a one-year exemption from NEPA's requirement for an environmental impact statement was proposed for actions taken to deal with the energy emergency. However, actions taken during the emergency
which would remain in effect for more than one year would be subject to a full NEPA review. In other words, the short-term energy crisis would in no way affect the long-term applicability of NEPA.

In an effort to reduce residual oil consumption many electric generating facilities are being encouraged by Federal officials to switch over to coal where possible. Over the short term the incentive is a possible suspension of state emission limitations under the Clean Air Amendments of 1970 until November 1, 1974. However, even here the Federal government is empowered to establish such interim requirements as are determined to be reasonable and practicable.41

Although this proposed capability for short-term suspension is not limited to coal users, the potential savings of residual oil during the first quarter of 1974 are in excess of 200,000 barrels per day.42 In recognition of the need to balance energy needs with environmental requirements and the unique problems facing any source converting to coal in response to the energy emergency, it is proposed that an opportunity also be provided for an extension of applicable compliance schedules, but not beyond January 1, 1979.43 However, in no instance would emissions from a source be allowed to "materially contribute to a significant risk to public health," and all sources would have to comply with applicable emission limitations as soon as an adequate coal supply with a suitable sulfur content became available. Alternatively, they would have to commit themselves to the installation of continuous emission reduction systems or scrubbers. In the latter case there would be the additional requirement of a showing that conforming coal is not available.

Combined with authority to set priorities for the distribution of available continuous emission reduction systems and low-sulfur fuel supplies, coal conversion could take place with a minimal disruption to public health and welfare. Moreover, such conversion would be examined on a plant-by-plant basis in a balancing analysis of the energy need and environmental harm which might result from coal conversion.

In summary, even when faced with an energy emergency, the Congress has indicated its intention to preserve the concept of standards of performance as contained in the Clean Air Amendments of 1970. Although some violation of the national primary (health) ambient air quality standards would be permitted, the public would not be exposed to significant health risks. Moreover, the maximum extension of time available to a source beyond current Clean Air Act deadlines would be 18 months —until January 1, 1979 rather than July 1, 1977.44
IV. Speculation on the Future

Looking to the long term situation, the energy issues that will affect present environmental policy are not as yet well defined, but the experience which has been noted provides some tentative indications. The predominant outcry is that the energy system is in trouble and that the trouble is likely to get worse.

When the public experiences failures or feels threatened by failures of essential services, it will demand governmental intervention to protect public health and welfare, safety, and conveniences and to support national goals. Thus as the energy situation becomes worse, it also will tend to become a governmental problem, and government officials will inherit its dilemmas. However, mere policy as distinguished from physical constraints, can be quickly relieved. Certainly government officials cannot be expected to promulgate or aggressively enforce policies which could have the effect of unduly aggravating the energy situation. The immediate future, therefore, will probably be a period of retrenchment in environmental policy. New environmental prohibitions or regulations which are viewed as unduly restrictive are unlikely to be supported, and existing administrative authorities will not be as zealously pursued as they have been to date.

Furthermore, after the pattern of the Alaska pipeline and the emergency powers legislation, some additional legislative remedies and even exemptions from environmental restrictions can be expected on a case by case basis. Certainly, in the name of the energy crisis, they will be proposed. Nevertheless, it is unlikely that any major body of environmental law will one day be stricken from the statute books. There is considerable evidence that an environmental imperative has been inculcated into public attitudes to an important degree. Even when arguing relief from environmental constraints, many public figures nevertheless are solicitous of the public desire for "sensible" environmental protection.55

Often the news media spokesmen commenting on energy matters are the same people who covered the environmental issues of recent years. Having learned the rubrics of ecology and environment, many of them are also personally sympathetic to environmental values.

Environmental advocate groups are now strong and well organized. Although their public support and political leverage will diminish, they still will enjoy a large following which shares scientific, recreational, and altruistic interests in environmental affairs. Environmental groups have had an early and continuing voice in the energy debate. They have provided a base of support for new energy
forms, such as solar and geothermal, which do not yet have established industries or client groups of their own. Environmentalists, furthermore, have introduced an important new consideration into public attitudes toward the resolution of the energy crisis. Faced with an admission that there is no way to meet projected demands for energy without what are viewed as unacceptable adverse environmental impacts, most environmentalists are then quick to question the validity and legitimacy of such projections. Accepting the inevitability of continuing population growth over the short run, they strive to show that increased per capita use of energy in the United States need not be essential to a healthy economy nor a true measure of the standard of living. Pointing out areas of waste and inefficiency in the energy system, they also abhor promotional advertising in the utility industry.\footnote{6}

Energy conservation, though, already has gained wide acceptance as one of the precepts of any national energy policy,\footnote{47} and conservation is certainly not a natural outgrowth of the promotional energy policies of the past.\footnote{48}

Yet another heritage from the environmental movement shows the promise of continued influence of such policies in energy decisions. Environmental concerns are now intimately wrapped up with a broader public scepticism about the way industries and public agencies do business. Moreover, there is a deepseated sentiment in the American people that the decisions of government and business too often have not reflected the public interest and, more importantly, have largely been made beyond the reach of public influence. The environmental advocate's effective use of public opinion, citizen action, and public interest lawsuits, however, has demonstrated that it is possible for the interested citizen to recapture some influence over those decisions which have impacts on society. And the public interest advocate is going to continue to influence the use of public resources and the provision of public services. Whether the public should be expected to always share in the priorities and values established by the utility executive or government official concerning energy problems and their solutions remains at issue. Citizen action and citizen participation in government and corporate decisionmaking certainly may lose much of its environmental emphasis. Nevertheless, the consumer will demand accountability for the causes of blackouts, fuel shortages and soaring energy prices. The consumer furthermore will insist upon an open examination of, and public involvement in, energy crisis decisions by both industry and government.
Within government and industry, an environmentally oriented constituency also has been created which will continue to nurture its values. The great body of Federal, State, and local environmental law and regulations that exists will be strongly reinforced by administrative procedures, habits, and institutional attitudes. Nearly all companies and agencies have recruited a cadre of environmental specialists, often including very high level policymakers, who will retain a vested interest in a sound environmental policy.

Particularly in the industrial sector, environmental problems have provided market opportunities for specialized expertise and services. In government, recent reorganizations have created major agencies with environmental programs and policies as their fundamental purposes.

V. THE SILVER LINING

In a few short years, society has acquired an appreciation for environmental management and has created institutions for that purpose. Neither the appreciation nor the institutions seem likely to be easily silenced or obliterated. What does seem probable is that the approach to environmental quality management in the future will be more balanced and less emotional. Neither environmental law nor its enforcers will continue to enjoy the luxury of operating in a vacuum or of discounting other vital needs of society. Those environmental groups which have cast every confrontation as Armageddon, will have to accept the “trade-off” nature of many decisions involving environmental values. Environmental interests may have to accept responsibilities previously shrugged off in the euphoria of victory as it becomes necessary to consider overall economic, social, and environmental costs and benefits.

Environmental prohibitions, in the form of pollution control standards for example, will certainly continue to be established and rigorously enforced. There will undoubtedly be verification required of the scientific evidence of the need for such standards, particularly where control requirements are viewed as clashing with other social aspirations.

A spirit of accommodation will be necessary and may be undertaken on a case by case basis as a “balancing” of environmental costs and benefits against the cultural, economic, and social costs and benefits with the outcome being both action and inaction. Thus the concept originally contemplated in NEPA may now be achieved.

In its return, if the pendulum does not swing too far, if the energy
crisis moderates and tempers environmental policy rather than destroys it, the future may prove to be a time of constructive progress for environmental quality management.

Footnotes

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2Energy consumption per unit of GNP has remained constant for many years. From 1880 through 1920 the ratio tended to increase slightly. It then began to decrease at a very slow rate. In 1966, the trend again reversed but the total variation over the entire range has been small. For detailed analysis of the modern relationship between energy consumption and GNP see, National Economic Research Associates, Inc., ENERGY CONSUMPTION AND GROSS NATIONAL PRODUCT IN THE UNITED STATES, (New York, N.Y., 1971).

3Arthur D. Little, supra n.1, at 2.


6Id. at 105. Currently, approximately 150,000 mines produce the annual United States' output of 590 million tons. Id.


8Current projections of electrical energy demand forecast an average annual growth rate of between 7 and 8 percent for the remainder of this decade, a rate which is commensurate with recent experience. An annual growth rate of 7 percent would result in a doubling of total annual consumption over a ten-year period. Total energy consumption in the same period is estimated to average slightly less than the 5 percent annual increase of recent years. Wulfe, K.W., ENERGY OUTLOOK TO 1980, (Arthur D. Little, Inc., Cambridge, 1971).
Construction of the Echo Park Dam was proposed by the Department of the Interior as a feature of the Upper Colorado River Storage Project. When the project was finally authorized by the Congress in 1956 (70 Stat. 105), the 200,000 megawatt dam on the Green River was deleted, largely as a result of a national publicity campaign contending that the reservoir would degrade portions of Dinosaur National Park.

A similar, but more dramatic conflict resulted in the deletion of the proposed Bridge Canyon Dam from the Colorado River Project Act (82 Stat. 885) in 1968. The characterization of the proposal as “damming the Grand Canyon” attained national prominence and figured in the early formation of a national environmentalist interest group.

Section 102(2)(c) of the Act requires a “detailed statement” to be prepared in connection with “proposals for legislation and other major Federal actions significantly affecting the human environment.” The adequacy of such statements has been frequently challenged in the courts resulting in some instances in injunctions against the action during judicial review.

As of June 1, 1973, 419 suits challenging agency compliance with section 102(2)(c) of the NEPA had been brought before the courts.

For example, the decision to grant a right-of-way for the construction of a pipeline to oil fields on Alaska’s North Slope was delayed over four years until legislative relief was forthcoming.

In the next twenty years, new high-voltage transmission lines
will require 3 million acres of new rights-of-way while 225 major new electric generating stations will have to be constructed, requiring some 140,111 acres of prime industrial sites. One environmental group has extrapolated the land-use requirements of major powerplants for two centuries. They contend that after that time: "... all of the available land space in the United States would be taken up by such plants. Not the available fuel resources or water for cooling—just physical space. This does not leave room for transformers and transmission lines, let alone people." Committee for Environmental Information, The Space Available, Our World in Peril: An Environment Review, at 203-4, ed. by Sheldon Novick and Dorothy Cottrell (Greenwich, Conn., Fawcett Publications, Inc., 1967).

One of the most overt of such efforts is contained in the 1972 report of the National Electric Reliability Council. The report, taking note of a relatively specific court decision on a nuclear powerplant [Calvert Cliffs Coordinating Committee v. Atomic Energy Commission, 449 F.2d 1109, 1 ELR 20346 (D.C. Cir. 1971), cert. den., 404 U.S. 942 (1972)] began with the unsupported and unexplained assumption that every nuclear or fossil-fired electric powerplant then under construction, at whatever stage, would be delayed 12 months. The report then assessed the impact of such delays upon the reliability of national electric systems. Not too surprisingly, the impact was shown to be profound. National Electric Reliability Council, Impact of a 12-Month Delay of New Nuclear and Fossil-Fired Steam Generating Units on the Adequacy of Electric Power Supply in the United States.


A 1972 Albuquerque news story, for example, noted that the Arizona Public Service Company’s three units of the Four Corners powerplant were out of service as a result of problems with pollution
equipment. The writer noted that the Company earlier had contended that shutdown of the units "could result in a statewide blackout." He admitted that conditions might not be the same during the two periods but went on to say: "Incidentally, news of the most recent shutdown of all three units was not made public by APSC until more than four days after they had gone off the line. Meanwhile, electrical consumers in Phoenix presumably noticed no change in service." He concluded that the Company's "... public responsibility seems to be marred by their questionable credibility." *Albuquerque Journal*, Feb. 8, 1972.

29Both the Democratic and Republican 1972 Platforms contained sections on the environment in which specific environmental policies were advocated and the enactment of expanded legislation in this area was urged. Senate Library, *Factual Campaign Information*, at 229-34, 304-6, (1972).

30In the 92d Congress (1971-1972), alone, Congressional attention devoted to environment and natural resources resulted in the enactment of 189 public laws, almost one-third of all the legislation enacted by the 92d Congress; 79 of these laws established specific environmental management objectives.

31Construction of a major electric powerplant requires 5 to 7 years under the best of circumstances. It takes some three years to open an underground coal mine and two or more years to construct an oil refinery. It will take three years to complete the Alaska pipeline.

32A concrete example is the electrical utility concept that contracts with industry for "firm energy" do not permit interruptions of service in times of peak loads. In many instances, this policy is reinforced by the physical inability to disconnect the load.

33Of the total acreage disturbed by surface mining in the United States, some 43 percent has been associated with coal mining; however, looking to the future, coal surface mining is expected to predominate over other minerals extraction.


36See, the CONGRESSIONAL RECORD for October 8 and 9, 1973.


The massive environmental impact statement, completed well in advance of consideration of the legislation, was deemed by Congress to satisfy the requirements of NEPA.

Subsection 205(c) of the Conference report on S. 2589, which passed the Senate on February 19, 1974, and passed the House of Representatives on February 27, 1973, provides that:

No action taken under this Act shall, for a period of one year after initiation of such action, be deemed a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (83 Stat. 856).

The draftsmanship of the provision holds an interesting symbolism, although probably unintended.

Subsection 201 of the conference report on S. 2589 would add a new section 119 to the Federal Clean Air Act (42 U.S.C. 1857 et seq) empowering the EPA Administrator to suspend applicable emission limitations until November 1, 1974, upon his own initiative or upon application of a source itself or a State. Under existing law similar suspensions can be initiated only by the action of a State. The key factor justifying such actions is the unavailability of suitable fuels. Nevertheless, such suspensions would be conditioned upon the avoidance of an “imminent and substantial endangerment to the health of persons.” Moreover, the suspension would be “inapplicable during any period when clean fuels were available to such source.”

The Federal Energy Office identified 46 electric power plants using oil as their primary fuel that might be reconverted to the use of coal. Under optimum conditions some 500,000 barrels per day of residual oil would be freed, or 79 percent of the capacity that had earlier converted from coal. When classified to reflect environmental factors the EPA classified 23 as low environmental risk (8,170 megawatts or 196,000 barrels per day), 12 as needing examination (4,400 megawatts or 97,000 barrels per day), and 11 as serious environmental risk (5,260 megawatts or 110,300 barrels per day).

Three factors entered into the conferees’ decision to encourage coal usage through 1979: (1) a desire to encourage the on-going substantial demand for coal necessary to opening of new mines or expanding existing mine capacity; (2) to the extent that conversions were successful, oil and natural gas would be released to meet other energy needs; and (3) since continuous emission reduction technology is available for major sources such as power plants but not for sources such as homes, apartment houses, and small business, the conferees on S. 2589, were of the opinion that the purposes of the Clean Air Act would be better effectuated by having low pollution
oil and natural gas used to the maximum extent feasible, in sources for which no effective control technology is available.

4The Federal Clean Air Act (42 U.S.C. 1867 et seq.) requires the achievement of the national primary (health) ambient air quality standard by July 1, 1975, with the possibility for two one-year extensions.

5An October 1, 1973, editorial in Oil Daily recently commented:

The point is, extremes of environmental engagement can wait, although basic environmental protection need not and should not be abandoned. But the crisis of faltering, wasting and declining energy supplies cannot wait—if our nation is to survive over a period of time in its national security and a healthy economic state. (emphasis added)

6See, for example, Holdren and Herrera, Energy, at 252.

7Nearly every major energy policy position taken by public figures regarding the energy crisis includes a strong element of energy conservation. A typical example is a policy statement adopted by a committee of the National League of Cities on September 18, 1973. A major section of the statement entitled Conservation of Energy Supplies began with the statement:

The United States has been endowed with very ample energy resources. As a consequence, we have become somewhat profligate in their use. We can no longer take our natural resources for granted.

Energy industry advertising also has belatedly forsaken product promotion for conservation themes. A recent nine-page Exxon magazine advertisement included the uncharacteristic exhortation to reduce gasoline consumption through the use of lighter more efficient automobiles; car pools; better vehicle operation . . . . (Time, Nov. 26, 1973, at 62-70).

8Expressions of energy policy until now have been overtly growth oriented. Abundant, cheap energy was seen as a means of advancing other social objectives in such policy measure as the Federal Water Power Act (41 Stat. 1063), Rural Electrification Administration Act (49 Stat. 1363), Bonneville Power Act (50 Stat. 731), Atomic Energy Act (60 Stat. 755).

9Responding to the cry of environmental concern, the American Petroleum Institute formed, within its organizational structure, a Committee on Environmental Affairs as well as one devoted to Conservation liaison. Oil companies, such as Continental Oil, have added directors of environmental conservation to their executive levels; while in the electric utility industry Consolidated Edison has an Executive Vice President in charge of Environmental Affairs and Northeast Utilities has added a similar executive position to its operations.
Federal agency examples include the Department of Defense, where a post has been established for an Assistant Secretary of Defense and Environment, and the Department of Transportation which now has an Assistant Secretary for Environment, Safety and Consumer Affairs.

Perhaps seeing the writing on the wall, Edison Electric Institute in New York City added a Division of Environment and Energy.

For example, the September 1973 issue of CIVIL ENGINEERING, the professional journal of the American Society of Civil Engineers, was devoted to “Environment Engineering” as a special issue.

At the Federal level these include the Council on Environmental Quality in the Executive Office of the President, the independent Environmental Protection Agency, and the National Oceanic and Atmospheric Administration in the Department of Commerce. Most states have reorganized as well, to emphasize environmental programs.

In 1971, for example, five environmental groups sponsored full page ads in regional newspapers, opposing the development of surface mines and powerplants in the Southwest. This highly complex and difficult controversy was characterized by the headline, “Like Ripping Apart St. Peters, in Order to Sell the Marble.” N.Y. TIMES, May 20, 1971, at C-31.

In August, 1973, the Senate Public Works Committee contracted with the National Academy of Sciences-National Research Council to examine the evidence available on air pollution health effects from sulfur oxides, particulates, carbon monoxide, nitrogen oxides, and photochemical oxidants (hydrocarbons). Their report in July, 1974, will serve as a basis for Congressional examination of this area (Senate Report No. 93-369, August 1, 1973).

Section 102(b) of the NEPA states that all agencies of the Federal government shall: “. . . identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by Title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations.” (83 Stat. 853, P.L. 91-190).