

Legal and Ecological Aspects Of the International Energy Situation[†]

The demand for energy in the United States has grown and continues to grow at rates far greater than those foreseen even in the recent past. This growth is a matter of increasing concern to the Department of State, and indeed to the Administration as a whole, since it involves a wide range of security, economic, and ecological factors all of which must be taken into account in developing a rational energy policy.

Of these, the environmental factors are by no means the least important. The current energy situation (to which some refer as a "crisis") is to a considerable degree the result of changes in consumption and policies based in large part on ecological considerations. These are difficult issues at best, and are complicated by the security and economic considerations which must also be taken into account.

The production and consumption of energy are certainly not the only causes of pollution, but they are major sources, with important effects arising from almost every incident of these functions. Strip mining of coal and the utilization of platforms at sea for oil drilling, are increasingly necessary in connection with the extraction of fossil fuels. The danger of leakage, spills and sinkings, as well as unsightly pipelines and power lines, attend the transportation of fossil fuels and energy, with increasing dangers as economic factors result in the use of larger vessels and pipelines over dangerous terrain.

The combustion of fossil fuels results in varying degrees of air pollution, for which adequate controls are not yet economically available. The advent of nuclear power will result in thermal effects on neighboring waters, which

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have not been fully evaluated. The disposal of radioactive wastes from nuclear energy will also present important problems, as may the disposal of wastes resulting from the production of synthetic gas from coal.

Clearly, the increased consumption now apparent in the immediate future will increase the incidence and importance of these environmental problems. The conflict between environmentalists and industry has already been manifest in statements by spokesmen for the oil, automobile and other industries, to the effect that increased energy needs can only be accommodated by a reduction in environmental restrictions on supply and consumption.

These needs have also been cited by those seeking approval of the TransAlaska Pipeline. The issues are relatively clear, and the important factors underlying the position of both factions may be expected to contribute to a hardening of the positions of each.

It is clear that the cleanest source of energy generally available at present is petroleum. While clean alternatives exist, technological and/or economic considerations will prevent them from being a meaningful substitute for petroleum for at least ten or fifteen years. In the meantime, we may expect increased pressure to utilize the country's vast reserve of coal. This pressure will be augmented by the political and economic factors of the developing oil situation.

At the present time, the United States consumes about 15 million barrels of oil per day. By 1985, it is anticipated that this consumption will double to approximately 30 million barrels per day. Domestic reserves, however, have not been increasing apace. Current reserves are approximately 36.8 billion barrels, including 10 billion barrels in Alaska.

Although new finds are certain, the fact is that new finds are not keeping up with the rate of extraction, so that total reserves have been in decline since March of 1972. Consequently, unless adequate substitute sources of energy are developed, the United States will be required to import increasing amounts of petroleum. One must look for a moment at the national security and economic problems which this will engender, and then at the environmental aspects.

The national security problems of increased petroleum imports become apparent when one looks at the geographic distribution of known petroleum reserves. Some 355 billion barrels are located in the Middle East; 138 billion are in Saudi Arabia alone; 65 billion are located in Iran. In Africa, there appear to be 106 billion barrels, including 47 billion in Algeria, 30 billion in Libya, and 15 billion in Nigeria.

In East Asia, reserves are estimated at 15 billion barrels, including more than 10 billion in Indonesia. These regions are distant from the United

States, and bulk carriage will require a vast fleet of tankers plying extended sea lanes on a constant basis. Protection of these sea lanes in an emergency situation will pose a difficult problem.

It is for these and other reasons that the United States adopted the mandatory oil import quota program in 1959¹ and that it accorded preferential quotas to Venezuela and Canada.² Canada is clearly the most secure source, with its inter-provincial pipeline system, and numerous pipelines directly into the United States. Canada's reserves are estimated at over 10 billion barrels, but its concern for domestic supplies recently led it to impose controls on petroleum exports, to ensure supplies needed for domestic consumption.

Venezuela's reserves, estimated at approximately 14 billion barrels, are declining. There are, however, estimated to be almost 1 trillion barrels in Venezuela's heavy oil belt. Of this, approximately 100 billion appear recoverable by existing techniques, but only after investment of large sums in new production facilities (perhaps as much as 30 billion dollars).

Reliability of these sources is also an important aspect of the problem. Some of these countries are politically unstable; many more are politically volatile. Relations with the United States, like all relations, are subject to ups and downs in each country. The degree to which the United States can rely on the willingness of these governments to supply it with adequate quantities of petroleum is the subject of extensive study in Washington.

Nor is the problem theoretical only. In 1972, it has been reported that Arabs in responsible or influential positions have made no less than 15 different threats to use the supply of oil as a political weapon.³

The economic implications of our growing dependence on foreign oil are no less serious. In the light of recent events, the nature of such implications is clear. In 1960, Venezuela, Iran, Saudi Arabia and other important producers formed the Organization of Petroleum Exporting Countries

¹Pres. Proc. No. 3279, 24 Fed. Reg. 1781 (1959).

²The preference for Canadian oil imports under the quota system was inaugurated in Pres. Proc. No. 3290, 24 Fed. Reg. 3527 (1959), amending Pres. Proc. No. 3279, 24 Fed. Reg. 1781 (1959). Imports from Venezuela have received indirect preference by Pres. Proc. No. 4092, 36 Fed. Reg. 21398 (1971), which stipulated that only "Western Hemisphere" oil could fulfill the quota for No. 2 fuel oil imported into Districts I-IV. As a practical matter, Venezuela is the only "Western Hemisphere" oil-producing country outside of Canada and Mexico, which had already received special allotments. Although Pres. Proc. No. 4210, 38 Fed. Reg. 9645 (April 18, 1973), has abolished the quota system in favor of a license scheme with fees chargeable on unlimited amounts of imported oil, Canada and Venezuela retain preferences in their allotments of oil which can be imported initially without payment of the fee. *Id.*, amending Pres. Proc. No. 3279, §§ (a)(1) and 2(d), 24 Fed. Reg. 1781 (1959).

³Akins, *The Oil Crisis: This Time the Wolf is Here*, 51 FOREIGN AFFAIRS Q. 462, 467 (1973).

("OPEC"), initially for the purpose of restoring posted prices to the level preceding a 1957 rollback.

While OPEC does not always reflect unanimity of purpose, it has nevertheless been effective in furthering certain of the producers' interests. There have been no price rollbacks since its organization, and there have been innovative policies developed for increasing the tax revenues of these countries from oil exports.

In 1970, Libya demanded increased tax revenues by virtue of its accessibility to Europe following closure of the Suez Canal. When these concessions were negotiated, the other Arab producers demanded and obtained similar tax increases. Libya, therefore, demanded still further tax concessions based on its preferred geographic position. Thus a full circle of tax increases was in progress, known as "leap frogging."

When Libya indicated a deadline for accession to its demands, and threatened to cut off supplies to the international oil companies, the government of the United States became directly concerned. Then Under Secretary John Irwin paid calls on the Shah of Iran, the King of Saudi Arabia, and the Ruler of Kuwait to express official concern about the threats. These leaders assured him that any cutoff would relate only to the international oil companies party to the negotiations, and would not be directed against the United States.

They agreed to an extension of the deadline for negotiations, and gave their assurance that any agreements reached with the companies would be honored for their full terms. A settlement with the companies was then reached in Tehran in February, 1971, to extend to 1976. When the dollar was devalued in October of 1971, however, the OPEC countries insisted on an increase in revenue equal to the devaluation of the dollar, notwithstanding the Tehran agreements.⁴

In 1972, the OPEC countries determined to insist on an even more fundamental adjustment of their contractual relationships with the international oil companies. Notwithstanding that the Tehran agreements were to last at least until 1976, and that the underlying contracts with the companies did not terminate by their own terms until the late 1980s and 90s, the Middle Eastern and African producers asserted that they would nationalize production unless the companies agreed to active participation by the host governments.

Following extensive but precipitous negotiations, tentative agreements were signed by Saudi Arabia, Kuwait, Abu Dhabi, Qatar and the companies operating in those countries, providing for an immediate 25 percent

⁴*Id.* at 470-75.

equity interest for the host governments, increasing to 51 percent by 1982. Iran demanded reduction of the companies' rights to a 5-year sales commitment, renewable at the discretion of both parties. The companies would continue to manage operations, but budgets and production matters would be subject to approval by the National Iranian Oil Company.

The subjection of these long-standing contractual relationships to the principle of *rebus sic standibus* raises basic questions as to the reliability of any contractual arrangements for exploration, supply, price, taxation or investment.

While today, only approximately 15 percent of the United States' consumption is imported, by 1985 it is anticipated that imports will account for approximately 25 percent of consumption. In view of the instability surrounding the arrangements underlying the international oil market, the negotiation of prices may prove to be an agonizing and frustrating problem. And if escalating prices are combined with increased import requirements, there will be a serious impact on the already problematical balance of payments situation of the United States.

The prospects for increased reliance on imported petroleum are therefore pretty bleak. But the alternatives are beset with problems also, not the least of which are ecological. The United States is estimated to have approximately 3.2 trillion tons of coal, of which 150 billion tons are in known formations accessible to present technology. Coal, however, is the worst offender in terms of pollution. Its smoke contains sulphur compounds which, when mixed with moisture in the air, becomes an acid which decomposes metal and stone, not to mention man's lungs.

Many deposits, moreover, require surface mining for economical extraction. The air problem can be resolved by conversion of coal to synthetic gas. By 1985, it is estimated that approximately 1.7 trillion cubic feet will be available from this process. When compared with the 22 trillion cubic feet of natural gas produced in 1973, however, these prospects are of limited importance. Conversion to liquid fuels is still under development, and the cost of such fuels will be substantially higher than the natural fuel.

The development of commercial nuclear technology has also encountered environmental and technological problems. While reserves of uranium appropriate for commercial fuels are limited, the technology for creating artificial radioactive fuels may be anticipated at an early stage. In addition, fast breeder reactors, which produce radioactive fuels as a by-product of its fuel consumption process, are anticipated to begin production in the 1986-1990 period.

Ultimately it is hoped that the development of fusion technology will permit the utilization of the boundless quantities of seawater as an energy

source. In the interim, however, new nuclear plants are being contested by environmentalists. This opposition is based on fear of radiation released into the environment, significant thermal changes in natural waters used for cooling, the difficulty of disposing of radioactive waste products, and the fear of accidental explosions.

There are, of course, other sources which are largely free from environmental impact. The clean burning qualities of natural gas have resulted in major shifts by consumers from other energy sources in recent years. This change has been augmented by low prices resulting from government controls imposed by the Federal Power Commission.⁵

These same controls, however, limit the economic incentive for exploration, with the result that there is very little exploration being done at present. Consequently, domestic reserves of 271 trillion cubic feet are declining. In 1970, production was over 22 trillion cubic feet. In these circumstances, increased demand could be met only for a limited period.

Some of this demand might, of course, be imported, using refrigerated liquified natural gas tankers. Arrangements have been recently approved for the supply of such gas from Algeria, and negotiations are currently in progress with the Soviet Union. The cost, of course, will be substantially higher than the regulated price for domestic gas. Concern has also been expressed about the safety of LNG handling, and legislation has been introduced in the House, requiring a thorough study of these problems by the Coast Guard and the issuance of appropriate regulations.⁶

Another source of comparatively clean energy is thermal. Thermal energy is presently being commercially utilized by seven countries, including the United States, the USSR, Iceland, Japan and New Zealand. It may be feasible in as many as 80 countries. In the United States, Gulf Oil Company has recently requested permits to drill in the Imperial Valley of California and in Oregon. Other companies have also filed for permits in the Imperial Valley.

One thermal plant is in operation near San Francisco, and plans for a pilot plant are developed for San Diego. The Department of the Interior has announced that it will lease 59 million acres of potential geothermal land, of which approximately one million acres are viewed as prime. This interest in thermal energy, especially in California, is a direct result of environmentalist opposition to the construction of conventional and nuclear power plants.

⁵18 C.F.R. § 154.105 (1973).

⁶H.B. 5755, 93d Cong., 1st Sess. (1973), to suspend imports of liquefied natural gas until a thorough evaluation of hazards associated with marine transport, delivery and storage is made and actions taken to prevent such hazards.

At a recent UN conference, Mexico, which has a thermal plant almost in production, has noted that the steam from beneath the surface is not entirely clean. Mixed with it is sulphuric gas, which may cause serious pollution problems if not removed by prevailing winds. Closed systems are being developed, however, which will eliminate this problem as well as the problem of noise.

As stated above, it is clear that in addition to economic and technological factors, ecology is an important consideration in the development and utilization of various energy resources. Many of these ecological problems are international in nature, either because they involve ecological effects in one country from activities conducted in another, or because they take place on the high seas.

There is considerable law developing in both of these areas. In 1941, an arbitral tribunal created by treaty between the United States and Canada held that Canada was responsible for damages for injury done in the United States by fumes from a privately owned and operated Canadian smelter.⁷ Canada was required to prevent such damage in the future. Interestingly, the tribunal referred to several decisions by the Supreme Court of the United States involving trans-boundary damage in the United States.⁸

This theory of state liability for damages in an adjoining state from activities entirely within the territory of the first, receives support from subsequent international practice. When it was discovered in 1972 that children in El Paso, Texas, had a high lead count in their blood as a result of the proximity of a lead smelter, the Department of State arranged with the Government of Mexico for the examination of children by United States Public Health officials on the Mexican side of the nearby border.

In July of 1972, a U.S. flag tanker spilled oil off Cherry Point on the coast of Washington, which spread to Canadian beaches. The Government of Canada sent a note requesting compensation from the United States. The Department of State replied that it agreed with the principle of the *Trail Smelter Case* and the Stockholm conference, but that a number of issues remained to be resolved in connection with determining liability. For example, is liability to be strict or absolute, or is fault required?

If fault is required, is it enough that the private party's fault is established, or must the Government be also at fault, for example, in not regulating the particular activity? Must available remedies against the private tortfeasor be exhausted before liability attaches to the Government? What if the

⁷Trail Smelter Case (United States v. Canada), 3 U.N.R.I.A.A. 1905, 1911, 1938 (1938, 1941).

⁸*Id.* at 1964-65.

complaining Government does not regulate the conduct involved? These issues were never resolved in the Cherry Point incident, because satisfactory compensation was paid directly by the vessel's owner.

There has been considerable diplomatic effort to create a suitable legal régime governing marine carriage pollution. Under the auspices of the Intergovernmental Maritime Consultative Organization ("IMCO"), an International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties was negotiated in 1969.⁹ This Convention gives coastal States the right to destroy or tow away stranded vessels that pose an oil-spill hazard.

An International Convention on Civil Liability for Oil Pollution Damage was also negotiated in 1969¹⁰ which provides strict liability for carriers, limited however to \$15.2 million if that amount is placed in escrow at the outset of a claim. It also requires participating States to require vessels registered under their flags to carry certificates of financial responsibility for pollution liability.

Disasters not covered or involving damages greater than \$15.2 million are covered by an International Convention on the Establishment of the 1971 International Fund for Compensation for Oil Pollution Damage.¹¹ This convention provides for additional coverage for pollution damage, from a fund to which all oil cargo receivers are to contribute. In addition, participating carriers may receive a partial reimbursement for any liability under the civil liability convention.

All of these treaties have been signed by the United States, and are pending before the Senate for ratification. IMCO is continuing its efforts in this regard, and complete elimination of international pollution from oil and noxious substances and the minimization of accidental spills are the announced objectives of its 1973 conference on marine pollution scheduled for October.

These rules, of course, are in addition to the actions taken by state and federal jurisdictions in the United States. The Federal Water Quality Improvement Act,¹² enacted in 1970, subjects shipowners and terminal facilities to liability without fault up to \$14,000,000 and \$8,000,000, respectively, for clean up costs incurred by the federal government as a result of oil spills. It also authorizes the President to promulgate regulations requiring ships and terminal facilities to maintain equipment for the prevention of oil

⁹Sen. Exec. G, 91st Cong., 2d Sess. (1970). The International Conference Relating to Intervention on the High Seas in Case of Oil Pollution Casualties was ratified by the U.S. Senate on September 20, 1971.

¹⁰Sen. Exec. G, 91st Cong., 2d Sess. (1970).

¹¹Sen. Exec. K, 92d Cong., 2d Sess. (1972).

¹²33 U.S.C.A. § 1321 (1970).

spills. A number of states have supplemental legislation, including Alabama, Florida, Georgia, Maine and New Jersey. Florida's law was recently upheld in the Supreme Court¹³ against challenges based on preemption. It provides for strict liability for damages incurred by the state or private persons as a result of an oil spill in its territorial waters from any terminal facility or ship destined for or leaving such facility. The act also requires proof of financial responsibilities as a condition to such operations.¹⁴

The advent of nuclear energy makes the disposal of radioactive and other wastes at sea of particular international importance. On December 29, 1972, the United States signed the Ocean Dumping Convention.¹⁵ This Convention, negotiated in London during October and November, would prohibit dumping at sea from vessels, aircraft, and platforms, or other man-made structures except as licensed by appropriate authorities in the party States.

Specifically covered are oil, mercury, cadmium and high-level radioactive wastes. The United States already requires such permits for dumping in U.S. waters, or transporting materials from the U.S. for dumping at sea, under the Marine Protection Research and Sanctuaries Act of 1972.¹⁶ Under this legislation, the Environmental Protection Agency is empowered to prohibit dumping of certain materials, for example, mercury and to designate safe-disposal sites for others.

It has been estimated that there is as much oil in the seabed out to 200 meters depth, as exists in known reserves throughout the world today—that is, approximately 700 billion barrels. As much again may be located in the area of 200 to 2,500 meters depth. (These depths are generally within the 200 mile range.) The developing oil situation clearly makes these resources of enormous importance, but equally important issues of national and international rights over such resources are at stake.

These issues will be an important part of the Law of the Sea Conference scheduled by the United States Seabed Committee for the fall of 1973. One may expect that this conference will recognize a distinction between customary territorial seas, of whatever extent, and coastal State jurisdiction over resources which may extend to a far greater distance. Thus coastal State jurisdiction over exploration and extraction of mineral resources on the continental shelf, would be recognized without interfering with traditional high seas freedoms, such as navigation and fishing.

¹³Askew v. American Waterways Operators, Inc., 41 U.S.L.W. 4507 (U.S., April 18, 1973).

¹⁴Florida Oil Spill Prevention and Pollution Control Act, L. Fla. 1970 c. 70-244.

¹⁵Text appears in 67 U.S. Dept. of State Bull. 71 (1972).

¹⁶16 U.S.C.A. § 1413 (1972).

With respect to the area beyond coastal State jurisdiction, the United States has proposed an international authority with the power to license seabed extraction, impose anti-pollution rules, and possibly ensure appropriate participation by countries unable to participate directly in such extraction.

In conclusion, it is clear that the energy situation is going to complicate considerably national and international efforts to resolve developing ecological problems. Already, the lines are being drawn by those concerned with the environment and those concerned with economic growth. While the energy situation will be largely ameliorated by the advent of nuclear fission in the late 1980s, ecological conflict may be expected to continue. Should fusion technology be developed, however, as it might prior to the end of this century, a host of environmental problems will disappear.

In the middle term, however, balance of payments considerations will exacerbate the conflict between those willing to use low-quality fuels and those who seek reduced consumption. The latter may suggest governmental regulation of consumption through taxes, rationing or building and manufacturing codes. Such suggestions might relate to automobile horsepower, air conditioning levels, lighting, window design, mass transit and energy advertising. It may be, of course, that independent economic factors, resulting from the increased leverage of producing governments, may result in more temperate consumption because of prices.