wastewater treatment works. (CFDA #66.418.)

Water Pollution Control—State and Interstate Program Grants

Sec. 106—Grants to State and interstate agencies for water pollution control administration. (CFDA #66.419.)

Water Pollution Control—State and Areawide Water Quality Management Planning Agency

Sec. 205(g)—Delegation of management of construction grants programs to State designated agency(ies). (CFDA #66.438.)

Sec. 208—Grants for State and areawide waste treatment management planning. (CFDA# 66.426.)

Water Pollution Control—Lake Restoration Demonstration Grants

Sec. 314—Clean Lakes Program.

Sec. 402(a)—Issuance of permits under National Pollutant Discharge Elimination System.

Sec. 404—Issuance of permits for disposal of dredge and fill materials.

Pub. L. 94–580, Sections 3005 & 3006;
Pub. L. 95–190, Sections 1421–1423;
Pub. L. 95–217, Section 402;
Pub. L. 95–217, Section 404;
Pub. L. 95–95, Section 165;
Proposed consolidated permit regulations, covering: Hazardous Waste Program under RCRA; UIC Program under SDWA, NPDES and Section 404 of the Clean Water Act, and the PSD Program under the Clean Air Act.

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Part XXXIII

Department of Transportation

Federal Aviation Administration

Energy Conservation in the National Aviation System

DEPARTMENT OF TRANSPORTATION

Aviation Energy Conservation Policy

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of final policy.

SUMMARY: The purose of this notice is to set forth the final policy of the Federal Aviation Administration with respect to energy conservation in the National Aviation System. The policy represents a comprehensive plan requiring the support of the Federal Government, aircraft owners and pilots, airport operators, and aeronautical manufacturers and suppliers. The policy consists of commitments on the part of the FAA to take specific actions while at the same time it addresses complementary actions needed by non-FAA groups to maximize aviation energy conservation.

DATE: This policy becomes effective January 19, 1981.

FOR FURTHER INFORMATION CONTACT: Ms. Cynthia T. Zook, Energy Division (AEE–200), Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; telephone (202) 426–8724.

SUPPLEMENTARY INFORMATION:

Background. The FAA issued a Notice of Proposed Policy in the September 22, 1980, **Federal Register** which made available for public comment a draft Aviation Energy Conservation Policy. The policy included a statement of the energy problem facing aviation, a brief discussion of authorities and responsibilities of the various "actors" in the National Aviation System, and a description of the Federal action plan which included 31 actions grouped into the following five program areas:

- Air Traffic Control (ATC)/Flight Operations Programs
- Upgraded ATC Systems and Procedures
- Airport Program
- Aircraft Technology Program
- Internal FAA Program

Several changes were made in the final policy as a result of further review and consideration of public comments. This section will outline the significant changes incorporated into the final policy, and the next section will address the major comments and FAA responses.

The policy document was reformatted to move the chapter entitled "Statement of the Energy Problem" to an appendix. This chapter primarily contains information about energy trends rather than policy responsibilities or actions.

The section entitled "Contribution of Air Transportation" in the appendix was modified to include the grounding of fuel-inefficient aircraft and airline purchase of more fuel-efficient aircraft as a major factor contributing to the overall increase in air carrier fuel efficiency. In the "Alternative Fuels Development" portion of the appendix, a sentence was added to mention that the Air Force could be using shale oil jet fuel in the net few years. Also, the discusssion of the hydrogen process was revised to indicated that the manufacturing process now consumes twice (not three times) as much fuel as is produced in the form of fuel.

The chapter on "Authorities and Responsibilities" was expanded to include FAA authority under Executive Order 12185 which provides for energy conservation in the FAA's financial assistance programs. In addition, the section concerning aircraft operators was modified slightly to clarify that the responsibilities listed are for the purpose of conserving energy not to comply with FAA regulations.

The introduction of the chapter entitled "Federal Action Plan" was revised to delete item (a) under the second policy principle which had stated that "The FAA will act to insure aviation's equitable share of energy, by (a) Emphasizing to the public and responsible governmental agencies the importance of aviation to society and aviation's dependence on petroleum-based fuels,..." Item (a) could be construed as promoting aviation for its own sake and not in the public interest. The two remaining items will achieve the same objective by supporting both an efficient allocation of existing petroleum fuels and the development of future aviation fuels. A paragraph was added to the introduction of this chapter to emphasize that the policy commits the FAA to the improvement of the operating environment to "encourage and promote" the use of FAA programs by system users. The policy states that the FAA prefers voluntary cooperative action with industry rather than the regulatory approach to energy conservation. The policy now states that although many of the programs described in the final document have already been implemented to some degree, they are included for the sake of comprehensiveness.

The description of several programs under the Federal Action Plan were revised to emphasize the FAA's commitment to improve the ATC system rather than simply putting the full responsibility on users to accept FAA programs. Quantitative examples of fuel savings were included whenever available.

A program action entitled "Expand Local Flow Traffic Management (LFTM) Program" was added to the ATC/Flight Operations Program to state the FAA's commitment to this ongoing program which minimizes arrival fuel burn.

A paragraph was added to the section on "Effective Use of Airspace" to note the FAA's support of advanced navigation systems and flight management systems. In addition, the paragraph concerning airspace separation goals was modified to clarify that composite separation rules and reduced lateral separation criteria are for oceanic procedures, and reduced vertical separation above flight level (FL) 290 involves both domestic and international airspace.

The section on simulators was revised to clarify that although the existing rule applies only to Part 121 certificate holders, the FAA is considering ways to provide for increased utilization of approved simulators for Part 135 certificate holders and the general aviation community.

The sentence in the section on aircraft maintenance which stated that the FAA would propose alternative procedures to conserve energy was deleted. The aviation industry is taking the lead in this regard, and FAA actions will focus on educating and promoting the use of these procedures; FAA regulations would not provide any additional benefit.

A paragraph was added to the section on training programs for controllers/pilots to mention that in accordance with Executive Order 12185 information will be made available to Aircraft Loan Guarantee Program applicants to encourage them to operate their aircraft in the most fuel-efficient manner. The policy makes it clear, however, that the decision to purchase one aircraft versus another will remain the responsibility of the carrier.

The discussion of the National/Dulles ground operating plan was modified to clarify that the plan will serve as an illustration (not a model) to other airport proprietors of the benefits that may be achieved by similar planning efforts at their own airports.

The section concerning educational programs for airport operators was reworded to clarify that such programs will be developed in consonance with the overall energy conservation effort in the National Aviation System. The programs will emphasize energy-efficient operation of the Nation's airports.

A paragraph was added to the discussion of new technology aircraft

and engines to suppoort the development of avionics as an additional means of conserving fuel.

The section entitled "Develop Fuel-Efficiency Goals for New Aircraft and Engines" was deleted in the final policy. The FAA intended to promote not mandate these goals; however, after consideration of the comments received, we believe such goals would not contribute meaningfully to further increases in fuel efficiency. Further increases in fuel efficiency will require new technology, and the rising price of fuel is providing more then enough incentive for airlines and manufacturers to continue work in this area.

Finally, the summary chart of all the actions has been expanded to show the status of each action, i.e., whether the program is a new initiative, in the development stage, or an ongoing program.

Other minor editorial changes were made where appropriate.

Comments. Several comments were filed in response to the proposed aviation energy conservation policy. The comments indicated widespread support for the concept of energy conservation and the policy in general, but a few comments expressed concern about specific program actions. Following is a summary of the FAA's response to the significant comments filed.

FAA Role. One commenter stated that the FAA's role as the ATC system operator is not defined in the chapter on "Authorities and Responsibilities." On the contrary, the opening paragraph under "The Federal Government" section describes FAA responsibilities in this regard.

Aircraft Operator Responsibilities. One commenter questioned the wording of the section on aircraft operator's authorities and responsibilities as possibly meaning that the operators are responsible to the FAA for the items listed. There is no intention to require the operators to be responsible to the FAA for the items mentioned; the policy was modified to indicate that *for the purpose of conserving energy,* aircraft operators have responsibilities to do their part.

Policy Emphasis. One commenter suggested that the draft policy placed too much emphasis on industry initiatives and too little emphasis on FAA actions. Several modifications were made in the final policy to clarify that for the most part, the policy commits the FAA to the improvement of the operating environment to encourage and promote the use of fuel efficient procedures and programs by aviation system users.

Program Status. One commenter suggested that a definitive schedule for implementing FAA actions be included in the policy. The document is intended to be a policy statement rather than just an action plan. Because schedules are likely to change due to various factors, an implementation timetable is inappropriate for a policy document. However, the document has been modified to include the status of each action (i.e., whether the program is a new initiative, in the development stage, or an ongoing program). Furthermore, for those actions which are ongoing and which will result in a tangible product, an estimated time of completion was added. Another commenter noted that many of the industry initiatives have already been implemented. It is true that several of the policy actions have been implemented to some degree by the FAA or the industry as indicated by the "ongoing program" status in the summary table; they are included in the policy document for the purpose of restating in one comprehensive document the FAA's support of such efforts.

Safety. One commenter noted that energy conservation actions must be predicated on the constraints of safety and the airport geographic and geometric limitations. The FAA concurs, and with regard to the safety issue, the introduction of the Federal Action Plan chapter now states that safety and system efficiency are of primary importance.

Noise Abatement Procedures. To assure that the benefits derived from established and proposed noise abatement procedures are not sacrificed in the interest of fuel conservation, one commenter recommended that the FAA require an environmental impact analysis prior to altering noise abatement procedures. The FAA already requires an environmental assessment for new or revised air traffic control procedures which routinely route air traffic over noise sensitive areas at less than 3,000 feet above the surface.

Local Flow Traffic Management (LFTM) Program. One commenter recommended adding the LFTM program to the list of policy actions. The FAA concurs, and the policy was expanded accordingly.

Fuel-Efficient Altitudes/Speeds. One commenter recommended that the FAA make fuel-efficient altitudes more readily available and consider reduced altitude separation above flight level (FL) 290. The policy provides for both the assignment of fuel-efficient altitudes and the consideration of reduced vertical separation above FL 290. The commenter also noted that there are both safety and economic reasons why a flight may operate off its minimum fuel speed and/or altitude. The FAA recognizes this fact and encourages the use of fuel-efficient procedures, but will not mandate altitudes/speeds at this time.

Effective Use of the Airspace. One commenter correctly pointed out that composite separation and reduced lateral separation are options which are being employed in oceanic operations, and reduced vertical separation above FL 290 is a valid objective for both domestic and international airspace. The final policy clarifies these points.

Tankering. One commenter recommended that the section on tankering be eliminated because there is no role for the FAA in this area. Although air carriers have the primary responsibility in this regard, the FAA can and does emphasize to carriers the fuel inefficiencies which result from tankering. Once again this action is included for the sake of stating in one document FAA's position with regard to tankering.

Aircraft Maintenance. One commenter recommended deletion of the sentence that stated that the FAA would propose alternative maintenance procedures necessary for safety which would also conserve energy. The commenter argued that such action is unnecessary because operators are already motivated to adopt the most fuel-efficient alternatives. Furthermore, alternative procedures have a cost element influenced by factors known only to the operator. The FAA believes that there is no benefit to be derived from alternative FAA regulations, and the sentence in question was deleted from the final policy.

Energy Models. One commenter stated that aircraft manufacturers should have the opportunity to comment on and participate in the development of fuel optimization models and associated data bases. The FAA fully agrees with this statement and believes that industry input is essential to the development of its energy modeling efforts. The FAA continues to coordinate with the aviation community regarding both the development and utilization of its energy models.

Another commenter noted the redundancy of the sections concerning energy models for optimum flight planning and for FAA energy assessments. The policy was revised to delete the redundant section, however, references to energy models remain in two separate areas. The first concerns a model for use by general aviation pilots; the second model will be used by the

FAA for analysis of agency procedures, etc.

Aircraft Loan Guarantee Program (ALGP). Several commenters objected to using the FAA Aircraft Loan Guarantee Progam to dictate equipment choice based on fuel consumption. The commenters agreed that airline selection of new aircraft is a function of the overall economics, not just fuel efficiency. Executive Order 12185: Conservation of Petroleum and Natural Gas requires Federal agencies which administer programs of financial assistance to take actions which maximize the efficient use of energy and conserve natural gas and petroleum in programs funded by those agencies. Accordingly, the FAA will provide information to ALGP applicants which encourages carriers to plan and operate their aircraft in a fuel-efficient manner. The FAA never intended to dictate the choice of aircraft which a carrier must purchase, and the final policy has been modified to state clearly that aircraft choice is and will remain the responsibility of each carrier.

Improved ATC System. Several commenters supported the FAA's actions to improve the efficiency of the ATC System. One commenter suggested that the FAA: (1) present sub-items 1, 2 and 3 under the Integrated Flow Management (IFM) program as objectives not accomplishments; (2) evaluate the fuel conservation potential of the six programs such as the Microwave Landing System (MLS) without endorsing them based solely on energy considerations; and (3) place greater emphasis on designing fuel-efficient departure and arrival routes and profiles. The FAA concurs with these points, and the policy was revised accordingly.

Severe Weather Avoidance System. One commenter recommended that the FAA develop a more accurate system to detect and disseminate information on severe weather. The FAA concurs as indicated by the statement in the policy supporting development of improved weather radar systems in the section on upgraded ATC systems.

Airport Ground Operating Plan. One commenter suggested that the FAA energy-efficient ground operating plan for Dulles and National should not be considered a "model" for other airports because there may be unique features at these two Federally-run airports which would not be applicable to other airports, and vice versa. The final policy was revised to clarify the FAA's intention that the operating plan will serve as an illustration to other airport proprietors of the benefits that may be achieved by similar planning efforts at their own airports.

Quotas and Slot Allocations. One commenter suggested that the FAA consider incentive programs, quotas, etc. only after FAA has taken all appropriate steps to improve the efficiency of the ATC system and reduce delays through other means. The policy already states the FAA's commitment to improving the ATC system and such allocation mechanisms will be evaluated as an additional means to reduce delay.

Another commenter suggested expanding FAR Part 93 to include a mechanism for enforcement of quotas and slot allocations at high-density airports for the purpose of assuring that the established quotas and allocations are not exceeding. FAR Part 93 states that specific quotas may be exceeded in accordance with FAR 93.129 (whenever additional aircraft may be accommodated without significant additional delay to the operations allocated for the airport) or as otherwise authorized by ATC. Controllers are concerned with the safe and expeditious handling of the aircraft operating within their areas of jurisdiction. They usually have little or no interest in the number of operations during the hour or whether or not a particular aircraft has an airport reservation. Decisions to hold or vector aircraft are based upon the air traffic or airport conditions at the moment. Any attempt to restrict hourly operations to a specific number would generate overwhelming administrative and procedural problems.

Aircraft Towing. One commenter recommended deletion of the actions regarding aircraft towing because of the unresolved problems and shortcomings. There may be substantial fuel savings from aircraft towing, and the FAA believes that further study is warranted before the option is discarded. Therefore, the final policy retains the option to continue evaluation of aircraft towing.

Energy Conservation Educational Programs for Airport Operators. One commenter objected to the sentence which discussed the airport operators' ability to use pricing policies to "smooth" peak demand periods and influence aircraft operators' fuel efficiency. The commenter argued that this would be a duplication of (or contrary to) ATC improvements or the slot allocations already mentioned. The commenter argued that educational programs should focus on energy efficient operation of airports. The FAA concurs with the last statement and the policy was revised to indicate that educational programs will emphasize energy-efficient operations and will be part of the overall energy conservation effort in the National Aviation System. However, the policy also states that the educational program may include treatment of the airport operator's ability to influence aircraft operators' fuel efficiency via pricing policies. Such policies would be in addition to ATC system improvements and supportive/consistent with slot allocations, etc.

Fuel Efficiency Goals. Several commenters objected to the establishment of fuel efficiency goals as being unnecessary, confusing, and possibly counterproductive. Rising fuel costs provide more than enough incentive to airlines and manufacturers to improve the fuel efficiency of aircraft and engines. One commenter noted that unlike the auto industry where fuel-efficiency goals may be met in large part with non-technical changes (e.g., downsizing the car and reducing capacity), further fuel efficency gains in the commercial aircraft industry will require technological improvements which cannot be mandated. Although the fuel efficiency goals were never intended to be mandatory targets, the FAA agrees that even voluntary goals are unnecessary. The section on fuel efficiency goals is deleted in the final policy.

Avionics. One commenter suggested that the Integrated Flow Management (IFM) program consider the airborne flight management system (FMS) as part of the total control system. In addition, the commenter recommended expanding the aircraft and engine technology section to include avionics. The FAA concurs, and the final policy specifically addresses avionics as a means of achieving further increases in fuel efficiency.

Air Carrier Fuel Efficiency. One commenter noted that while fuel efficiency of cargo operations is best expressed in ton-miles per gallon, available seat miles (ASM) per gallon would be better for passenger operations. The FAA believes that ASM is not as meaningful because simply flying more seats is not necessarily more efficient; ASM ignores load factors. Passenger miles per gallon would be useful because it accounts for load factors, however, it tracks very closely with ton-miles per gallon; ton-miles has the additional benefit of accounting for cargo as well as passengers.

Another commenter noted that the voluntary grounding of fuel-in-efficient aircraft and airline investment in more fuel-efficient aircraft contributed significantly to increases in air carrier fuel efficiency. The policy has been modified to include this point.

Aviation Fuel Supply Conditions. One commenter noted that the Department of Energy (DOE) fuel allocation system broke down more as a result of airline efforts to dismantle the system than as a result of the Airline Deregulation Act. Regardless of whether the airlines contributed to the breakdown of the DOE allocation system, airline deregulation became "the straw that broke the camel's back" by illuminating the problems with the existing system. The policy statement was not modified concerning this point.

The commenter also objected to the policy assertion that the impact of disclocations resulting in shortages of petroleum products is not more severe for users of aviation fuels than for any other sector of the economy. The commenter argued that ground transportation vehicles have more options than are available to aircraft operators. This reference in the policy concerns short-term supply disruptions. Historically, petroleum shortages have resulted in across-the-board decreases in consumption and except for the 1973–1974 oil embargo the grounding of flights has been rare. The policy clearly states, however, that unlike some other users, aviation is completely dependent on petroleum-based fuels. The FAA therefore supports the policy of insuring an equitable share of petroleum for aviation and other users who do not have any near-term alternatives.

Aviation's Share of Energy. Several commenters supported the FAA's policy to insure aviation's equitable share of energy. One commenter recommended that FAA work with DOE to insure "the highest standby petroleum product allocation for both air transportation and aircraft manufacturing." The final policy states that, ". . . the FAA has no authority to directly regulate the supply or allocation of aviation fuels. . . . Nevertheless, the FAA is routinely involved with the Department of Energy, the International Civil Aviation Organization and other domestic and international agencies regarding actions which impact the supply of aviation fuel . . . " The actions described in the policy are intended to insure a *fair* share of petroleum for aviation in line with national objectives.

Fuel Advisory Departure (FAD) Procedures. One commenter noted that FAD should be implemented at airports with severe delay. The policy states that FAD or similar procedures will be developed in cooperation with industry for other delay-prone airports as it becomes feasible and necessary.

Another commenter noted that FAD should be expanded only after full coordination and that the FAA should assess the performance of the system. The policy reflects both of these points.

Inflight Computers. One commenter suggested that this section be revised to indicate that the ATC system will be evaluated to find ways in which it can accommodate the improved flight operations desired by the operator equipped with the airborne computers. The FAA concurs, and the policy was modified accordingly.

Alternative Fuels Development. One commenter recommended that the discussion of hydrogen manufacturing processes be modified to reflect the potential of updated processes. The policy was revised to state that the hydrogen manufacturing process would consume about twice (instead of three times) as much energy as is delivered in the form of fuel.

Another commenter noted that the Air Force could be using shale oil jet fuel in limited quantities in about two years. The policy was revised to include this point.

Final Policy: In consideration of the foregoing, the following Aviation Energy Conservation Policy is adopted by the DOT/FAA.

DEPARTMENT OF TRANSPORTATION, UNITED STATES OF AMERICA

Aviation Energy Conservation Policy—Office of the Secretary, Federal Aviation Administration, January 19, 1981

Executive Summary

The October 1973 international oil embargo and ensuing events have highlighted the problem of a decreasing petroleum supply in the United States. Aviation is totally dependent upon petroleum, and the price and availability of petroleum products are primary concerns to the fuel-intensive aviation industry.

The Federal Aviation Administration (FAA), in conjunction with the aviation industry, has been actively engaged in developing and implementing programs to conserve aviation fuel since long before the 1973 oil embargo. As a result, aviation fuel efficiency has increased significantly since that time. Despite the improvements already achieved, the need for aviation energy conservation is as great, or greater, today than it was a few years ago. This is especially true because there are no economically viable alternatives to petroleum-based aviation fuels in the near term. As a result, the FAA will promote aviation energy conservation in both the present and future operation of the National Aviation System, and the FAA will act to insure aviation's equitable share of energy.

A comprehensive aviation energy policy will require concerted efforts by all of the "actors" in the National Aviation System including the Federal Government, aircraft operators, airport proprietors, and aeronautical manufacturers and suppliers.

The action plan spelled out in this document consists of 31 actions grouped into the following five program areas:

- Air Traffic Control (ATC)/Flight Operations Program
- Upgraded ATC Systems and Procedures
- Airport Program
- Aircraft Technology Program
- Internal FAA Program

The FAA is responsible for promoting and encouraging fuel conservation by aviation system users and providing a safe, efficient environment within which fuel conservation techniques may be practiced by those users. In this regard, actions in the first program area focus on improving the operating environment through cooperative efforts by ATC controllers and aircraft operators. These include providing/using fuel-efficient speeds, altitudes, maintenance, taxiing, training procedures, etc. to reduce fuel consumption.

The second program area contains research and development efforts and upgraded systems which increase the capacity of the airport and airway system, reduce delay, and improve airspace efficiency. Most of these systems will enhance safety, noise reduction and other FAA goals as well as promote energy efficiency.

The Airport Program includes actions which provide for energy conservation in the design, construction, and operation of airports as well as actions which increase system capacity and reduce airport delay. Airport proprietors benefit from the first kind of actions, and users of the airport and airway system benefit from the latter group.

The primary responsibility for the actions under the Aircraft Technology Program rests with the aeronautical manufacturers and Federal agencies other than the FAA. However, the FAA supports these developments and must insure that future ATC system designs are compatible with new technology aircraft and vice versa.

Finally, the Internal FAA Program includes actions to conserve energy in FAA operations, and to assess the energy impact of FAA programs and procedures on aviation system users.

Taken together these programs provide a meaningful blueprint through which energy savings may be achieved in the National Aviation System.

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I. Introduction

Over the past 25 years, U.S energy consumption has more than doubled. During this period, transportation has consistently accounted for about 25 percent of total U.S. energy consumption. Transportation presently uses 53 percent of the petroleum consumed in the United States.

Total civil aviation consumes about 8 percent of the transportation share of petroleum use or 4 percent of total U.S. petroleum. All aviation energy is supplied by petroleum fuels at the present time. Research is being done to develop alternative fuels, however, alternate fuels for aviation do not appear to be economically feasible or available in large quantities in the near term. During the past ten years, the energy consumption of commercial aviation increased 25 percent. In the next ten years, fuel requirements for air transportation are expected to rise another 25 percent.

The October 1973 oil embargo by the Organization of Petroleum Exporting Countries (OPEC) and ensuing events have highlighted the problem of a decreasing petroleum supply. The price and availability of petroleum products are primary concerns to the fuel-intensive aviation industry especially the commercial air carrier sector. Air carrier fuel consumption increased 4.7 percent between 1973 and 1979; fuel prices rose 331 percent during the same period. Fuel costs account for 30 percent of operating costs in the aviation industry. Thus, the continuing development of fuel-efficient aircraft and air traffic control operating techniques and technological improvements to aircraft and the air traffic control system are of paramount importance to the health of the industry.

The Federal Aviation Administration (FAA) has long recognized the need for energy conservation in aviation, and FAA energy conservation efforts predate the OPEC embargo. In March 1972, the need for energy efficient aircraft was stressed in the FAA's National Aviation System Policy Summary. The FAA Administrator followed up by calling a Consultative Planning Conference entitled "The Energy Outlook for Aviation" which convened in October 1973.

As a result of prior planning, the aviation community was able to respond immediately when the OPEC embargo was announced on October 19, 1973. The FAA implemented a seven-point jet fuel conservation plan on November 20, which was designed to save almost 4 percent of the total amount of jet fuel consumed by the domestic airlines. The FAA, working closely with the aviation industry, has continued to pursue a dedicated program to conserve fuel in the operation of the Nation's airport and airway system.

The Energy Policy and Conservation Act (EPCA), Pub. L. 94–163, signed by the President on December 22, 1975, was designed to promote energy conservation in all national sectors. One of the mandates of the *EPCA* was a 10 percent improvement in energy conservation over 1972 preembargo levels. As a result of the prior commitment of the FAA and the aviation community to energy conservation, domestic commercial aviation fuel efficiency, measured in Revenue Ton-Miles Per Gallon (RTM/G), had already improved 16 percent when the *EPCA* became law. This trend has continued as evidenced by the 35 percent increase in RTM/G from 1972 to 1979.

Despite the improvements already achieved, the need for aviation energy conservation is as great, or greater, today than it was a few years ago. The Department of Transportation is responsible for promoting the most efficient means of transporting people and goods be it by air, rail, ship, or highway. Consistent with the Departmental mission, the FAA is committed to the development of the most efficient aviation system possible, both to contribute to the national goal of saving energy and to provide efficient and competitive service. Therefore, the FAA has developed a comprehensive policy on aviation energy which includes a list of options which are directly within the purview of the Federal Government. Additionally, this document spells out specific actions which should be pursued by the aviation industry including the air carriers and general aviation, airport proprietors, and aeronautical manufacturers and suppliers. The full benefit of a Federal plan of action will be realized only when complementary action is taken by all participants.

The next section of this document, Chapter II, briefly outlines the authorites and responsibilities of the various "actors" in the National Aviation System. Chapter III describes the Federal action plan in detail ending with a summary table of all the programs. The Appendix provides in greater detail an understanding of the energy problem facing aviation including an overview of historical, current, and future trends of U.S. energy consumption with particular emphasis on the U.S. civil aviation industry. In addition, the importance of aviation to the national economy, the prospects for the aviation fuel supply, and the feasibility of using alternate fuels for aviation are discussed.

President Carter in his November 8, 1977, energy message to the Nation, stated, "This energy plan is a good insurance policy for the future, in which relatively small premiums that we pay today will protect us in the years ahead. But if we fail to act boldly today, then we will surely face a greater series of crises tomorrow—energy shortages, environmental damage, even more massive government bureaucracy and regulations, and ill-considered last-minute crash programs." The President was talking specifically about his energy plan for the Nation, however, his comments also pertain to energy conservation programs within the National Aviation System. This document is intended to be an insurance policy which will contribute to the health and viability of the U.S. air transportation system.

II. Authorities and Responsibilities

The Federal Government is responsible for promoting and encouraging fuel conservation by aviation system users and providing a safe, efficient environment within which fuel conservation techniques may be practiced by those users. This responsibility belongs primarily to the Federal Aviation Administration which installs, operates, and maintains the components of the National Airspace System and ensures the safe and expeditious flow of air traffic through the system. The FAA has the authority to regulate the safety of aircraft operating procedures, revise and expand the air traffic control system, provide

financial support through the Airprt and Airway Trust Fund to airport operators, and support the research, engineering, and development of new technology related to air traffic control systems and aircraft. In additon, the FAA operates two Federally-owned airports, Washington National and Dulles International. These reponsibilities provide a variety of opportunities for affecting aviation fuel conservation.

Existing legislation gives the Secretary of Transportation and the FAA Administator discretionary authority to issue certain kinds of rules and regulations in forms that may conserve fuel and other resources. However, the FAA has no specific authority to directly regulate the production, allocation or consumption of fuel at this time. For example, Section 103 of the Fedral Aviation Act of 1958 empowers and directs the Secretary and the Administrator to regulate civil and military operators in the interest of safety and efficiency, and Section 307(a) explicitly mandates the development of plans and the formation of policy to insure the efficient use of navigable airspace. In certain cases, the attainment of efficiency objectives may result in substantial fuel savings.

The Department of Transportation Act in Section 2(a) describes the policy objective as the development of national transportation programs conducive to efficient and convenient transportation consistent with "the efficient utilization and conservation of the Nation's resources." Additionally, the National Environmental Policy Act in Sections 101(b)(5) and 105 authorizes every Federal agency to develop and improve its programs so as to "achieve a balance between population and resource use."

Executive Order 12185, Conservation of Petroleum and Natural Gas, which implements section 403(b) of the Powerplant and Industrial Fuel Use Act of 1979 requires Federal agencies which administer programs of financial assistance to take actions which maximize the efficient use of energy and conserve natural gas and petroleum in programs funded by those agencies. In this regard, DOT/FAA has the authority to encourage energy conservation in the Airport Development Aid Program (ADAP)[1] and the Aircraft Loan Guarantee Program, both administered by the FAA.

Beyond these legislative mandates, the President's energy message of June 29, 1973, directed all departments and agencies to work closely with the Energy Office to develop long-term conservation plans. The Secretary of Transportation was specifically directed to work with the FAA, the Nation's airlines, and the Civil Aeronautics Board to conserve fuel. Furthermore, the mandated role of the FAA in aviation energy conservation policymaking is consistent with the current Administration's emphasis on energy conservation, and it requires the FAA to provide leadership in a national effort to reduce aviation fuel consumption and improve aviation energy efficiency.

Other agencies which impact aviation system users include the Department of Energy (DOE), the Civil Aeronautics Board (CAB), the National Aeronautics and Space Administration (NASA), the Department of Defense (DOD), the Federal Highway Administration (FHWA), and the Urban Mass Transportation Administration (UMTA). The latter two agencies are interested in the promotion of energy-efficient landside access to airports.

Prior to the Airline Deregulation Act of 1978, the CAB regulated fares and route structures for the air carrier industry. Load factors and route structures can have a significant impact on an airline's energy efficiency. Although airline deregulation has granted the carriers greater flexibility in setting fares and selecting routes, the CAB still retains some regulatory authority in these areas. The evidence thus far seems to indicate that airline deregulation is conducive to air carrier fuel conservation since the 1979 level of fuel efficiency (RTM/G) has continued to rise under that system. Deregulation allows air carriers to rationalize their route structures and to employ their aircraft fleet more efficiently.

NASA, in cooperation with industry, is primarily responsible for Federally-funded research in the development of alternative aviation fuels and new technology aircraft, aircraft systems, and engines. Because of the significant progress already achieved from improved operating procedures, new technology aircraft engines will provide the greatest potential for further gains in aviation energy efficiency. DOD is also working in the area of alternative aviation fuels especially with regard to military jet aircraft.

Aircraft Operators, including the air carriers and general aviation, are the primary users of the airport and airway system. For purposes of conserving energy, their responsibilities include the efficient utilization of existing aircraft and fuel resources through effective scheduling, optimum flight planning, and use of safe fuel-conserving operating procedures. Furthermore, as soon as it becomes economically feasible, aircraft operators and management should replace older, fuel-inefficient aircraft with new technology aircraft which improve the overall fuel efficiency of their fleet. Rising fuel prices provide a strong incentive for all users of the system to reduce fuel consumption and to pursue self-initiated actions complementary to Federal actions in overall aviation energy conservation.

Airport Proprietors are responsible for the energy efficient design and operation of airport facilities. Airport delays result in excess fuel consumption by users of the system. Therefore, airport operators can also impact the fuel consumption of airport users by installing facilities which maintain or expand system capacity at otherwise congested airports.

Aeronautical Manufacturers and Suppliers are responsible for the research, development, and manufacture of more fuel-efficient engines, airframes, and avionics equipment. NASA studies estimate that future aircraft and aircraft engine designs could be as much as 50 percent more fuel-efficient than current high bypass ratio engines and will generate substantial fuel savings for the aviation industry when they are utilized.

III. Federal Action Plan

Department of Transportation/Federal Aviation Administration (DOT/FAA) policy supports the use of the most efficient means of transporting people and goods be it by air, rail, ship or highway. The improved efficiency of all those modes is a common objective.

Consistent with the need for an aviation energy policy and the FAA's responsibility to provide leadership in this area, this chapter describes FAA actions concerning aviation energy. The following two policy principles provide the basis for action in this regard.

1. The FAA will promote aviation energy conservation in both the present and future operation of the National Aviation System, by

(a) Supporting development and use of energy-efficient aircraft and aircraft operating techniques;

(b) Promoting the energy-efficient operation of the airport and airspace system; and

(c) Conserving energy in the design, installation and operation of FAA system facilities and aircraft.

2. The FAA will act to insure aviation's equitable share of energy, by

(a) Supporting the short-term development and use of alternative fuels in other areas whenever possible in an effort to free petroleum-based fuels for aviation, and other users, which are

[1] The authority to obligate funds under ADAP expired on September 30, 1980. However, for purposes of this policy document, it is assumed that some form of airports grant program will be enacted by the Congress in the future.

vital to the Nation and for which there are no economically viable alternatives in the near term; and

(b) Supporting longer-term R&D efforts for development of future alternative aviation energy fuels.

As stated in the previous chapter on authorities and responsibilities, the FAA has no authority to directly regulate the supply or allocation of aviation fuels. Instead, FAA actions primarily impact users of aviation fuels. As a result most of the actions discussed in this chapter implement the first policy principle which emphasizes conservation and improved efficiency rather than expanding the supply of aviation fuel. Nevertheless, the FAA is routinely involved with the Department of Energy, the International Civil Aviation Organization, and other domestic and international agencies regarding actions which impact the supply of aviation fuel consistent with the second policy principle.

The actions outlined below include a mix of voluntary, incentive, and mandatory programs to be pursued by the Federal Government as well as the aviation community. For the most part, the policy commits the FAA to the improvement of the operating environment to "encourage and promote" the use of energy conserving procedures and programs on the part of aviation system users. The FAA prefers voluntary, cooperative action with industry whenever possible rather than the regulatory approach to energy conservation. In addition, many of these actions have already been implemented to some extent by the FAA or the industry, but are included for the purpose of restating in one comprehensive document the FAA's support of such efforts.

The specific actions are grouped into the following five program areas which together result in a comprehensive energy conservation effort:

- Air Traffic Control (ATC)/Flight Operations Programs
- Upgraded ATC Systems and Procedures
- Airport Progam
- Aircraft Technology Program
- Internal FAA Program

The programs do not fall neatly within the purview of any single participant. For example, the FAA can implement many or all of the options in the ATC/Flight Operations Program, however, the success of these options depends on the extent to which aircraft operators cooperate to conserve fuel. Futhermore, the Federal Government can support measures which fall into the Aircraft Tehnology Program, but the decision to purchase new aircraft will be made by the air carriers or other aircraft operators with possible influence from Federal action. One final caveat is that as mentioned earlier, the FAA is responsible for insuring the *safe, expeditious* flow of air traffic; the energy conservation programs outlined below will, of course, be implemented only after considering, as a minimum, their impact on safety and system efficiency.

A. ATC/Flight Operations Program

The FAA is responsible for promoting and encouraging fuel conservation by aviation system users and providing a safe, efficient environment within which fuel conservation techniques may be practiced by those users. Studies suggest that the greatest source of improved aviation fuel efficiency under the direct control of the FAA is in the optimization of the airport and airway system. The aviation fuel inefficiencies resulting from system delay alone can offset many of the benefits of improved scheduling, flight planning, operations, and fleet optimization achieved by system users. The FAA recognizes this fact, and many of the following program elements describe existing and planned FAA actions which are designed to improve the efficiency of the airport and airway system. To supplement these FAA actions this program also includes actions which require the cooperative efforts of ATC controllers and aircraft operators. In some instances, tradeoffs exist between fuel conservation and noise reduction. Accordingly, FAA noise abatement initiatives and flight procedures will be implemented only after consideration of their impact on aviation energy conservation goals. Specific program elements falling under the ATC/Flight Operations Program include the following:

Refine and Expand Fuel Advisory Departure (FAD) Procedures

FAD procedures are designed primarily as a fuel savings effort during extended periods of arrival delays. FAD transfers airborne delay to ground delay (thereby saving fuel) by altering actual aircraft departure times at the departure airports consistent with acceptance rates at the arrival airport. For example, a B727 uses 19 gallons per minute in cruise, 8.3 gallons per minute on the ground (idling), and 1.7 gallons per minute at the gate (with auxiliary power unit (APU)). FAD procedures are used at Chicago and Denver, and a similar program is scheduled for the New York metropolitan area.

Aircraft operators currently elect to accept FAD and gate hold procedures when there are excessive delays in the system, however, they are not required to do so. The FAA will continue to improve the accuracy of its delay estimates under FAD in an effort to promote greater use of the system. In addition, the FAA will develop a monitoring system to assess the performance of the system at both FAD and non-FAD airports to determine the efficiency of the procedures. Similar procedures will be developed in cooperation with industry for other delay-prone airports as it becomes feasible and necessary.

Promote Gate Hold Procedures

Similar to FAD procedures, the objective of gate hold procedures is to eliminate nonproductive fuel use by holding aircraft at the airport loading gate with engines off when departure delays exceed 5 minutes. Again, a B727, holding with engines on consumes 8.3 gallons per minute versus 1.7 gallons per minute with the APU. The FAA will continue to promote the use of gate hold procedures. Programs such as gate hold procedures, which conserve aviation fuel in groundside operations, may also reduce aircraft noise and pollutants around airports.

Expand Local Flow Traffic Management (LFTM) Program

With the assistance of representatives from pilot and industry groups, the LFTM program was introduced by the FAA to minimize arrival fuel burn. The success of the LFTM program lies in the metering of traffic into the terminal environment at a specific airport acceptance rate commensurate with capacity and the maximum application of fuel efficient descents and approach procedures from cruising altitude/flight level to the approach gate. The procedure is designed to absorb any necessary delays at or beyond the metering fixes using altitudes at flight level 200 and above rather than at low altitudes. These delays may be absorbed by vectoring, speed adjustments, or holding. Distribution of delays are more equitable as a result of these techniques. The LFTM program has been implemented at approximately 188 major airports throughout the United States. The LFTM program will be implemented to the maximum extent possible at all airports that serve turbojet or large turboprop aircraft.

Promote Fuel-Efficient Altitudes/Speeds

The fuel consumption of an aircraft depends on several factors including cruise altitude, speed and weight. FAA policy concerning assignment of aircraft altitudes presently states that whenever possible the requested altitudes will be

approved. Similar to the current situation with regard to altitude assignments, aircraft operators select their own cruise speeds. The following example illustrates the impact of speed on aircraft fuel burn. At 25,000 feet, a reduction in cruise speed of a medium weight B727 from .82 Mach to .8 Mach reduces fuel consumption by 1.3 percent; further reduction to .78 Mach decreases fuel consumption an additional 1.1 percent.

Each model of aircraft has its own fuel-efficient parameters of altitude and speed depending on several variables including weight, temperature, winds aloft, etc. It would be difficult to develop regulations that could cover all types of aircraft yet be specific enough to enforce. Also, all controllers would have to be aware of each airplane's fuel-efficient altitude/speed which would add to their current responsibilities. As a result, agency actions will emphasize to pilots the importance of fuel-efficient altitudes/speeds but will not propose regulations in this area. Furthermore, the FAA will emphasize to controllers the need whenever possible to assign the most fuel-efficient altitude when requested.

Promote Effective Use of the Airspace

The FAA supports the development and use of advanced navigation systems and flight management systems as a means of achieving significant fuel conservation. These systems allow users to fly optimal routes through, for example, area navigation (RNAV) and use more fuel-efficient climb and descent procedures.

In another area, users are often required to accept fuel use penalties to maintain separation minima in the interest of safety in the airspace. The penalties are incurred when the aircraft is assigned a non-Optimum track or altitude because of potential conflicting traffic. The adjustment of the configuration of routes or reduction of separation standards is a complex process involving detailed studies and extensive coordination. There is, however, evidence based on recent improvements in specific areas that beneficial changes can be realized. The FAA intends to continue work in this area within budgetary restrictions with specific goals to include:

(1) establishment of general rules for application of composite separation in accordance with International Civil Aviation Organization (ICAO) rules for oceanic procedures;

(2) development of reduced lateral separation criteria for operations where users show compliance with improved minimum navigation performance requirements for oceanic procedures; and,

(3) the reduction of vertical separation above flight level (FL) 290 to 1,000 feet for both domestic and international airspace.

Promote Reduced Tankering

Because of differing prices and availability of fuel at various airports, aircraft operators sometimes carry more fuel than that needed for a particular flight. "Tankering" is fuel-inefficient because more fuel is burned in flight due to the added weight of the tankered fuel. For example, for a specific set of values for speed, altitude, weight, etc., a B727 uses 3,400 gallons of fuel on a 824 mile trip. With other things being equal, that same aircraft would consume an additional 428 gallons of fuel (13 percent more) to tanker an additional 3,400 gallons of fuel. Accordingly, the FAA encourages air carriers to avoid carrying excessive quantities of fuel unless dictated by availability. In addition, the FAA will encourage all carriers to establish and maintain an airline fuel logistics program aimed at the elimination of the need for tankering.

Expand Use of Simulators

The increasing size, complexity, and operating costs of the modern turbojet transport in its operating environment emphasizes the need for greater use of the advanced technology now available in aircraft simulators. In response to this need, the FAA issued the rule, effective July 30, 1980, entitled "Advance Simulation." The rule, which amended Parts 61 and 121 of the Federal Aviation Regulations, provides guidelines and a means for achieving total flightcrew training, checking, and certification in advanced simulators. It is estimated that 32,000,000 gallons of fuel could be saved per year if air carriers use advanced flight training simulators in lieu of aircraft for transition and upgrade training. Over 73,000,000 gallons could be saved per year if the advanced simulation plan is fully implemented. Although the rule applies only to Part 121 certificate holders, the FAA is considering ways which would provide for increased utilization of approved simulators for Part 135 certificate holders and the general aviation community. The major considerations for the individual small operator or pilot school regarding the feasibility of incorporating an FAA-approved simulator in its training program would be the degree of simulator sophistication required for approval, the initial cost of the simulator, and the resultant economic benefits based on the reduced number of flight-hours derived from use of the simulator.

Promote Fuel-Efficient Taxi Procedures

In many instances, certain aircraft operating on the ground do not need to use all of the engines on the aircraft. Fuel can be saved by shutting down one or more engines for taxiing. This practice is currently used by all users to some extent. The FAA encourages greater use of fuel-efficient taxi procedures where these procedures are shown to increase system efficiency. In addition, the FAA will encourage airport proprietors to design their runways and taxiways in such a way as to provide for the greatest fuel conservation potential given the constraints of safety, etc.

Promote Maintenance of Aircraft for Optimum Fuel Efficiency

The way an aircraft is maintained can have an impact on its fuel efficiency. Many of the carriers are already taking advantage of maintenance programs to conserve fuel, and FAA actions will focus on educating all users to the benefits of such programs.

Promote Use of Inflight Computers

A computer on-board the aircraft optimizes fuel utilization by permitting optimum flight planning, monitoring aircraft health, and performing other functions which result in fuel-efficient performance of the aircraft. The FAA will evaluate the ATC system to determine how best to accommodate the improved flight operations desired by operators equipped with airborne computers.

Develop Energy Model for Optimum Flight Planning

The FAA is developing a fuel burn model suitable for application in a programmable, hand-held calculator for use by general aviation pilots. The calculator will enable pilots to plan their flights and make inflight revisions for minimum fuel consumption.

Expand/Promote Energy Training Programs for Controllers/Pilots

The FAA will revise its air traffic control training programs to include a greater emphasis on fuel conservation measures for system users which are impacted by ATC procedures and programs. In addition, the FAA will require that controllers implement specific energy conservation programs and procedures at particular locations and/or systemwide consistent with safety, efficiency and environmental considerations. This will ensure that the latest innovations in fuel-conserving

techniques are available to system users.

The FAA is developing a compendium of fuel burn curves based on information provided by aircraft and engine manufacturers that depict the fuel efficiencies of various aircraft at specific speed, altitude, and weight configurations. This information, which will show the most energy efficient set of operating curves by aircraft type, will be updated and expanded to include additional aircraft types as such information becomes available. These data will be made available to aircraft operators to assist them in their energy planning.

In this regard, Executive Order 12185, Conservation of Petroleum and Natural Gas, directs Federal agencies to conserve energy in the application of financial assistance programs. Accordingly, the FAA encourages applicants under the Aircraft Loan Guarantee Program to operate their aircraft in the most fuel efficient manner utilizing such information as the fuel efficient operating curves mentioned above. These data will be made available to carriers for their information; however, the decision to purchase one aircraft versus another will, of course, remain the responsibility of each carrier.

The FAA will continue to encourage the development of fuel conservation programs by air carriers and general aviation operators and pilots. A number of procedures and techniques developed in coordination between GAMA (General Aviation Manufacturers' Association) and the FAA are now being made available to the aviation consumer public by the various news media and through aviation education programs in connection with the FAA's Accident Prevention Program. FAA approved pilot training schools and certificated flight instructors are being encouraged to emphasize fuel conservation measures where such measures can be safely utilized. In this context, new ideas will be explored and acted upon where feasible and practicable.

By promoting energy conservation educational programs for air traffic controllers and aircraft operators, the FAA ensures that all "actors" in the National Airspace System are aware of the most fuel-efficient programs and procedures.

B. Upgraded ATC Systems and Procedures

The FAA has recently initiated the Integrated Flow Management (IFM) program whose function is to define requirements for, and assure functional integration of, engineering and development (E&D) activities impacting traffic flow. While the IFM program is primarily related to E&D activities, it takes cognizance of other on-going programs within the agency which can potentially impact traffic flow. The objectives of the IFM program are to assure that:

(1) Existing airport/airspace resources are best used under the physical constraints of aspects such as runway capacity, spacing restrictions and weather.

(2) Aircraft delays are mimimized and necessary delays are absorbed as fuel efficiently as possible.

(3) Best overall use is made by ATC system users of sophisticated avionics (such as Flight Managment Systems) on many air carrier, commuter and business aircraft.

The basic premises inherent in the IFM program are:

(1) Aircraft operators will increasingly urge the FAA to make optimum use of procedures and equipment which provide for aircraft fuel conservation.

(2) The ATC system will continuously be required to efficiently handle a wide mix of aircraft in terms of performance, size, weight, and speed.

(3) The introduction of sophisticated flight managment computers (FMC) will rapidly redefine the airbone environment in terms of what profiles aircraft operators desire, and will be able, to fly.

(4) Improved automation aids for planning and execution of ATC operations will significantly improve traffic flow management. Availablility of these aids will become increasingly more advantageous as more variables are introduced into the decisionmaking process, satellite airports are upgraded, and expanded use is made of special purpose runways at major hubs.

(5) Changes to procedures and airspace structures will best take place if the users, designers (including airframe manufacturers), and operators of the system are involved in the development process and if such changes are proven to have merit and be workable.

In addition to and in conjunction with the IFM program the FAA will evaluate the potential fuel conservation benefits of ATC facilities and systems such as:

Wake Vortex Advisory System (WVAS)

Tower Automated Ground Surveillance (TAGS)

Advanced Automation (Enroute Radar Automation)

Microwave Landing System (MLS)

Discrete Address Beacon System (DABS) and its data link

Redundant Critical NAS Elements

Most of these upgraded systems will enhance safety, noise reduction, and other FAA goals as well as promote energy efficiency.

Severe weather accounts for a significant amount of the delay at our Nation's airports. The FAA will support development of improved weather radar systems to define more accurately areas of hazardous weather. This will mimimize aircraft diversions and reduce weather-related delays thereby conserving fuel.

The FAA will ensure that departure and arrival routes and profiles in the terminal area are designed to mimimize fuel burn within the constraints of safety and noise abatement. Further capability in this area will be provided by development of state-of-the-art automation aids, procedures, and aircraft equipment. The design and development of these profiles will be carried out under the umbrella of the IFM program.

C. Airport program

The Airport Program includes actions which provide for energy conservation in the design, construction, and operation of airports as well as actions which increase system capacity and reduce airport delay. Airport proprietors benefit from the first kind of actions, and users of the airport and airway system benefit from the latter group. Specific program elements falling under the Airport Program include the following:

Require Energy Assessments for ADAP Projects

The Airport Development Aid Program (ADAP) is a Federal financial assistance program which provides a means for promoting energy efficiency and conservation. This opportunity to promote conservation was underscored by Executive Order 12185: Conservation of Petroleum and Natural Gas, dated December 17, 1979, which directed Federal agencies to institute rules designed to achieve energy conservation through the implementation of financial assistance programs. The FAA has adopted a rule which requires recipients of ADAP funds to perform an energy assessment for each Federally-assisted building construction or major building modification which exceeds $200,000 in construction cost. The rule also requires airport sponsors to utilize energy conservation practices in the operation and maintenance of the airport. The regulation allows for the consideration of energy factors during the planning process, i.e., an element of a systems plan or master plan covering energy

impacts would be eligible for Federal assistance when it is found to be a reasonable and necessary part of the plan. Such planning is not required under this regulation, but is encouraged by the FAA.

As a result of this rule, energy efficiency in the design, planning, and operation of airports is included as a criterion for ADAP funding. Airport operators/owners will benefit from the reduced energy consumption of the airport facilities. To promote further conservation the FAA is developing technical guidance which will be available in the spring of 1981 to help airport operators comply with the rule. In addition, the FAA encourages energy conservation in the design and operation of hangars and other airport facilities for which the air carriers or other users are responsibile.

Develop Energy-Efficient Ground Operating Plan for Washington National and Dulles International Airports

The Federal Government owns and operates Washington National and Dulles International Airports. The FAA has underway a study to evaluate the energy conservation potential at these two airports of actions that fall within the purview of the airport proprietor (e.g., airport access, operation of ground vehicles, location of facilities, etc.). Based on the findings of this study, the FAA intends to develop an energy efficient ground operating plan for these airports. Additionally, the operating plan will serve as an illustration to other airport proprietors of the benefits that may be achieved by similar planning efforts at their own airports. The agency will also establish a monitoring system to measure the fuel savings which result from specific techniques at National and Dulles.

Promote Snow/Ice Removal Systems

The time required to open runways after a snowfall is highly variable, depending upon the intensity of the snowfall and the availability of snow-ice removal equipment. In 1979, 22.6 percent of delays of 30 minutes or more was due to snow and ice problems. The FAA encourages airport operators to purchase snow/ice removal equipment and such equipment is eligible for Federal funding under ADAP.

Evaluate Incentive Programs, Quotes and Slot Allocation Mechanisms for Reducing Airport Delays

One of the primary causes of fuel inefficiency in the National Aviation System is delay. The FAA is committed to improving the ATC system, and many of the options already mentioned are designed to expand capacity and reduce delay. However, another way to minimize or eliminate delay problems is through incentive programs which reduce demand or better utilize existing capacity. For example, by improving its delay estimates, the FAA will encourage users to use FAD procedures. The FAA could also issue delay projections that are specific to a facility at a congested airport. For instance, there may be significant delays on one runway, but another shorter runway at the same airport may be available without any delay. Aircraft operators with the appropriate equipment may be able to land on the second runway without any adverse effect on the primary facility thus expanding system capacity. Facility-specific delay projections may encourage more aircraft operators to purchase equipment which can operate on secondary runways at congested airports. The FAA will evaluate the feasibility of using such incentive-type programs and procedures to reduce demand or expand capacity.

There are currently four airports at which the FAA has established a reservation system to relieve excessive congestion. The four airports are Washington National, J.F. Kennedy, LaGuardia, and Chicago O'Hare Airports. The agency has imposed an hourly limit on IFR operations (arrivals and departures) by class of users. The FAA will evaluate the potential for reducing system delay and conserving fuel by expanding hourly quotas to other congested airports.

The FAA is evaluating several potential slot allocation mechanisms for use at Washington National Airport. The results of this analysis may be used at other delay-prone airports which have substantial peak demand patterns.

Continue the Airport Improvement Program to Reduce Congestion and Delays

In 1977, the FAA established the Airport Improvement Program in an effort to reduce aircraft delays at the Nation's 25 busiest airports. This program was patterned after a comprehensive delay study conducted at Chicago O'Hare International Airport in the mid-1970's. Since 1977, Airport Improvement Working Groups have been established at nine other major airports. The Airport Improvement Program is structured to bring local expertise to bear on the problems at each airport, while at the same time coordinating these local efforts in a national program to reduce congestion and delays throughout the National Airspace System. The program is jointly sponsored by the FAA and the Air Transport Association, and has been publicly endorsed by the Administrator and Deputy Administrator.

Promote Satellite Airports and Separate General Aviation Facilities at Congested Airports

The FAA promotes the use of satellite airports and the construction and/or dedication of separate general aviation runways, where possible, at congested airports. Currently, the mix of aircraft in terminal areas requires complex separation standards to avoid the wake vortex problem. To the extent that traffic can be separated by aircraft type, aircraft spacing can be decreased and airport capacity increased. The resulting delay reduction may conserve significant amounts of fuel. On August 7, 1979, the FAA anounced a major new program to upgrade air safety in 56 metropolitan areas by improving airport facilities at 86 satellite fields. Eventually as many as 236 satellite airports in 75 metropolitan areas could be affected.

Evaluate Aircraft Towing

Another area which requires further analysis is the potential fuel conservation benefits and costs of extended towing of aircraft in the terminal area. The Department of Energy and the FAA are evaluating this option which involves technical and operation feasibility and safety questions that need to be solved. The FAA will continue to evaluate this alternative as well as promote other measures to decrease groundside fuel use such as taxiing on fewer engines whenever safety permits.

Develop Energy Conservation Educational Programs for Airport Operators

Educational programs for airport operators will be developed and distributed nationwide in consonance with the overall energy conservation effort in the National Aviation System. The programs will emphasize energy-efficient operation of the Nation's airports. The FAA will also publish, in conjunction with the ADAP requirement mentioned earlier, technical guidance concerning the energy-efficient design, construction and operation of ariports.

In a different vein, the program may include treatment of the airport operator's ability to impact the fuel efficiency of airport system users through the use of pricing policies which "smooth" the otherwise peak demand for slots at congested airports.

Promote Energy-Efficient Airport Access Systems

The Federal Highway Administration and the Urban Mass Transportation Administration are involved in landside access to airports in conjunction with State or local governments. To support their efforts, the FAA encourages the use of mass transit and other energy efficient transportation modes for airport access, including access to Washington National and Dulles International Airports. This may include the use of vanpools by airport employees, etc.

D. Aircraft Technology Program

The primary responsibility for the actions under this program rests with the aeronautical manufacturers and Federal agencies other than the FAA. However, the FAA supports these developments and must insure that future ATC system designs are compatible with new technology aircraft and vice versa. Specific program elements falling under the Aircraft Technology Program include the following:

Promote Development of New Technology Aircraft, Engines, and Aircraft Systems

As a result of the 1973/1974 oil embargo and the rapidly rising price of aviation fuel, aircraft operators have taken advantage of capacity and operating changes which conserve fuel. Therefore, significant increases in fuel efficiency for the future will require technological improvements in aircraft, aircraft engines, avionics, and the ATC system. New technology aircraft and aircraft engines will, in fact, generate the greatest savings in fuel in the long term.

NASA has the primary responsibility for developing future airframe and engine designs. One response to this responsibility is NASA's Aircraft Energy Efficiency Program which focuses on developing basic improvements in technology to enhance the energy efficiency of existing and future aircraft. This program has several phases. The Engine Component Improvement Program is directed towards existing engines such as the JT9D, CF6, and JT8D. This program is geared towards detailed improvements to engine components and also includes a diagnostic effort aimed at identifying and eliminating the major causes of performance degradation over the engine lifetime. The purpose of the Energy Efficient Engine Program is to provide an advanced technology base for a generation of fuel-efficient turbofan engines for commercial transports. Additionally, NASA's advanced turboprop project is directed at establishing the feasibility of radically improved propellor propulsion systems. The propfan may be able to combine the fuel efficiency of a propellor with the speed capability of current turbofan-powered transports. In still another area, NASA is working on aerodynamic and structural technology improvements which have a direct application to future fuel-efficient aircraft. Finally, the FAA is working with NASA to reduce wake vortices at their source through aircraft modifications. This would permit reduced separation standards thereby increasing system capacity. The FAA will support these developments and insure that future ATC system designs are compatible with new technology aircraft, and vice versa.

Aircraft and avionics manufacturers and NASA are developing avionics such as the Flight Management System (FMS) for fuel-efficient flight operations in the ATC system. The FAA supports this research and the IFM program described in section B, above, includes defining an environment which allows users to take full advantage of sophisticated avionics.

Promote New Aircraft Designs with Extended Towing Capabilities

If studies concerning aircraft towing prove successful, the FAA will promote the design of new aircraft or modifications to existing aircraft to permit safe and efficient extended towing capabilities. As noted earlier, extended towing of aircraft in the terminal area could reduce groundside fuel consumption, but there are safety and operational issues which first need to be resolved.

Support Development of Alternative Fuels

The discussion of alternative fuels contained in the Appendix concludes that there are no economically viable alternatives to conventional petroleum-based aviation fuel in the near term. The stability of an aviation fuel supply will require the development of new fuels in the future. NASA, DOD, and DOE have the primary responsibility in this area. NASA's work is in the area of developing technology to accommodate alternative fuels for future commercial and general aviation aircraft. DOD is performing R&D on utilization and defining fuel specifications for use in military turbine aircraft. DOE's role with regard to alternative fuels is primarily oriented to R&D on extraction, upgrading, and refining, and commercialization of alternative fuels. The FAA will monitor the progress in alternative fuels developent in the interest of maintaining an effective air transportation system. The FAA also has underway studies to determine the feasibility of using automotive gas in lieu of aviation gas for general aviation and, to a lesser extent, air carrier operations.

Consistent with one of the policy principles states at the beginning of this chapter, the FAA will promote the use of alternative fuels whenever possible in an effort to free petroleum-based fuels for aviation, and other users, which are vital to the Nation and for which there are no economically viable alternatives in the near term.

E. Internal FAA Program

Specific program elements falling under the Internal FAA Program include the following:

Promote Efficient Use of Energy in FAA Operations

The FAA will adopt standards, policies and internal operating procedures which accomplish the following:

- Improve the efficiency of "process" facility electrical use through solid-state equipment technology.
- Improve the efficiency of motor gasoline use in maintenance and other day-to-day operations.
- Improve the efficiency of jet fuel and aviation gas use in FAA aircraft fleet operations.
- Improve the efficiency of heating and cooling energy use in both manned and unmanned FAA facilities.

Develop Energy Contingency Plan

The FAA is developing an appendix to its agency Order 1900.1C, FAA Emergency Operations Plan. The appendix provides for energy contingency planning to ensure to the maximum extent possible a continuing support capability of FAA facilities and installations during periods of energy supply deficiencies or short-term outages.

The FAA will also work towards the development of a mechanism which provides for contingency planning for the aviation industry in the event of a serious fuel crisis. The FAA will support the national objective of maintaining an effective air transportation system to the extent necessary for national security.

Promote Energy Efficiency in ATC Facilities

The FAA will review its establishment criteria for en route and terminal facilities (funded under the facilities and equipment program) to

ensure that energy efficiency is given proper emphasis.

Require Energy Assessment for Agency Actions

On December 11, 1980, the FAA issued an order revising its internal regulatory procedures to require an energy assessment for those FAA actions which involve by design, construction, installation or operation the significant use of energy in their function or implementation. In general, energy assessments will be performed for the following areas: (1) establishment of buildings, including those used for navigation equipment, (2) changes to air traffic control regulations, policies, or procedures which would clearly cause a significant increase in aircraft fuel consumption, (3) airport layouts or changes to an airport layout, and (4) aircraft modifications. The FAA's operating regulations are included in (2) above, and as a result this requirement will ensure that the energy impact of FAA noise abatement procedures as well as other agency actions and decisions are considered before implementation. Energy conservation will not take precedence over the safety mandates of the FAA, but whenever possible, safety-oriented actions will be consistent with the agency's energy conservation activities.

Develop Energy Models for Use in Energy Assessments

The FAA is developing several analytical tools and data bases which will improve agency capabilities in performing energy assessments. One such tool is an aircraft fuel burn simulation model which assesses aircraft-specific fuel consumption characteristics of complex flight patterns en route and in terminal areas around airports. The model, which will be available in the summer of 1981, will facilitate the energy impact analysis of: (1) proposed changes to operating procedures, (2) airport delay effects. and (3) regulatory changes.

Furthermore, this model will be linked to the FAA's noise model to ensure that analyses of noise abatement programs consider the impact of those programs on aviation energy conservation goals.

Monitor ATC Energy Conservation Programs

The FAA will establish a monitoring program to measure the impacts of various ATC programs on energy use. This will provide information on the effectiveness of existing energy conservation programs and provide the basis for future planning in the area of energy. This is a complex issue since many FAA programs are interrelated and it is impossible to identfy the actual energy savings which result from any single program. Also, there are many participants involved in the decisionmaking process—air traffic controllers, aircraft operators, airline managements, etc. For this reason, inplementation of a monitoring system will require the coordinated efforts of all participants to identify those programs which feasibly can be measured and to design the most appropriate monitoring mechanism for each program. For those programs where the resource commitment necessary to monitor agency programs is too large to justify a monitoring system, the FAA will use fuel savings estimates based on analytical models.

Summary

The FAA Aviation Energy Conservation Policy represents a comprehensive plan requiring the support of the Federal Government, aircraft owners and pilots, airport operators, and aeronautical manufactureres and suppliers. It consists of commitments on the part of the FAA to take specific actions while at the same time it addresses complementary actions needed by non-FAA groups to maximize aviation energy conservation.

The following chart lists all of the actions contained in this policy document. In addition, the chart identifies the various groups, Federal and private, which are responsible for the actions and the status of each.

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PROGRAM/ACTION	RESPONSIBLE GROUPS	New Initiatives	Development Stage	Ongoing Program
A. ATC/Flight Operations Program				
1. Expand and Refine Fuel Advisory Departure (FAD) Procedures	FAA, Aircraft Operators, Airport Operators			X
2. Promote Gate Hold Procedures	FAA, Aircraft Operators, Airport Operators			X
3. Expand Local Flow Traffic Management (LFTM) Program	FAA, Aircraft Operators, Airport Operators			X
4. Promote Fuel-Efficient Altitudes/Speeds	FAA, Aircraft Operators			X
5. Promote Effective Use of the Airspace	FAA, Aircraft Operators		X	X
6. Promote Reduced Tankering	FAA, Aircraft Operators			X
7. Expand Use of Simulators	FAA, Aircraft Operators		X	X
8. Promote Fuel-Efficient Taxi Procedures	FAA, Aircraft Operators, Airport Operators			X
9. Promote Maintenance of Aircraft for Optimum Fuel Efficiency	FAA, Aircraft Operators			X
10. Promote Use of Inflight Computers	FAA, Aircraft Operators			X
11. Develop Energy Model for Optimum Flight Planning	FAA, Aircraft Operators, Aeronautical Manufacturers		X	X
12. Expand/Promote Energy Training Programs for Controllers/Aircraft Operators	FAA, Aircraft Operators	X		

PROGRAM/ACTION	RESPONSIBLE GROUPS	New Initiatives	Development Stage	Ongoing Program
B. Upgraded ATC Systems and Procedures	FAA, Aircraft Operators, Airport Operators, Aeronautical Manufacturers		X	X
C. Airport Program				
1. Require Energy Assessments for ADAP Projects	FAA, Airport Operators	X		
2. Develop Energy-Efficient Ground Operating Plan for Washington National and Dulles International Airports	FAA	X		
3. Promote Snow/Ice Removal Systems	FAA, Airport Operators			X
4. Evaluate Incentive Programs, Quotas and Slot Allocation Mechanisms for Reducing Airport Delays	FAA, Airport Operators, Aircraft Operators		X	X
5. Continue the Airport Improvement Program to Reduce Congestion and Delays	FAA, Airport Operators, Aircraft Opeators			X
6. Promote Satellite Airports and Separate GA Facilities at Congested Airports	FAA, Airport Operators, Aircraft Operators			X
7. Evaluate Aircraft Towing	FAA, Airport Operators, Aircraft Operators, Aeronautical Manufacturers		X	X
8. Develop Energy Conservation Education Programs for Airport Operators	FAA, Airport Operators	X		
9. Promote Energy-Efficient Airport Access Systems	FAA, UMTA, FHWA, Airport Operators			X

PROGRAM/ACTION	RESPONSIBLE GROUPS	New Initiatives	Development Stage	Ongoing Program
D. Aircraft Technology Program				
1. Promote Development of New Technology Aircraft Engines, and Aircraft Systems	FAA, NASA, Aeronautical Manufacturers, Aircraft Operators		X	X
2. Promote New Aircraft Designs with Extended Towing Capabilities	FAA, Aeronautical Manufacturers, Aircraft Operators, Airport Operators		X	X
3. Support Development of Alternative Fuels	FAA, DOE, NASA, DOD		X	X
E. Internal FAA Program				
1. Promote Efficient Use of Energy in FAA Operations	FAA			X
2. Develop Energy Contingency Plan	FAA	X		
3. Promote Energy Efficiency in ATC Facilities	FAA			X
4. Require Energy Assessment for ATC Facilities and Procedures	FAA	X		
5. Develop Energy Models for Use in Energy Assessments	FAA, Aircraft Operators, Aeronautical Manufacturers		X	X
6. Monitor ATC Energy Conservation Programs	FAA	X		

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Appendix: Statement of the Energy Problem

In the United States, 87 percent of transportation energy is derived from petroleum. Aviation is totally dependent on petroleum which is becoming an increasingly scarce resource in the United States. As a result, the United States has become dependent on imported petroleum, and therefore, is more vulnerable to uncertainties in both the domestic and international marketplace.

This section provides an overview of historical, current, and future trends of U.S. energy consumption with particular emphasis on the U.S civil aviation community. In addition, the importance of aviation to the national economy, the prospects for the aviation fuel supply, and finally, the feasibility of using alternate fuels for aviation are discussed briefly. These facts will clarify the need for a comprehensive aviation energy conservation effort by the Federal Government and the aviation industry.

National Energy Perspective

Figure 1 illustrates the breakdown of U.S. energy consumption by type of energy. U.S. energy consumption has more than doubled over the past 25 years, and transportation has consistently accounted for approximately 25 percent of all energy consumed. Transportation presently uses 53 percent of the petroleum consumed in the United States.

Although domestic petroleum production is 8.7 million barrels per day or 23 percent of total energy use, it is far exceeded by the demand for petroleum products which is 17.6 million barrels per day. The result is an over-dependence on imported petroleum products. Focusing directly on petroleum, Figure 2 shows petroleum consumption by major sectors of the economy, and Figure 3 shows the transportation share by mode. As is evident from these statistics, transportation is very vulnerable to fluctuations in petroleum supplies.

Aviation Fuel Perspective

Total civil aviation consumes about 8 percent of the transportation share of petroleum use or 4 percent of total U.S. petroleum. The table below shows the estimated fuel consumption for domestic civil aviation for FY–1980.

FIGURE 1

Total U.S. Energy Consumption By Type of Energy
1979 Percentages

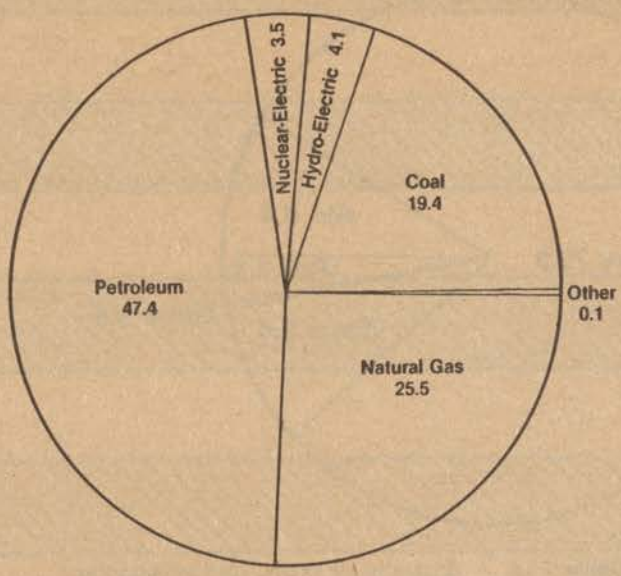


FIGURE 2

Use of Petroleum Products By Major Sectors of the Economy
1979 Estimated Data by Percent

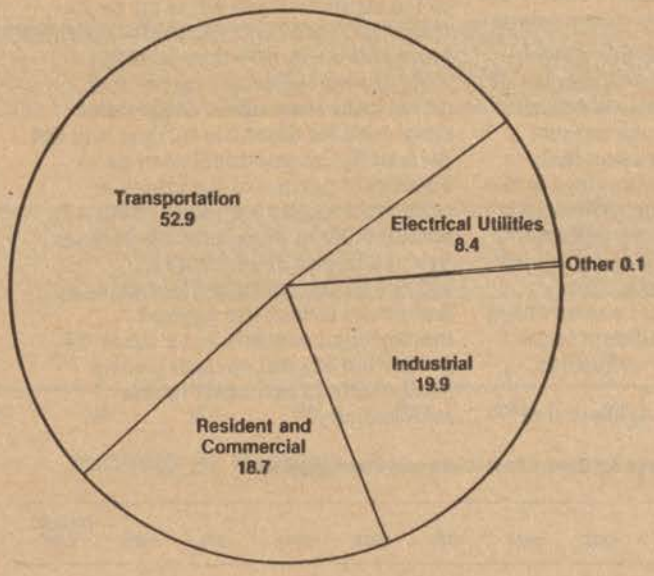
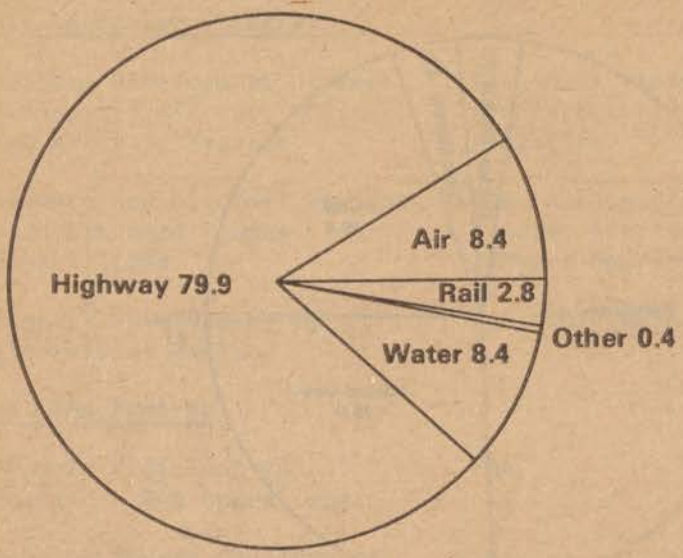


FIGURE 3

Transportation Petroleum Consumption By Mode

1980 Estimated Data by Percent



Estimated U.S. Domestic Civil Aviation Fuel Consumption—FY 1980

[Millions of Gallons]

	Air carriers	General aviation	Total
Jet fuel	10,370	909	11,279
Aviation gas	13	522	535
Total aviation fuel	10,383	1,431	11,814

Air carriers consume 88 percent and general aviation consumes 12 percent of domestic civil aviation fuel. At current levels of consumption, a one percent savings in commercial aviation fuel would yield a total annual savings to the Nation of about 100 million gallons. At an average price of $1.00 per gallon, this would translate into a savings of about $100M a year to the airlines. This indicates that effective fuel conservation programs can have a significant impact on national consumption and airline profitability.

Historical data (Figure 4) show that domestic air carrier fuel consumption dropped significantly after the oil embargo of 1973 which forced airlines to cut back their flight frequency to conserve fuel. Fewer gallons consumed coupled with an increasing level of revenue ton-miles resulted in improved fuel efficiency (see Figure 5). Current fuel consumption has risen in response to the significant growth in air carrier traffic (air carriers consumed 4.7 percent more gallons in 1979 than in 1973).

As shown below, air carrier fuel prices have risen about 546 percent since 1973 for domestic carriers and 654 percent for international carriers. A significant portion of the increase occurred in 1974 as a result of the oil embargo. Even though the air carriers have exhibited increasing fuel efficiency, the continued increases in fuel prices (which are beyond management control), have cause the proportion of total operating costs attributable to fuel costs to rise substantially.

Average Air Carrier Fuel Prices and Operating Costs

	1973	1974	1975	1976	1977	1978	1979	(1st half) 1980
Domestic operations:								
Price (cents per gallon)	13	22	27	30	35	39	56	84
Percent of total operating costs	11	15	18	18	20	20	24	30
International operations:								
Price (cents per gallon)	13	34	36	37	40	42	64	98
Percent of total operating costs	12	21	21	20	20	19	25	32

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FIGURE 4

Domestic Air Carrier Fuel Consumption

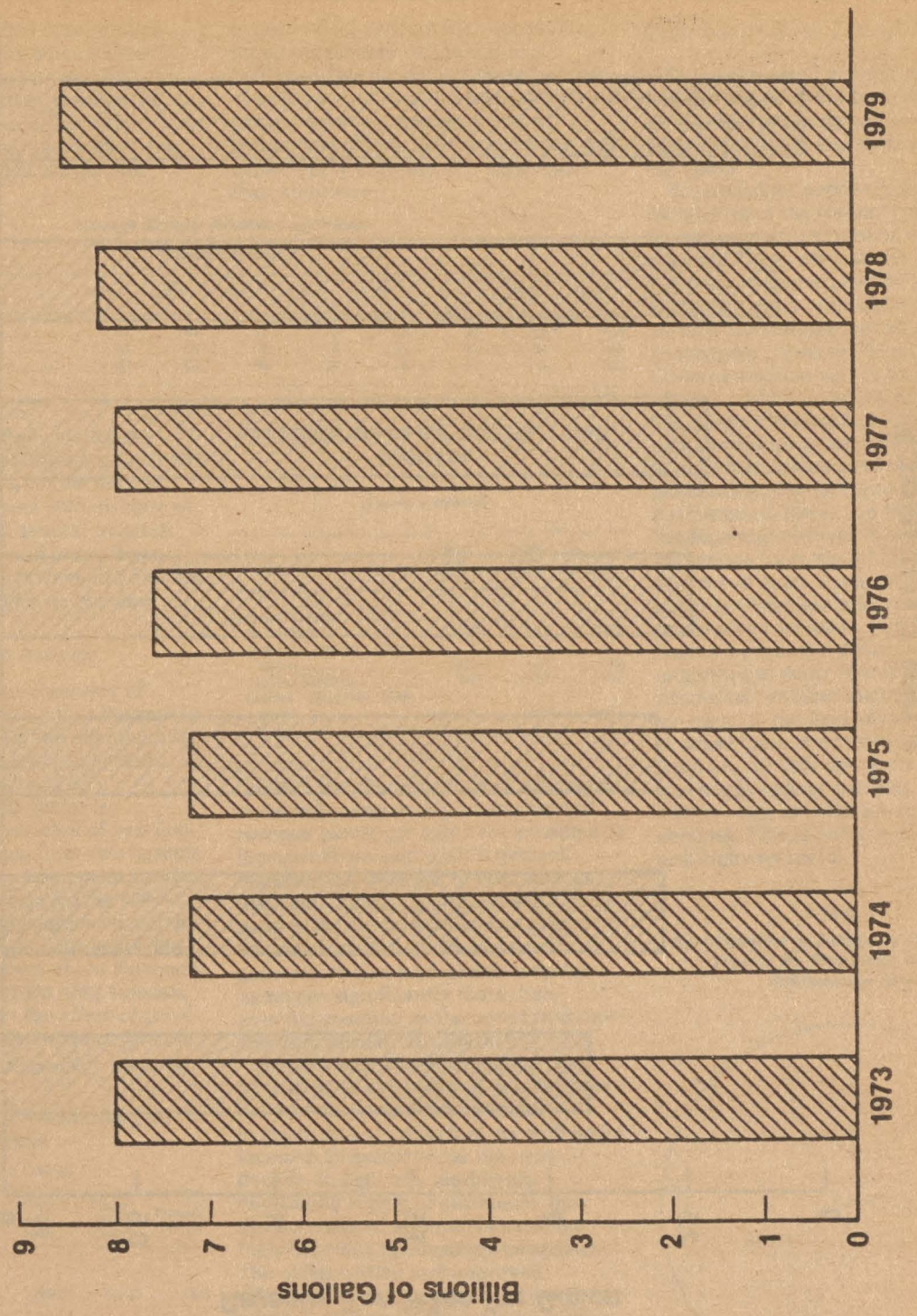
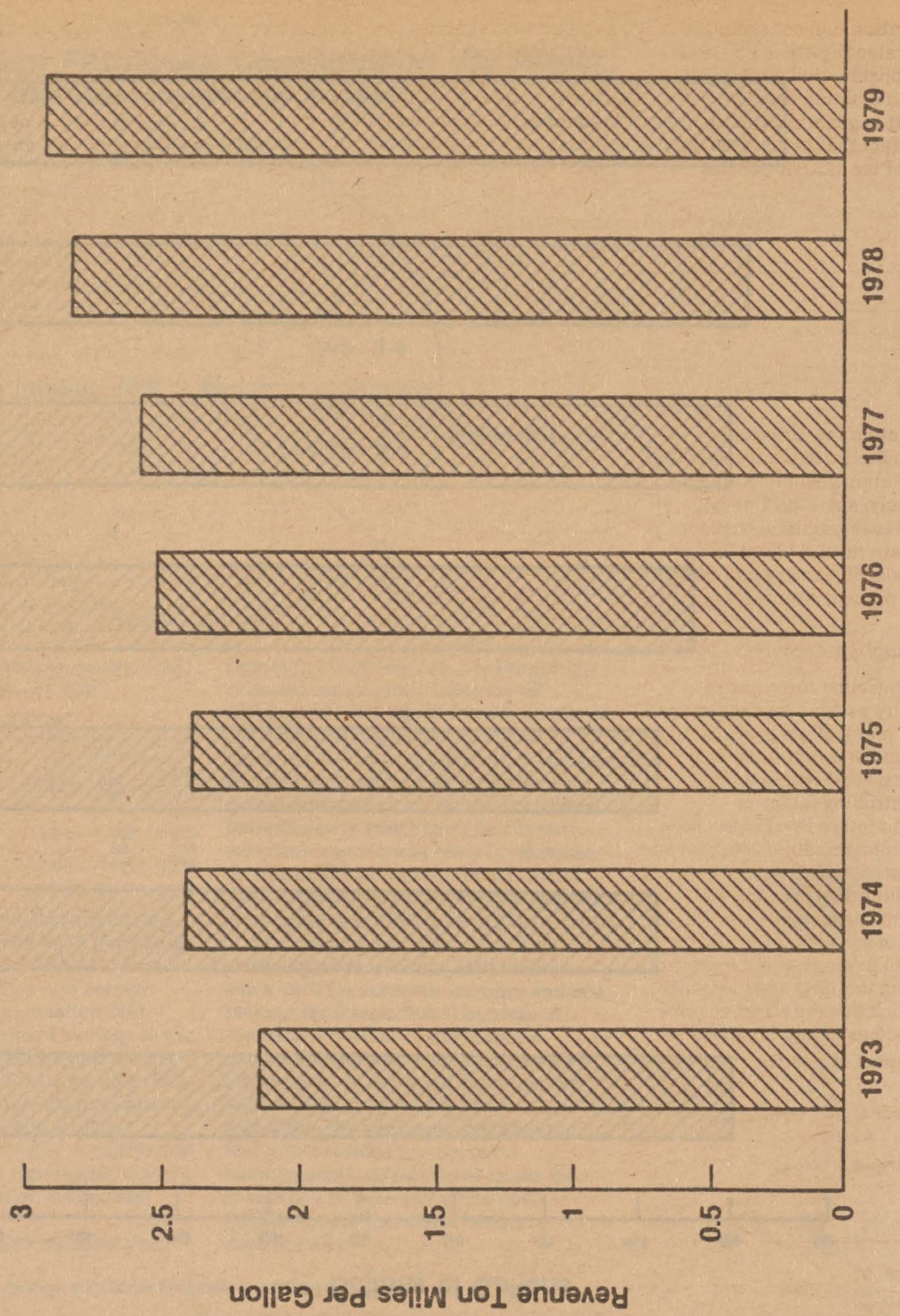


FIGURE 5

Domestic Air Carrier Fuel Efficiency



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General aviation fuel consumption has increased steadily since FY–1973 with jet fuel consumption growing at a faster rate than aviation gasoline. Of special interest to general aviation activity is the fact that in FY–1980 only 6,000 aircraft of the 193,000 general aviation fleet used jet fuel, accounting for only 8 percent of hours flown. However, this accounted for 64 percent of total general aviation fuel used. As general aviation operators turn to greater use of jets, fuel consumption will undoubtedly increase at a faster rate than otherwise.

Average General Aviation Fuel Prices

(Cents per Gallon)

Fuel	1973	1974	1975	1976	1977	1978	1979	1980
80/87	47	64	69	75	82	89	128	154
100/130	49	66	73	76	84	91	130	161
Jet Type A	50	62	66	69	76	79	136	143

General aviation fuel prices have risen approximately 228 percent and 186 percent for aviation gasoline and jet fuel, respectively, since 1973. In spite of these cost increases, general aviation itinerant operations and hours flown increased almost 46 percent and fuel use increased 100 percent over the same period.

Forecast of Aviation Activity

The FAA's baseline forecasts of aviation activity assume that the supply of energy and fuel will not significantly inhibit economic or aviation growth. Fuel prices, however, will be a significant controlling factor in determining the future level of aviation activity. The following forecasts assume a 22 percent increase in oil prices and an 11 percent inflation rate for the 1980–1981 period. Fuel price increases will be less dramatic in subsequent years, but are expected to average about 9 percent annually during the 1980–1992 forecast period. This includes the effect of price increases in domestic and imported oil, but not the impact of possible taxes on aviation fuels.

FAA Forecast of U.S. Domestic Civil Aviation

[Figures in millions]

	Fiscal year 1980	Fiscal year 1992	Percent change
Air Carriers:			
Revenue passenger enplanements	290.5	481.1	+66
Revenue passenger miles*	201.9	352.7	+75
Itinerant aircraft operations	10.3	12.5	+21
Jet fuel (gallons)	10,370	12,658	+22

*Note: Revenue Passenger Miles expressed in billions.

FAA FORECAST OF U.S. DOMESTIC CIVIL AVIATION

[Figures in millions]

	Fiscal year 1980	Fiscal year 1992	Percent change
General aviation:			
Hours Flown	42.1	64.3	+53
Itinerant Aircraft Operations	29.4	43.9	+49
Jet Fuel (Gallons)	909	1,851	+104
Aviation Gasoline (Gallons)	522	790	+51

Given the above estimates, air carrier revenue passenger enplanements and revenue passenger miles are expected to increase 66 percent and 75 percent, respectively, over the 12-year forecast. Itinerant aircraft operations will rise 21 percent for air carriers and 49 percent for general aviation. As expected, general aviation jet fuel consumption increases significantly more than aviation gasoline as the use of turbine-powered aircraft increases.

As noted earlier, civil aviation fuel consumption increased 25 percent over the past 10 years. FAA forecasts indicate that aviation fuel use will again increase 25 percent over the next decade. In light of a worldwide decreasing supply of petroleum, the development of alternative aviation fuels becomes increasingly important. The conservation and improved efficiency of existing fuels is also of primary concern to the viability of the aviation industry.

Contribution of Air Transportation

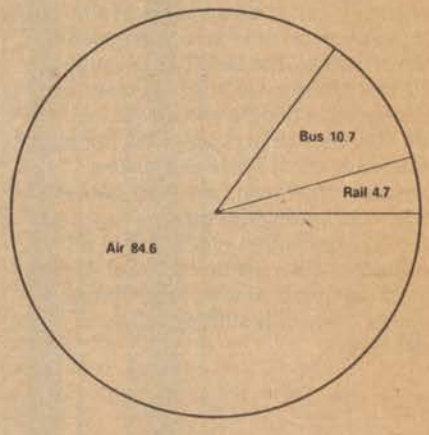
The airlines and general aviation together make up the Nation's balanced air transportation network—the safest, most dependable and most efficient in the world.

Scheduled air service is the foundation of the Nation's public intercity passenger system as shown in Figure 6. The system serves a comprehensive national network of 58,000 city pairs with 12,500 daily flights. In 1979, the airlines moved 284 million passengers a year at 735 airports. General aviation serves these airports plus an additional 14,000 airports around the country linking these cities with vital commercial air transportation. Air service has enviable records for safety, punctuality, comfort, and cleanliness. Furthermore, lower trip time is a fundamental element that differentiates air service from ground transportation. The speed of air transportation improves business opportunity and productivity which in turn benefits the Nation's economy. Also, speed is important in many family travel situations. Another major advantage of air travel is the flexibility which occurs because there is no need for right of way, i.e., aircraft operators can quickly and easily change markets, capacity, service, etc., in response to consumer demand. This is not true of rail, water and highway travel.

FIGURE 6

Distribution of Intercity Passenger Travel By Common Carrier

1979 Passenger Miles



A healthy aviation industry also assists the foreign trade balance of payments. Airline competition in the United States has fostered a manufacturing industry whose products dominate world air transportation. In 1979, over 70 percent of the active free-world turbine-powered air carrier fleet were of U.S. manufacture. General aviation also contributes significantly to the U.S. balance of payments. Approximately 90 percent of the world's general aviation fleet were built in the United States.

The private automobile dominates short distance intercity transportation. The only substantial public service challenge is from air transportation on medium and longer distance trips. While a fully loaded automobile is generally fuel efficient, low occupancy automobile travel is neither cost effective nor fuel efficient. Since 87 percent of air passengers travel singly or in parties of two, energy may not be conserved if fuel allocations disrupt air service and the auto is used as an alternative mode.

The following table shows relative fuel efficiencies for the various modes based on the actual number of passenger-miles traveled in 1978. As noted earlier, speed is a fundamental element that differentiates air service from the ground modes. Passenger miles per gallon fails to reflect the value of a passenger's time in its measure of efficiency. While a bus is by far the most fuel-efficient mode, its passengers are limited to shorter distances than air travelers when time is important. Numerous studies have been done to develop a more satisfactory measure of efficiency, however, to date, there is no generally accepted measure of the value of passengers' time across the modes. Nevertheless, the DeOT/FAA supports the use of the most efficient means of transporting people and goods be it by air, rail, ship or highway. The improved efficiency of all those modes is a common objective. One final note is that when evaluating the total energy costs of a transportation mode, direct and indirect costs must be included. Indirect costs comprise, among other things, the energy costs of installing rails and highways.

Passenger Miles Per Gallon*

[Intercity travel, 1978]

Class I Bus	119.00
Rail	45.04
Automobile	43.32
Scheduled Air Carriers	23.87

*The equivalent level of BTU's was used to determine the "Passenger Miles Per Gallon" figure for rail.

The U.S. airlines have established an outstanding energy conservation record since the 1973 oil embargo. In 1979, the scheduled airlines used 4.7 percent more fuel than in 1973, but carried 91 million more passengers (a 47.3 percent increase). Domestic revenue ton-miles per gallon (RTM/G), a widely used measure of air carrier fuel efficiency, increased 35 percent from 1973 to 1979.

The substantial improvements in air carrier fuel efficiency to date have resulted primarily from reducing the number of flights as a result of the oil embargo (thus increasing load factors); the voluntary grounding of fuel-inefficient aircraft and airline investment in new, more fuel-efficient aircraft; and the efforts by the Federal Government and the industry to improve air traffic control and aircraft operating procedures. The rapidly escalating price of fuel has provided the incentive for continued efforts in these areas. In this regard, it is important to note that many people criticize the airlines for flying with empty seats. Actually, the domestic scheduled airlines have consistently recorded the highest load factor of all intercity public transportation modes (see Figure 7). In the future, there is a practical limit to raising seating density and to increasing load factors. Further improvement in aviation fuel efficiency, therefore, will require dedicated efforts by all segments of the industry.

Although there is no comparable measure of general aviation fuel efficiency (revenue ton-miles are meaningless for general aviation), this segment of the aviation industry has also implemented numerous programs to conserve energy. Most of these programs have focused on educating pilots in the most fuel-efficient operating techniques such as proper leaning procedures, engine maintenance, etc. FAA will continue to support these efforts wherever possible. General aviation serves an important function by providing direct origin-destination travel to non-airline markets or at non-airline times. In addition, general aviation provides ambulance, agricultural, firefighting, aerial surveying, banking and postal services as well as numerous other functions for the Nation's economy.

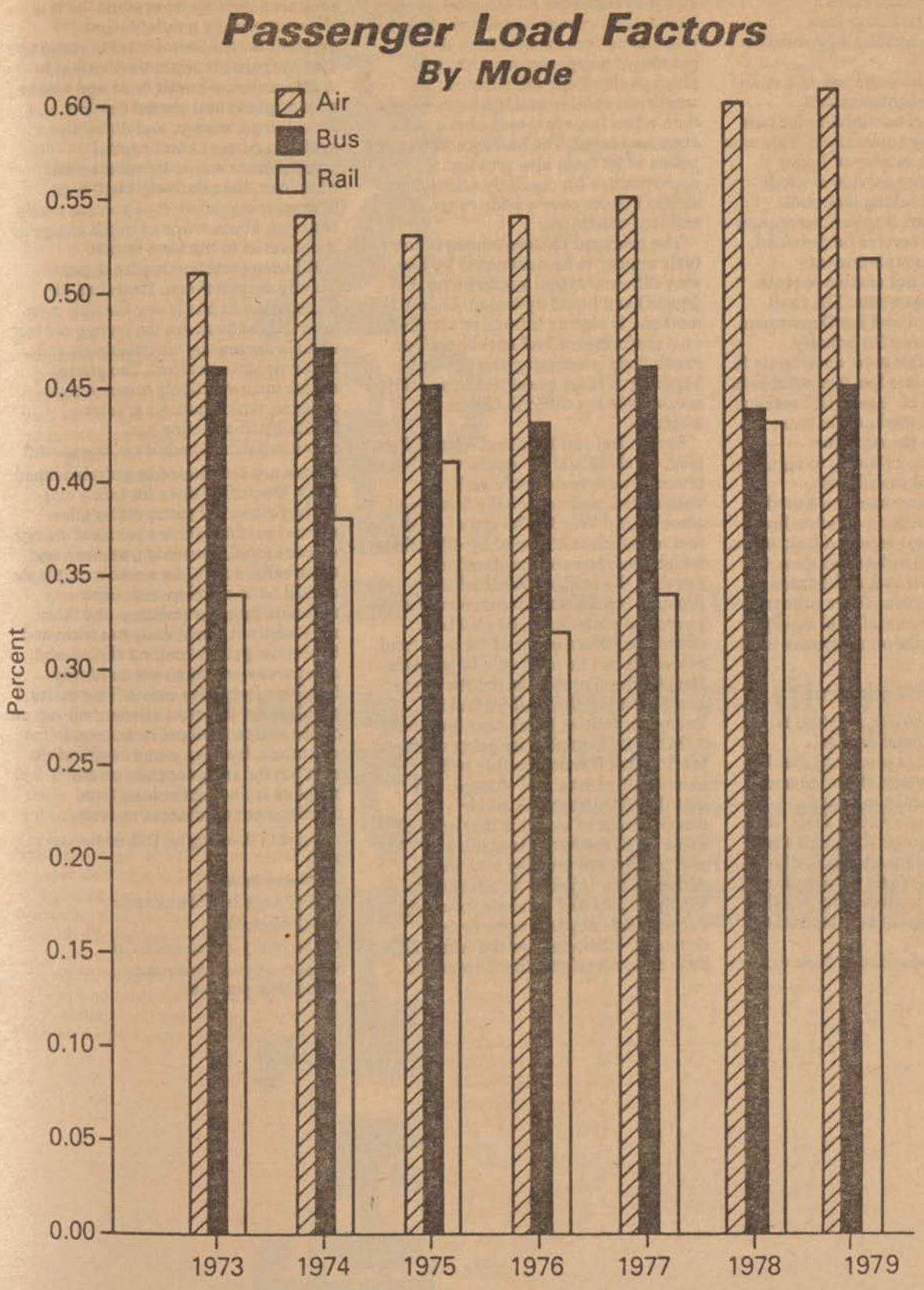
Aviation Fuel Supply Conditions

In the past, aviation fuels were subject to mandatory price and allocation regulations (administered by the Department of Energy). The allocation program regulated producers, distributors, and sellers of petroleum products with respect to the volumes of each regulated petroleum product they could provide to various consumers or classes of consumers. The pricing program was more complex due to the varying treatment of different classifications of crude oil by the producers. This pricing problem did not occur for aviation fuels because very few nonproduct costs were involved. As long-term, fixed price fuel contracts expired, they were replaced by contracts of shorter duration without fixed prices. The aviation fuel allocation system also worked well as long as demand patterns remained stable. As a result of the Airline Deregulation Act of 1978, numerous requests for route changes were filed and the allocation system broke down. The airlines' allocation problem was relieved when the price and allocation regulations for aviation fuels were repealed.

On February 26, 1979, the mandatory price and allocation regulations were revoked for kerojet fuel and aviation gasoline. Naptha jet fuel (use primarily by the military) was decontrolled on October 1, 1976. The current status, therefore, is a free market situation regarding price for all aviation fuels which will remain in effect unless standby regulations are fully or partially activated.

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FIGURE 7



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Agency (EPA) requirements, unleaded motor gas will become more predominant in the future thus exacerbating the conflict with aviation gasoline.

A problem which surfaced as a result of the Airline Deregulation Act concerned the fuel availability for new carriers (primarily commuters). This was precipitated by a number of larger carriers terminating service to small communities and taking their fuel supplies with them. Regulations require that replacement service be provided, but in some cases replacement commuters could not make adequate fuel supply arrangements. The Civil Aeronautics Board and the Department of Energy, who have the primary responsibility in this area, coordinate to ensure that adequate fuel is available to guarantee a level of "essential" service; otherwise, the original carrier must continue to serve the market.

The FAA has no authority to regulate fuel producition or distribution, however, the agency has coordinted informally with DOE on aviation fuel problems or request received from users. DOE maintains an airline fuel desk to handle requests for fuel and related problems. FAA actions focus primarily on monitoring the overall fuel supply and price conditions on a systemwide basis.

Alternative Fuels Development

As mentioned earlier, aviation is currently totally dependent on petroleum fuels. It is predicted that by the turn of the century, the price and availability of petroleum-based products, including aviation fuels, will be at the critical stage. Research has been done to develop alternative fuels, however, alternate fuels for aviation do not appear to be economically feasible or available in large quantities in the near term.

Petroleum-based aviation fuels exhibit characteristics which are amenable to safe and economic air tansport. Jet fuel density and energy properties allow fuel tanks to be far removed from the passenger compartment. Also, for a given payload, the airframe can be smaller in volume and lighter in weight than when large fuel tanks have to be accommodated. The boiling and freezing points of jet fuels also provide opportunities for regularly scheduled airline service over a wide range of ambient conditions.

The practical choices among future fuels appear to be dominated by two very different types: synthetic Jet A (synjet) and liquid hydrogen. Liquid methane is also an attractive possibility on a performance and cost basis, but restrictions concerning storage and handling of large quantities in populated areas make it a difficult choice for aircraft.

Synjet fuel can be manufactured from coal, oil shale and tar sands. Coal-based processes are reasonably well understood, and some have been used since World War II. The use of oil shale and tar sands is hindered by difficulties which have been encountered in exacting the usable hydrocarbon product. Significant environmental and economic obstacles must also be overcome before either of these natural resources can be used on a large scale. Despite these problems, the Air Force could be using shale oil jet fuel in limited quantities in the next few years.

The chief incentive for using synthetic Jet A is that it is compatible with existing airplanes, fuel storage, and distribution systems. A major disadvantage of synjet is that none of these fossil resources is available universally, nor are they renewable. Although the U.S. has an adequate supply of coal and oil shale to satisfy our domestic needs for one or two centuries, other areas of the world have little or no remaining fossil resources.

On the other hand, hydrogen can be produced directly from water, so it is both universally available and renewable. The major disadvantage is that hydrogen is not interchangeable with petroleum-based fuels and requires new airplane and engine designs, and fuel storage, supply, and distribution systems. Airport plant capital requirements would be substantial. Moreover, the relatively inefficient hydrogen manufacturing process would consume about twice as much energy as is delivered in the form of fuel.

All transportation modes depend heavily on petroleum. However, air transportation has fewer feasible near-term alternatives. As the energy content of fuels decreases, air transports suffer major weight penalties. The ground modes incur relatively minor weight changes, which permits greater flexibility in selecting fuel characteristics. In addition, the ground modes are not limited to portable liquid fuels. Electrified lines for trains and bettery-powered automobiles allow several exchangeable choices of energy sources (coal, petroleum, nuclear, and eventually, solar). As a result, emphasis should be to develop and refine alternate fuels for industry and those uses where it is currently practical and to reserve petroleum for aviation and other areas where no economically feasible alternative exists. This policy provides for the most efficient allocation of our scarce national resources. In the meantime, the long range health of the aviation industry depends on stable fuel supplies including the long-term development of alternative fuels.

Issued in Washington, D.C. on January 13, 1981.

Langhorne Bond,

Federal Aviation Administrator.

Neil Goldschmidt,

The Secretary of Transportation

[FR Doc. 81-1827 Filed 1-16-81; 8:45 am]

BILLING CODE 4910-13-M

federal register

Monday
January 19, 1981

Part XXXIV

Department of the Interior

Bureau of Land Management

Leases, Permits, and Easements; Land Use Authorizations Under the Federal Land Policy and Management Act

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

43 CFR Parts 9 and 2920

[Circular No. 2483]

Leases, Permits, and Easements; Land Use Authorizations Under the Federal Land Policy and Management Act

AGENCY: Bureau of Land Management, Interior.

ACTION: Final rulemaking.

SUMMARY: Section 302 of the Federal Land Policy and Management Act of 1976 authorizes the Secretary of the Interior to regulate through easements, permits, leases or other instruments, the use, occupancy and development of the public lands. This final rulemaking provides the procedures under which that authority will be exercised.

EFFECTIVE DATE: February 18, 1981.

ADDRESS: Any suggestions or inquiries should be sent to: Director (320), Bureau of Land Management, 1800 C Street, NW., Washington, D.C. 20240.

FOR FURTHER INFORMATION CONTACT: Ralph Conrad, (202) 343–8693, or Robert C. Bruce, (202) 343–8735.

SUPPLEMENTARY INFORMATION: Proposed rulemaking was published in the **Federal Register** on May 12, 1980 (45 FR 31284). Comments were invited for 60 days. Comments were received from 31 different sources, 17 from Federal agencies, 8 from business interests, 3 from associations, 2 from individuals and 1 from an environmental group.

The general comments expressed the view that the proposed rulemaking was good and reflected a real effort to take full advantage of the possibilities for flexible land use authorization provided in section 302 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1732). Three or four comments were of the opinion that the proposed rulemaking was overly complicated and needed to be less specific. One of the comments suggested that there should be three sets of regulations developed, one for leases, one for permits and one for easements. This suggested process would, the comment felt, allow for a differentiation to be made in the requirements for each of the types of use authorization. The proposed rulemaking was designed to allow the flexibility afforded by section 302 of the Federal Land Policy and Management Act and to require the minimum amount of information needed to determine if a requested land use should or should not be permitted on the Federal lands. The final rulemaking continues this concept. It provides a process of availability of the public lands for approved uses of those lands, and a simplified process for public-initiated short term permits for uses that have minimum impact on the public lands.

The bulk of the comments on the proposed rulemaking were directed at specific provisions. Each of the sections that received comments will be discussed.

Purpose

A new section has been added to the final rulemaking to establish the purpose of the rulemaking. It makes clear that procedural and informational requirements will vary in relation to the nature of the anticipated use, thus permitting expedited issuance of permits.

Definitions

The term "authorized officer" drew several comments. One comment requested that the authority to issue land use authorizations not be delegated any lower than to the District Manager. As stated in the preamble to the proposed rulemaking, the authorized officer will be the District Manager in nearly every case. There may be some instances where an Area Manager will be the authorized officer, but those will not be the normal situations. Other comments on this term were concerned about the authority granted the authorized officer by the rulemaking and suggested that the rulemaking should set out the qualifications of the authorized officer. Nearly all of the regulations of the Bureau of Land Management place authority at the point where the granting action takes place, the issuance of a land use authorization in this case. It is the Bureau's concept that the people on the ground are closest to the conditions and have the most knowledge of the situation. This being the case, the authority to make decisions and put them in effect is properly placed at the point of the greatest knowledge. In the event an authorized officer improperly carries out his duties, the appeal system gives the wronged individual an avenue for correcting the wrong. No change has been made in the term "authorized officer".

Some of the comments questioned whether access to a lease, permit or easement would be handled as part of the land use authorization or would be obtained by the filing of an application under the provisions of the right-of-way regulations. As a result of a careful review of this question, it was decided that the final rulemaking would not be changed and access would be handled in the manner set forth in the proposed rulemaking. If an applicant for a land use authorization needs access across public lands, that access will be obtained through a request for a right-of-way under the provision of Part 2800 of this title.

The term "casual use" has been added to the definition section along with a new paragraph in § 2920.1 to make it clear that land use authorizations under this rulemaking are not required for short-term activities such as hunting, fishing and other individual activities. These additions have been added to clarify the intent of the rulemaking.

Several of the comments made the observation that the term "land use authorization" appeared several times in the rulemaking, but was not defined. The comments felt that defining this term would clarify the rulemaking. The suggestion has been adopted and the term "land use authorization" has been added to the definition section.

Policy

A comment raised a question about the process used for the determination of the fair market value of lands covered by a land use authorization. Fair market value will be determined by an appraisal performed by a Federal or independent appraiser, as determined by the authorized officer, using the principles contained in the *Uniform Appraisal Standards for Federal Land Acquisitions*. This system is used by Federal agencies for determining fair market value and will be used for that purpose in connection with this rulemaking.

Another comment expressed the view that the rulemaking should make some exceptions to the requirement that fair market value be received for land use authorizations issued under this rulemaking. The Congress, in section 102(a)(9) of the Federal Land Policy and Management Act, declared that it was their policy that the United States receive fair market value for the use of the public lands and their resources unless otherwise provided by statute. There is no statutory authority for issuing land use authorizations under section 302 of the Federal Land Policy and Management Act at less than fair market value. The Bureau of Land Management has other programs for granting public lands at less than fair market value and these will be used for special situations if the uses qualify. The appraisal should not unduly delay the issuance of land use authorizations.

A new paragraph has been added to this section to clarify the policy with regard to the informational and procedural requirements for the three

types of land use authorizations which may be issued under this rulemaking.

Uses Authorized

Several comments raised the point that this rulemaking could be the basis for authorizing uses such as certain right-of-way grants that can be authorized under the regulations implementing title V of the Federal Land Policy and Mangement Act of 1976. The comments were of the opinion that non-linear right-of-way grants could be handled as leases under this rulemaking. As stated in the rulemaking, this rulemaking will be used only for those uses that cannot be granted under title V of the Federal Land Policy and Mangement Act, section 28 of the Mineral Leasing Act or some other statutory provision. Right-of-way grants, both linear and non-linear, as well as grants for facilities closely related to a right-of-way grant will be handled under the regulations implementing title V of the Federal Land Policy and Management Act and section 28 of the Mineral Leasing Law. This suggestion has not been adopted.

A large number of the comments objected to the 30-year limitation placed on leases and the 1-year term placed on permits by the proposed rulemaking. The comments pointed out that the provisions of the Federal Land Policy and Management Act did not limit the term of a lease or permit and that the limitation imposed was not soundly based. The comments stated that the 30-year limitation could impact the ability of the land user to finance a project. After studying the question, the section has been changed to remove the 30-year limitation on leases, leaving the term to the discretion of the authorized officer, and to increase the term for permits from 1 to 3 years.

Another issue raised with regard to this section was the question of time limits on the term of an easement. The proposed rulemaking set no term. The final rulemaking has been changed to make it clear that the term of an easement will be determined by the authorized officer. A related comment on easements asked if the compatibility required by the rulemaking is to be with adjacent Federal lands or non-Federal lands. The intent of the rulemaking is that the easement will be used to assure compatibility with uses on adjacent lands, both Federal and non-Federal.

Proposal Procedures

As stated in the preamble to the proposed rulemaking, this final rulemaking provides two methods under which a land use authorization can come into being. The Bureau of Land Management can offer public lands for a non-Federal use on it own motion as a result of a determination through the land use planning process that public lands are available for a non-Federal use. The other process is initiated by an individual making a suggestion to the Bureau for a non-Federal use of a portion of the public lands.

The captions of the sections of the regulations relating to these processes have been changed to more clearly reflect the procedural requirements for public and Bureau of Land Mangement initiated land use proposals. Section 2920.2 has been retitled to "Proposal procedures for public-initiated land use proposals". A new § 2920.2–2 entitled "Minimum Impact Permits" has been added to provide for expedited short-term permits for uses that will cause no appreciable harm to the public lands, their resources or improvements and are consistent with Bureau plans, programs and policies for the use of the land. The previous § 2920.2–2 has been re-numbered 2920.3 and titled "Bureau of Land Management initiated land use proposals" to distinguish such proposals from public-initiated land use proposals.

Proposal Content

Comments on this section and a later section of the proposed rulemaking were concerned about the scale of the map that would be required and pointed out that the proposed rulemaking set no standards for the required maps. To clarify this provision, the sections calling for furnishing a map have been amended to require that the map be of sufficient scale to allow all of the required information to be legibly shown.

In a related comment, the thought was expressed that the legal description required in this and other sections of the proposed rulemaking was for a survey. It was not the intent of the rulemaking that a survey be required for the legal description. All that is required is a description that is sufficient to allow the project to be located on the ground with reasonable certainty and to tie the map to the description.

Some concern was expressed in the comments about the amount of information required for a simple permit. This objection should be resolved by the new language in § 2920.2–2 of the final rulemaking that allows the authorized officer to issue permits for uses having minimum impact on the public lands after discussion of a proposal and submission of a short form application.

Proposal Review

A few comments were concerned about the planning process and the determination of consistency required by the proposed rulemaking. In order to bring the language of this rulemaking in line with the terminology used in the land use planning regulations, the word "consistency" has been changed to "conformance". The change in wording has not changed the basic requirement of the rulemaking that a proposed land use must conform to the multiple uses designated for the area under the land use planning process before it can be authorized. This conformance can be determined in a very short time for minor projects, but will be one part of the longer clearance process required for substantial projects. Another change made in the rulemaking was to make it clear that the authorization must be in conformance with "an existing" land use plan. The addition of the words "an existing" when describing land use plans clarifies the rulemaking.

One comment requested that the section be amended to require the authorized officer to consider a proposal that is found to not conform to an existing land use plan as an application to amend or revise the plan rather than leaving it to the authorized officer's discretion as the proposed rulemaking does. This change has not been adopted. There will be instances where the land use proponent, once the non-conformance is explained, will not want to go any further with the matter. In nearly every instance, the authorized officer will discuss whether or not the proposal should be considered a request to amend or revise an existing land use plan with the proponent before proceeding. The amendment-revision process is a complicated procedure and the land use proponent may not want to spend the time and effort to complete the process. The suggested change has not been adopted.

Notice of Realty Action

A few of the comments expressed the view that the notice of realty action should be deleted, with one comment being of the opinion that the Federal Land Policy and Management Act intended that the Federal Government exercise little control over proposed uses, but process all proposals and allow the use. Section 302 of the Federal Land Policy and Management Act requires the Secretary of the Interior to regulate the use of the public lands. This rulemaking provides the procedure for determining the appropriateness of a proposed use, as well as the identification of lands for non-Federal uses. The notice of realty action is a device to inform the public that a determination has been made that lands are available for a non-Federal use. The

notice of realty action is not intended to nor will it prevent the public from initiating proposals for non-Federal uses of the public lands. The issuance and publication of a notice of realty action is required except in those instances where the authorized officer determines, as provided in § 2920.2–2, that a publicly initiated proposed use can be allowed under a permit because it will not cause appreciable damage to the public lands and their resources and is in compliance with Bureau of Land Management policies and programs. This authority is permitted only for permits, which are short term revocable authorizations, but not for leases and easements, which are authorizations for longer terms and give greater rights to the holder. The notice of realty action has been retained as part of the procedure in the final rulemaking.

A couple of comments on this section wanted language included that would specify that adjoining landowners and current and past users of the lands covered by the proposal would be interested parties who would be required to receive the notice of realty action. This suggestion has been adopted and appropriate language added to this section of the final rulemaking.

Finally, one comment pointed out that paragraph (d) of the section did not allow for those instances when the notice of realty action has been waived. The provisions concerning waiver of the notice of realty action have been clarified to take care of this comment.

Application content

The several comments on this section expressed the opinion that the requirements were too detailed and should be reduced. The information required by the rulemaking at the application stage was carefully analyzed before the publication of the proposed rulemaking and again as a result of the comments received on the proposed rulemaking. The information required is the minimum needed to enable the authorized officer to make a decision on the granting of a land use authorization.

Another change in this section of the final rulemaking is deletion of the citizenship requirement that appeared in the proposed rulemaking. Also deleted are the paragraphs containing requirements for documents to be furnished by corporations, partnerships, associations and other incorporated entities and State and local entities. This deletion will further simplify the final rulemaking.

Further, much of the information can be supplied on a one-time basis and a reference made to the case number containing the information if it has not changed since it was furnished. The new provision in the final rulemaking for quick issuance of a permit or a short form should alleviate much of the concern about the information required for a land use authorization. No significant change has been made in this section in response to these comments.

One comment wanted a change in the paragraph dealing with the discretion of the authorized officer to require evidence of financial and technical capability prior to initiation of construction on the project covered by the land use authorization. The authority has been left unchanged, but the manual sections that will be issued as guidance for the field on how to carry out this rulemaking will strongly suggest that the authorized officer require such evidence only for major projects or projects that involve extensive costs or technical capability.

One change was made in paragraph (b)(1) of the section to make clear that the authorized officer can require the applicant or applicants not only to perform needed studies, but to pay for those studies if it is decided that it would be in everyone's best interest to have the Bureau of Land Management either perform the studies or contract for their performance. This amendment does not increase the burden on an applicant; it just makes it clear that the matter can be resolved in more than one way.

Application Review

The comment on this section recommended that a time frame be imposed on the authorized officer to act on proposals or applications. This suggestion has not been adopted. However, every effort will be made to act on all proposals and applications in the shortest possible time. The procedure for discussion of a proposal should, if instituted by a proponent early enough in the process, shorten the processing of a proposal or application, and result in the issuance of short term permits without further paperwork.

The section has been amended to make it clear that the authorized officer has the option to deny an application, as well as to point out the deficiencies in an application. This change clarifies the section.

Competitive or Noncompetitive Bids

The only comment received on this section was a request that the section be amended to set fair market value as the maximum bid that could be accepted under competitive bidding procedures.

The rulemaking requires that the Secretary of the Interior receive at least fair market value for the use of the public lands. It does not limit bidding in a highly competitive situation to only fair market value. There is no reason to deprive the public of the return the market place affords by limiting the return to no more than fair market value. The suggested change has not been adopted.

Application Processing

The language of subsection (b) of this section has been changed to require that the selected land use applicant shall supply any additional information that the authorized officer considers necessary to process the application.

Reimbursement of Costs

This section was the focus of more comments than any other section of the proposed rulemaking. All of the comments were opposed to the concept of reimbursement of costs, with some suggesting that the Secretary of the Interior lacked the authority to impose such a condition. Others argued that the environmental analysis process was in the public interest and should not be charged to the proponent or applicant. A provision has been added to this section that exempts from the cost reimbursement requirements those land use authorizations whose total rental is less than $250. This will exempt most short term permits.

Section 304 of the Federal Land Policy and Management Act of 1976 specifically gives the Bureau of Land Management the authority to recover "reasonable" costs, including the costs of special studies and environmental reports, with respect to applications relating to the public lands. By Secretarial Order 3011 (42 FR 55280) the Secretary of the Interior established that costs of special studies and environmental reports legally necessary for the processing of applications are reasonable costs.

Since the issuance of that order, two court decisions have upheld the authority of the Federal Government to recover reasonable costs, including the costs of preparing an environmental impact statement under the National Environmental Policy Act of 1969 (42 U.S.C. 4331 et seq.). In *Mississippi Power and Light Co.* v. *Nuclear Regulatory Commission*, 601 F. 2d 223 (5th Cir. 1979), the court held that the Nuclear Regulatory Commission could, under the Independent Offices Appropriation Act, charge an applicant for a nuclear reactor license the full cost of expenses incurred by the Commission in processing the license application, including the cost of an environmental impact statement. Furthermore, the court

specifically stated that it was not necessary to segregate the costs of the private and public benefits of an environmental impact statement, holding that the Commission may recover the full cost of providing a service (i.e. application processing) to an identifiable recipient (i.e. the applicant), regardless of the incidental public benefits flowing from that service. The court virtually ignored the contrary holding in *Public Services of Colorado v. Andrus*, 433 F. Supp. 144 (D. Colo. 1977).

It is more appropriate to follow the interpretation given the Independent Offices Appropriation Act by the court of appeals than that of the district court. The rulemaking reflects that position.

In *Alumet v. Andrus*, 607 F. 2d 911 (10th Cir 1979), the court of appeals overturned the ruling of the lower court that section 304 of the Federal Land Policy and Management Act did not authorize the Secretary of the Interior to seek reimbursement from an applicant for any part of the cost of preparing an environmental impact statement. The decision of the district court below was substantially based on the analysis provided in *Public Services of Colorado v. Andrus*. The reversal of the *Alumet* district court decision cast further doubt on the holding of the district court in the *Public Services* case. While the court of appeals in the *Alumet* case left unanswered the question whether full costs of an environmental impact statement can be recovered, when *Alumet* is read together with *Mississippi Power and Light*, one can draw the conclusion that it is within the constitutional and statutory authority of the Secretary of the Interior to impose upon an applicant for a land use authorization the full costs of an environmental impact statement necessary to process the application. The comments on the proposed rulemaking suggest that because the authority of the Secretary of the Interior to seek reimbursement is discretionary, cost reimbursement should be eliminated or that certain organizations, presumably acting in the public interest, should be exempted from cost reimbursement altogether. It is clear that the language of section 304 of the Act is discretionary. Nevertheless, the Secretary's ability to reduce or eliminate cost reimbursement is severely restricted by the Congress in the exercise of its authority over appropriations.

Moneys paid by applicants for processing applications are placed in a revolving account at the Department of the Treasury:

> The moneys received for reasonable costs under this subsection shall be deposited with the Treasury in a special account and are hereby authorized to be appropriated and made available until expended * * *. 43 U.S.C. 1734(b) (1976).

On July 26, 1977, Congress implemented this revolving account through the Department of the Interior and Related Agencies Appropriations Act for Fiscal Year 1978, Pub. L. 95–74, 91 Stat. 285, by authorizing the expenditure of moneys collected under sections 304(a), 304(b), 305(a) and 504(g) of the Federal Land Policy and Management Act. At the same time, Congress appropriated no other funds for processing right-of-way applications. The Senate in its report on the bill which became Pub. L. 95–74 states:

> This self-sustaining account, established under authority of the Federal Land Policy and Management Act, permits the Bureau of Land Management to finance required environmental study costs for rights-of-way applications, using fees assessed against the applicants * * *. S. Rep No. 276, 95th Cong., 1st Sess. 9 (1977).

The House in its report stated:

> This account uses the revenue collected under specified sections of the Federal Land Policy and Management Act of 1976. These include the collection of reasonable administrative and other costs, including environmental impact statement preparation costs in connection with right-of-way applications from the private sector. This includes such programs as the Trans-Alaska pipeline, and other energy casework functions where the costs of projects will be provided in advance by the applicant before the BLM initiates any work on the application. H.R. Rep. No. 392, 95th Cong., 1st Sess. 20–21 (1977).

This revolving account has been continued on the same basis by Congress through fiscal year 1980. Since at the present time no money for preparation of environmental impact statements is provided by Congress, all funds for such work must be provided by the applicant.

A new paragraph (a) has been added to this section to make it clear that when there are two or more applications for a land use authorization on the same parcel of land, each applicant is liable for the identifiable cost of processing his/her application. Further, each applicant is also liable for an equal share of the unseparable cost of processing multiple applications up to the selection of a successful applicant. The remanining paragraphs of this section have been relettered to acommodate this new paragraph.

A few comments objected to the requirement for cost reimbursement when an application is denied and recommended that the requirement be dropped. The provision has been left in the final rulemaking. Even when an application is denied or withdrawn, the Bureau of Land Management will have expended manhours and money in connection with that application—money and manhours that it is entitled to recover. As stated above, the only funds available for processing applications are those recovered through this provision. Failure to recover the cost involved with applications that are denied or withdrawn would have an adverse impact on the total program and cannot be permitted.

Another comment on this section wanted to be certain that an accounting of the expenditure of cost reimbursement funds could be obtained from the Bureau of Land Management by a proponent or applicant. The rulemaking provides for such a statement upon request.

Another comment wanted the section to be amended to require that any unexpended funds be refunded to the proponent or applicant. The rulemaking gives the authorized officer the authority to either refund the unexpended funds or to credit them to any payments that may remain due or payable for services performed. It is not reasonable to require a refund of money that will have to be billed at a later time. None of the suggested changes were adopted and no substantive changes have been made in the reimbursement of costs section.

Terms and Conditions

Several of the comments were troubled by the provisions of paragraph (a) as it relates to provisions in the land use authorization that would permit use of the lands by the general public. Some felt that the provision should be deleted as a requirement of a land use authorization, while one comment was of the view that the holder of the land use authorization should have the right to close areas to public use. Another comment stated that there should be a term or condition guaranteeing the holder of a land use authorization certain rights in the lands. All of the comments appear to have overlooked the requirement that the public use be compatible or consistent with the authorized land use. This would mean that a land use authorization would close the area to public use if public use would interfere with the use the land use authorization allowed. If the land use would not preclude use of the lands by the public, public access would be made a term of the land use authorization. The terms and conditions of a land use authorization will be the subject of discussion between the authorized officer and the applicant

prior to the issuance of a land use authorization. If the applicant finds the terms and conditions of a land authorization are too stringent, the applicant can attempt to renegotiate them or not accept the authorization. No change has been made in this area of the proposed rulemaking.

One comment suggested deleting the language requiring holders of a land use authorization to keep open the roads or trails commonly in use on the public lands on the basis that the language was not needed. The language has been retained to prevent the closure of public roads and trails within an area covered by a land use authorization.

Another comment on this section suggested that the paragraph dealing with the removal of mineral or vegetive materials should be amended to allow the holder of the land use authorization to receive one-half of the proceeds of the sale of the mineral or vegetative materials from the lands covered by the land use authorization. The statutory authority covering removal of mineral and vegetative materials does not authorize such disposition of receipts, nor is there any logical reason for giving the holder of a land use authorization any of the proceeds of the sale of such material. The suggested change has not been adopted.

Several of the comments requested that the liability provisions of the terms and conditions section be deleted or amended to lessen their requirements. One of the areas of strong comment was the requirement that the holder of a land use authorization and its agents pay the United States for injuries or damages caused by it or its agents. There was also objection to the provision requiring such holders to pay for injuries or damages suffered by a third party as a result of action of a holder or its agents. The other area of concern was the imposition of strict liability for activities on an area covered by a land use authorization that the Secretary of the Interior determines to present a foreseeable hazard of risk of danger to the public lands or property of the United States. One comment questioned the authority of the Department to impose strict liability.

The liability provisions are in the rulemaking to protect the United States and users of the public lands from the negligent actions of a holder of a land use authorization and the holder's agents. This provision is designed to protect the taxpayers from the actions of a person authorized to use the public lands and assure that the United States will not have to bear the costs of the negligence of a user. The strict liability provision is a condition that the Secretary of the Interior imposes as a condition for using the public lands for an activity that has been determined to present a foreseeable hazard of risk of danger to the public lands or property of the United States. There is no express authority for imposing this standard in section 302 as there is in title V of the Federal Land Policy and Management Act. Neither is there a provision denying the Secretary of the Interior the authority to impose the standard as a condition of the use of the public lands. The provision is designed to protect the United States from those activities that present a hazard or risk to its lands or property. No change has been made in the liability provisions of the final rulemaking.

One comment requested that the bonding provision be deleted on the basis that the requirement was unrealistic and because bonds could not be obtained for activities authorized by the Federal Land Policy and Management Act of 1976. The bonding requirement will only be used to assure the authorized officer that the terms and conditions of a land use authorization will be carried out. The bonding provision will be used rarely since the holder will, in most instances, have the clearly demonstrated financial and technical ability to carry out the terms and conditions of the land use authorization. Further, there has been no indication of refusal of a bonding company to issue a bond for an activity just because it was authorized under the provisions of the Federal Land Policy and Management Act. No change has been made in the bonding section.

Fees

A few comments objected to the provision that permits the adjustment of the rental fees on leases and easements every five years. The comments wanted the provision removed, expressing the feeling that the fee should be set for the life of the land use authorization, with one suggesting incremental increases set at the time the land use authorization is granted. The adjustment provision is included in the rulemaking to allow the Secretary of the Interior to carry out the policy of Congress to obtain fair market value for the use of the public lands. If the rental fee could not be adjusted, the rental fee could become outmoded over the term of the authorization, costing the United States the income it is entitled to for the use of the public lands. There has been no change in the provisions of the final rulemaking as they relate to the rental fee.

One comment made the point that the processing fee for renewal should be extended to transfers and assignments of land use authorizations. The Bureau of Land Management is required to act on all three of these documents for the benefit of the parties and should be reimbursed for that action. The suggestion has been adopted and language added to the paragraph to include transfers and assignments.

Construction Phase

One comment objected to the provision in this section that allows the authorized officer to inspect and monitor construction on a land use authorization area as necessary to assure compliance with the terms and conditions of the authorization. The comment felt the authority could be abused, that the frequency of inspection should be set by the rulemaking or set by agreement in the authorization. It is essential, in the fulfillment of the Bureau's responsibility to protect the public lands that the authorized officer and his/her staff inspect and monitor the project grounds to be certain that all terms and conditions are being met. In addition if violations are reported to the authorized officer, the authorized officer is bound by his/her position or responsibility to check them out to ascertain if appropriate action is being taken by the holder. For these reasons, the section has been changed to direct the authorized officer to inspect and monitor. However, just as with the right of access to the area, there is no intention to "spy" on the holder of an authorization. Visits will normally be during regular business hours after contact by personnel of the Bureau of Land Management.

Termination and Suspension

A large number of comments were concerned with various provisions of this section. The first concern was with the provision making a 2-year non-use or failure to construct a presumption of abandonment and termination. The presumption is rebuttable by a showing of a sufficient reason for such failure, i.e., inability to obtain financing because of tight money, etc., or other reasons. If a two year period of non-activity occurs, the authorized officer will discuss the matter with the holder, letting the holder give his reasons for the non-activity prior to issuing a termination order. No change has been made in this paragraph.

A few comments misunderstood the paragraph allowing termination of a permit if the lands are needed for another purpose. One comment suggested that, if the provision is not deleted from the rulemaking, provision be made for compensation if a permit is revoked. The authority granted by this

paragraph is to be used only when the lands are needed for another purpose that would interfere with the permitted use, such as sale or exchange of the lands. Finally, the definition of permit makes it revocable at will. This paragraph is consistent with that definition and the rights of a holder of a permit under that definition. No change has been made in this paragraph.

One comment questioned the ability of the authorized officer and staff to make the determination that a noncompliance was adversely affecting the health, safety and welfare of the public or the environment. The Bureau of Land Management has the trained personnel to make this determination, but they are also able to obtain the assistance of State and local officials in arriving at this determination. The provision has been retained because it is needed to protect the public and the environment in those rare instances where such violations may occur.

A couple of comments expressed dissatisfaction with the appeal process for suspensions and terminations, with one comment suggesting that a jury of some type be used in a hearing on the suspension or termination rather than an administrative law judge. The appeal provision has not been changed. The use of administrative law judges on appeals is a process that is well recognized in administrative law and used throughout the Federal Government. The administrative law judge renders a fair hearing and finds against the action of the Federal Government where appropriate. Further, the decision of the administrative law judge is subject to review.

One comment wanted the language covering the action of the authorized officer on a request to resume activities amended to state that the action is granted if not acted on in 5 days rather than denied as stated in the proposed rulemaking. The suggestion has not been accepted because to do so could create a situation where the regulations would permit an activity that endangered the public or the environment to proceed where the authorized officer had not acted because of some administrative oversight. This is a dangerous precedent and the existing language gives the holder of the authorization the opportunity to appeal the denial and obtain action if the denial is improper. Finally, a few comments expressed the view that the 60 day period allowed for removing structures and reclaiming the site of the land use authorization was too short for most land use authorizations, since they will involve major improvements on the public lands. The provision has not been changed because the language of the paragraph authorizes the authorized officer to agree to a longer term if needed or if the land use authorization includes in its terms and conditions a longer period in recognition of the additional time needed to remove major improvements.

Editorial changes and corrections have been made as necessary.

The principal author of this final rulemaking is Ralph Conrad of the Division of Land Resources and Realty, Bureau of Land Management, assisted by the staff of the Office of Legislation and Regulatory Management, Bureau of Land Management.

The Department of the Interior has determined that this document is not a significant regulatory action requiring the preparation of a regulatory analysis under Executive Order 12044 and 43 CFR Part 14.

Under the authority of section 302 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1732), Subtitle A and Group 2900, subchapter B, Chapter II, Title 43 of the Code of Federal Regulations are amended as set forth below.

Guy R. Martin,

Assistant Secretary of the Interior.

January 14, 1981.

PART 9—LEASES, PERMITS, AND EASEMENTS FOR PUBLIC WORKS [REMOVED]

1. Subtitle A is revised by removing Part 9 in its entirety.

2. Group 2900 is amended by revising Part 2920 as follows:

Part 2920—LEASES, PERMITS AND EASEMENTS

Subpart 2920—Leases, Permits and Easements—General Provisions

Sec.

2920.0–1 Purpose.
2920.0–3 Authority.
2920.0–5 Definitions.
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2920.1 Uses authorized.
2920.2 Procedures for public-initiated land use proposals.
2920.2–1 Discussion of proposals.
2920.2–2 Minimum impact permits.
2920.2–3 Other land use proposals.
2920.2–4 Proposal content.
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2920.3 Bureau of Land Management initiated land use proposals.
2920.4 Notice of realty action.
2920.5 Application procedure.
2920.5–1 Filing of applications for land use authorizations.
2920.5–2 Application content.
2920.5–3 Application review.
2920.5–4 Competitive or non-competitive bias.
2920.5–5 Application processing.
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Sec.

2920.7 Terms and conditions.
2920.8 Fees.
2920.9 Supervision of the land use authorization.
2920.9–1 Construction phase.
2920.9–2 Operation and maintenance.
2920.9–3 Termination and suspension.

Authority: Sec. 302, Federal Land Policy and Management Act of 1976 (43 U.S.C. 1732).

PART 2920—LEASES, PERMITS, AND EASEMENTS

Subpart 2920—General Provisions

§ 2920.0–1 Purpose.

The purpose of the regulatons in this part is to establish procedures for the orderly and timely processing of proposals for non-Federal use of the public lands. The procedural and informational requirements set by these regulations vary in relation to the nature of the anticipated use.

§ 2920.0–3 Authority.

Sections 302 and 310 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1732, 1740), authorize the Secretary of the Interior to issue regulations providing for the use, occupancy and development of the public lands through leases, permits and easements.

§ 2920.0–5 Definitions.

As used in this part, the term:

(a) "Authorized officer" means any employee of the Bureau of Land Management to whom has been delegated the authority to perform the duties described in this part.

(b) "Easement" means an authorization for a non-possessory, non-exclusive interest in lands which specifies the rights of the holder and the obligation of the Bureau of Land Management to use and manage the lands in a manner consistent with the terms of the easement.

(c) "Lease" means an authorization to possess and use public lands for a fixed period of time.

(d) "Permit" means a short-term revocable authorization to use public lands for specified purposes.

(e) "Land use proposal" means an informal statement, in writing, from any person to the authorized officer requesting consideration of a specified use of the public lands.

(f) "Land use plan" means resource management plans or management framework plans prepared by the Bureau of Land Management pursuant to its land use planning system.

(g) "Public lands" means lands or interests in lands administered by the Bureau of Land Management, except lands located on the Outer Continental Shelf and lands held for the benefit of Indians, Aleuts and Eskimos.

(h) "Person" means any person or entity legally capable of conveying and holding lands or interests therein, under the laws of the State within which the lands or interests therein are located, who is a citizen of the United States, or in the case of a corporation, is subject to the laws of any State or of the United States.

(i) "Proponent" means any person who submits a land use proposal, either on his/her own initiative or in response to a notice for submission of such proposals.

(j) "Applicant" means any person who submits an application for a land use authorization under this part.

(k) "Casual use" means any short term non-commercial activity which does not cause appreciable damage or disturbance to the public lands, their resources or improvements, and which is not prohibited by closure of the lands to such activities.

(l) "Land use authorization" means any authorization to use the public lands issued under this part.

§ 2920.0-6 Policy.

(a) Land use authorizations shall be issued only at fair market value and only for those uses that conform with Bureau of Land Management plans, policy, objectives and resource management programs. Conformance with land use authorizations will be determined through the planning process and procedures provided in Part 1600 of this title.

(b) In determining the informational and procedural requirements, the authorized officer will consider the duration of the anticipated use, its impact on the public lands and resources and the investment required by the anticipated use.

§ 2920.1 Uses authorized.

Uses not specifically authorized under other laws or regulations and not specifically forbidden by law may be authorized; under this part. Uses which may be authorized include residential, agricultural, industrial and commercial uses, and uses which cannot be authorized under title V of the Federal Land Policy and Management Act or section 28 of the Mineral Leasing Act. Land use authorizations shall be granted under the following categories:

(a) Leases shall be used to authorize uses of public lands involving substantial construction, development or land improvement and the investment of large amounts of capital which are to be amortized over time. A lease conveys a possessory interest and is revocable only in accordance with its terms and the provisions of § 2920.9-3 of this title. Leases shall be issued for a term, determined by the authorized officer, that is consistent with the time required to amortize the capital investment.

(b) Permits shall be used to authorize uses of public lands for not to exceed 3 years that involve either little or no land improvement, construction or investment, or investment which can be amortized within the term of the permit. A permit conveys no possessory interest. It is renewable at the discretion of the authorized officer and may be revoked in accordance with its terms and the provisions of § 2920.9-3 of this title. Permits shall be issued on a form approved by the Director, Bureau of Land Management that has been filed by the applicant with the appropriate Bureau of Land Management office.

(c) Easements may be used to assure that uses of public lands are compatible with non-Federal uses occurring on adjacent or nearby land. The term of the easement shall be determined by the authorized officer. An easement granted under this part may only be for purposes not authorized under title V of the Federal Land Policy and Management Act or section 28 of the Mineral Leasing Act.

(d) No land use authorization is required under the regulations of this part for casual use of the public lands.

§ 2920.2 Procedures for public initiated land use proposals.

§ 2920.2-1 Discussion of proposals.

(a) *Suggestions by land use proponent.* Any person who seeks to use public lands may contact the Bureau of Land Management office having jurisdiction over the public lands in question and discuss the land use proposal. This contact should be made as early as possible so that administrative requirements and potential conflicts with other land uses can be identified.

(b) *Response by the authorized officer.* The authorized officer will discuss with the land use proponent whether the requested land use, suitability or non-suitability of the requested land use based on a preliminary examination of existing land use plans, where available, is or is not in conformance with Bureau of Land Management policies and programs for the lands, local zoning ordinances and any other pertinent information. The authorized officer will discuss administrative requirements for the type of land use authorization which may be granted (lease, permit or easement), including, but not limited to: additional information which may be required; qualifications; cost reimbursement requirements; associated clearances, other permits or licenses which may be required; environmental and management considerations; and special requirements such as competitive bidding and identification of on-the-ground investigations which may be required in order to issue a land use authorization.

§ 2920.2-2 Minimum impact permits.

The authorized officer may, without publication of a notice of realty action, issue a permit for a land use authorization upon a determination that the proposed use is in conformance with Bureau of Land Management plans, policies and programs, local zoning ordinances and any other requirements and will not cause appreciable damage or disturbance to the public lands, their resources or improvements.

§ 2920.2-3 Other land use proposals.

(a) A proposal for a land use authorization, including permits not covered by § 2920.2-2 of this title, shall be submitted in writing to the Bureau of Land Management office having jurisdiction over the public lands covered by the proposal.

(b) The submission of a proposal gives no right to use the public lands.

§ 2920.2-4 Proposal content.

(a) Proposals for a land use authorization shall include a description of the proposed land use in sufficient detail to enable the authorized officer to evaluate the feasibility of the proposed land use, the impacts if any, on the environment, the public or other benefits from the proposed land use, the approximate cost of the proposal, any threat to the public health and safety posed by the proposal and whether the proposal is, in the proponent's opinion, in conformance with Bureau of Land Management plans, programs and policies for the public lands covered by the proposal. The description shall include, but not be limited to:

(1) Details of the proposed uses and activities;

(2) A description of all facilities for which authorization is sought, access needs and special types of easements that may be needed;

(3) A map of sufficient scale to allow all of the required information to be legible and a legal description of primary and alternative project locations; and

(4) A schedule for construction of any facilities.

(b) The proposal shall include the name, legal mailing address and telephone number of the land use proponent.

§ 2920.2-5 Proposal review.

(a) A land use proposal shall, upon submission, be reviewed to determine if the public lands covered by the proposal are appropriate for the proposed land use and if the proposal is otherwise legal.

(b) If the proposal is found to be appropriate for further consideration, the authorized officer shall examine the proposal and make one of the following determinations:

(1) The proposed land use is in conformance with the appropriate land use plan and can be approved;

(2) The proposed land use has not been addressed in an existing land use plan and shall be addressed in accordance with the procedure in Part 1600 of this title;

(3) The proposed land use is in an area not covered in an existing land use plan and shall be processed in accordance with the procedure in § 1601.8 of this title; or

(4) The proposed land use is not in conformance with the approved land use plan. This determination may be appealed under 43 CFR 4.400 for review of the question of conformance with the land use plan.

(c)(1) If a proposed land use does not meet the requirements of this subpart or is found not to be in conformance with the land use plan, the authorized officer shall so advise the proponent and shall provide a written explanation of the reasons the proposed use does not meet the requirements of this subpart and/or is not in conformance with an existing land use plan.

(2) Where a proposed land use is determined not to be in conformance with an approved land use plan, with the land use plan, the authorized officer may consider the proposal for land use as an application to amend or revise the existing land use plan under part 1600 of this title.

§ 2920.3 Bureau of Land Management initiated land use proposals.

Where, as a result of the land use planning process, the desirability of allowing use of the public lands or providing increased service to the public from such use of the public lands is demonstrated, the authorized officer may identify a use for the public land and notify the public that proposals for utilizing the land through a lease, permit or easement will be considered.

§ 2920.4 Notice of realty action.

(a) A notice of realty action indicating the availability of public lands for non-Federal uses through lease, permit or easement shall be issued, published and sent to parties of interest by the authorized officer, including, but not limited to, adjoining land owners and current or past land users, when a determination has been made that such public lands are available for a particular use either through the submission of a public initiated proposal or through the land use planning process.

(b) The notice shall include the use proposed for the public lands and shall notify the public that applications for a lease, permit or easement shall be considered. The notice shall specify the form of negotiation, whether by competitive or non-competitive bidding, under which the land use authorization shall be issued. A notice of realty action is not a specific action implementing a resource management plan or amendment.

(c) The notice of realty action shall be published once in the **Federal Register** and once a week for 3 weeks thereafter in a newspaper of general circulation in the vicinity of the public lands included in the land use proposal.

(d) An application submitted before a notice of realty action is published shall not be processed and shall be returned to the person who submitted it. Return of an application shall not be subject to appeal or protest.

§ 2920.5 Application procedure.

§ 2920.5-1 Filing of applications for land use authorizations.

(a) Only after publication of a notice of realty action shall an application for a land use authorization be filed with the Bureau of Land Management office having jurisdiction over the public lands covered by the application.

(b) The filing of an application gives no right to use the public lands.

§ 2920.5-2 Application content.

(a) Applications for land use authorizations shall include a reference to the notice of realty action under which the application is filed and a description of the proposed land use in sufficient detail to enable the authorized officer to evaluate the feasibility of the proposed land use, the impacts, if any, on the environment, the public or other benefits from the land use, the approximate cost of the proposed land use, any threat to the public health and safety posed by the proposed use and whether the proposed use is, in the opinion of the applicant, in conformance with the Bureau of Land Management plans, programs and policies for the public lands covered by the proposed use. The description shall include, but not be limited to:

(1) Details of the proposed uses and activities;

(2) A description of all facilities for which authorization is sought, access needs and special types of easements that may be needed;

(3) A map of sufficient scale to allow all of the required information to be legible and a legal description of primary and alternative project locations; and

(4) A schedule for construction of any facilities.

(b) Additional information:

(1) After review of the project description, the authorized officer may require the applicant(s) to fund or to perform additional studies or submit additional environmental data, or both, so as to enable the Bureau of Land Management to prepare an environmental analysis in accordance with section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.); and comply with the requirements of the National Historic Preservation Act of 1966 (16 U.S.C. 470); The Archeological and Historic Preservation Act of 1974 (16 U.S.C. 469 et seq.); Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971 (36 FR 8921); "Procedures for the Protection of Historic and Cultural Properties (36 CFR Part 300); and other laws and regulations as applicable.

(2) An application for the use of public lands may require additional private, State, local or other Federal agency licenses, permits, easements, certificates or other approval documents. The authorized officer may require the applicant to furnish such documents, or proof of application for such documents, as part of the application.

(3) The authorized officer may require evidence that the applicant has, or prior to commencement of construction will have, the technical and financial capability to construct, operate, maintain and terminate the authorized land use.

(c) The application shall include the name and legal mailing address of the applicant.

(d) *Business Associations.* If the applicant is other than an individual, the application shall include the name and address of an agent authorized to receive notice of actions pertaining to the application.

(e) *Federal departments and agencies.* Federal departments and agencies are

not qualified to hold land use authorizations under this authority.

(f) If any of the information required in this section has already been submitted as part of a land use proposal submitted under § 2920.2 of this title, the application need only refer to that proposal by filing date, office and case number. The applicant shall certify that there have been no changes in any of the information.

§ 2920.5–3 Application review.

Every application shall be reviewed to determine if it conforms to the notice of realty action. If the application does not meet the requirements of this subpart, the application may be denied, and the applicant shall be so advised in writing, with an explanation.

§ 2920.5–4 Competitive or non-competitive bids.

(a) *Competitive.* Land use authorizations may be offered on a competitive basis if, in the judgment of the authorized officer, a competitive interest exists or if no equities, such as prior use of the lands, warrant non-competitive land use authorization. Land use authorizations shall be awarded on the basis of the public benefit to be provided, the financial and technical capability of the bidder to undertake the project and the bid offered. A bid at less than fair market value shall not be considered. Each bidder shall submit information required by the notice of realty action.

(b) *Non-competitive.* Land use authorizations may be offered on a negotiated, non-competitive basis, when, in the judgement of the authorized officer equities, such as prior use of the lands, exist, no competitive interest exists or where competitive bidding would represent unfair competitive and economic disadvantage to the originator of the unique land use concept. The non-competitive bid shall not be for less than fair market value.

§ 2920.5–5 Application processing.

(a) After review of applications filed, the authorized officer shall select one application for further processing in accordance with the notice of realty action. The authorized officer shall provide public notice of the selection of an applicant and notify the selected applicant, in writing, of the selection. All other applications shall be rejected and returned to the applicants.

(b) The selected land use applicant shall submit any additional information that the authorized officer considers necessary to process the land use authorization.

§ 2920.6 Reimbursement of costs.

(a) When two or more applications are submitted for a land use authorization, each applicant shall be liable for the identifiable costs of processing his (or her) application. Where the costs of processing two or more applications cannot be readily identified with particular applications, all applicants shall be liable for such costs, to be divided equally among them.

(b) The selected land use applicant shall reimburse the United States for reasonable administrative and other costs incurred by the United States in processing a land use authorization application and in monitoring construction, operation, maintenance and rehabilitation of facilities authorized under this part, including preparation of reports and statements required by the National Environmental Policy Act of 1969 (43 U.S.C. 4321 et seq.). The reimbursement of costs shall be in accordance with the provisions of § 2803.1–1 of this title, except that any permit whose total rental is less than $250 shall be exempt from reimbursement of costs requirements.

(c) The authorized officer may, before beginning any processing of a land use authorization application, require payment, as may be needed, to cover the estimated costs of processing the application. Before granting a land use authorization, the authorized officer shall assess and collect the actual costs of processing after furnishing the applicant with a statement of costs. This payment shall be determined in accordance with the provisions of § 2803 of this title.

(d) A selected applicant who withdraws, in writing, a land use application before a final decision is reached on the authorization is responsible for all costs incurred by the United States in processing the application up to the day that the authorized officer receives notice of the withdrawal and for costs subsequently incurred by the United States in terminating the proposed land use authorization process. Reimbursement of such costs shall be paid within 30 days of receipt of notice from the authorized officer of the amount due.

(e) Advance payments based on a schedule of rates developed by the authorized officer, are required for monitoring of operations and maintenance during the term of the land use authorization, which amount shall be paid simultaneously with the rental payment required by § 2920.8(a) of this title.

(f) The selected applicant shall, before a land use authorization is issued, submit a payment based on a schedule of rates developed by the Director, Bureau of Land Management, for monitoring rehabilitation or restoration of the lands upon expiration of the land use authorization.

(g) If payment, as required by paragraphs (b), (d) and (e) of this section, exceeds actual costs to the United States, refund may be made by the authorized officer from applicable funds under authority of 43 U.S.C. 1734, or the authorized officer may adjust the next billing to reflect the overpayment. Neither an applicant nor a holder of land use authorization shall set off or otherwise deduct any debt due to or any sum claimed to be owed them by the United States without the prior written approval of the authorized officer.

(h) The authorized officer shall, on request, give a selected applicant an estimate, based on the best available cost information, of the costs, which may be incurred by the United States in processing the proposed land use authorization. However, reimbursement shall not be limited to the estimate of the authorized officer if actual costs exceed the projected estimate.

(i) When through partnership, joint venture or other business arrangement, more than one person, partnership, corporation, association or other entity jointly make application for a land use authorization, each such party shall be jointly and severally liable for the costs under this section.

(j) Requests for modification of or addition to the land use authorization or reconstruction or relocation of any authorized facilities shall be treated as a new application for cost recovery purposes and are subject to the cost requirements of this section.

§ 2920.7 Terms and conditions.

(a) In all land use authorizations the United States reserves the right to use the public lands or to authorize the use of the public lands by the general public in any way compatible or consistent with the authorized land use and such reservations shall be included as a part of all land use authorizations. Authorized representatives of the Department of the Interior, other Federal agencies and State and local law enforcement personnel shall at all times have the right to enter the premises on official business. Holders shall not close or otherwise obstruct the use of roads or trails commonly in public use.

(b) Each land use authorization shall contain terms and conditions which shall:

(1) Carry out the purposes of applicable law and regulations issued thereunder;

(2) Minimize damage to scenic, cultural and aesthetic values, fish and wildlife habitat and otherwise protect the environment;

(3) Require compliance with air and water quality standards established pursuant to applicable Federal or State law; and

(4) Require compliance with State standards for public health and safety, environmental protection, siting, construction, operation and maintenance of, or for, such use if those standards are more stringent than applicable Federal standards.

(c) Land use authorizations shall also contain such other terms and conditions as the authorized officer considers necessary to:

(1) Protect Federal property and economic interests;

(2) Manage efficiently the public lands which are subject to the use or adjacent to or occupied by such use;

(3) Protect lives and property;

(4) Protect the interests of individuals living in the general area of the use who rely on the fish, wildlife and other biotic resources of the area for subsistence purposes;

(5) Require the use to be located in an area which shall cause least damage to the environment, taking into consideration feasibility and other relevant factors; and

(6) Otherwise protect the public interest.

(d) A holder shall be required to secure authorization under applicable law to pay in advance the fair market value, as determined by the authorized officer, of any mineral, vegetative materials (including timber) to be cut, removed, used or destroyed on public lands.

(e) A holder shall not use the public lands for any purposes other than those specified in the land use authorization without the approval of the authorized officer.

(f) Liability provisions:

(1) Holders of a land use authorization and all owners of any interest in, and all affiliates or subsidiaries of any holder of a land use authorization issued under these regulations shall pay the United States the full value for all injuries or damage to public lands or other property of the United States caused by the holder or by its employees, agents or servants, or by a contractor, its employees, agents or servants, except holders shall be held to standards of strict liability where the Secretary of the Interior determines that the activities taking place on the area covered by the land use authorization present a foreseeable hazard or risk of danger to public lands or other property of the United States. Strict liability shall not be applied where such damages or injuries result from acts of war or negligence of the United States.

(2) Holders of a land use authorization and all owners of any interest in, and affiliates or subsidiaries of any holder of a land use authorization issued under these regulations shall pay third parties the full value of all injuries or damage to life, person or property caused by the holder, its employees, agents or servants or by a contractor, its employees, agents or servants.

(3) Holders of a land use authorization shall indemnify or hold harmless the United States against any liability for damages to life, person or property arising from the authorized occupancy or use of the public lands under the land use authorization. Where a land use authorization is issued to a State or local government or any agency or instrumentality thereof, which has no legal power to assume such liability with respect to damages caused by it to lands or property, such State or local government or agency in lieu thereof shall be required to repair all damages.

(g) The authorized officer may require a bond or other security satisfactory to him/her to insure the fulfillment of the terms and conditions of the land use authorization.

(h) Any land use authorization existing on the effective date of this regulation is not affected by this regulation and shall continue to be administered under the statutory authority under which it was issued. However, by filing a proposal for amendment or renewal, the holder of a land use authorization shall be considered to have agreed to convert the entire authorization to the current statutory authority and the regulations in effect at the time of approval of the amendment or renewal.

(i) The holder of a land use authorization who has complied with the provisions thereof, shall, upon the filing of a request for renewal, be the preferred user for a new land use authorization provided that the public lands are not needed for another use. Renewal, if granted, shall be subject to new terms and conditions. If so specified in the terms of a permit, the permit may be automatically renewable upon payment of the annual rental unless the authorized officer notifies the permittee within 60 days of the expiration date of the permit that the permit shall not be renewed.

(j) Land use authorizations may be transferred in whole or in part but only under the following conditions:

(1) the transferee shall comply with the provisions of § 2920.2–3 of this title;

(2) the authorized officer may modify the terms and conditions of the land use authorization and the transferee shall agree, in writing, to comply with and be bound by the terms and conditions of the authorization as modified; and

(3) transfers shall not take effect until approved by the authorized officer.

(k) If public lands included in a lease or easement are to be disposed of, the conveyance shall be made subject to the lease or easement. Permits shall be revoked prior to disposal of the public lands.

§ 2920.8 Fees.

(a) *Rental.* (1) Holders of a land use authorization shall pay annually or otherwise as determined by the authorized officer, in advance, a rental as determined by the authorized officer. The rental shall be based either upon the fair market value of the rights authorized in the land use authorization or as determined by competitive bidding. In no case shall the rental be less than fair market value.

(2) Rental fees for leases and easements may be adjusted every 5 years or earlier, as determined by the authorized officer, to reflect current fair market value.

(3) The rental fees required by this section are payable when due, and a late charge of 1 percent per month of the unpaid amount or $15 per month, whichever is greater, shall be assessed if subsequent billings are required. Failure to pay the rental fee in a timely manner is cause for termination of the land use authorization.

(b) *Processing Fee.* Each request for renewal, transfer or assignment of a lease or easement shall be accompanied by a non-refundable processing fee of $25. The authorized officer may waive or reduce this fee for requests for permit renewals which can be processed with a minimal amount of work.

§ 2920.9 Supervision of the land use authorization.

§ 2920.9–1 Construction phase.

(a) Unless otherwise stated in the land use authorization, construction may proceed immediately upon receipt and acceptance of the land use authorization by the selected applicant.

(b) Where an authorization to use public lands provides that no construction shall occur until specific permission to begin construction is granted, no construction shall occur until an appropriate Notice to Proceed has been issued by the authorized officer, following the submission and approval of required plans or documents.

(c) The authorized officer shall inspect and monitor construction as necessary, to assure compliance with approved plans and protection of the resources, the environment and the public health, safety and welfare.

(d) The holder of a land use authorization may be required to designate a field representative who can accept and act on guidance and instructions from the authorized officer.

(e) The holder of a land use authorization may be required to provide proof of construction to the approved plan and required standards. Thereafter, operation of the authorized facilities may begin.

§ 2920.9–2 Operation and maintenance.

The authorized officer shall inspect and monitor the operation and maintenance of the land use authorization area, its facilities and improvements to assure compliance with the plan of management and protection of the resources, the environment and the public health, safety and welfare, and the holder of the land use authorization shall take corrective action as required by the authorized officer.

§ 2920.9–3 Termination and suspension.

(a) Land use authorizations may be terminated under the following circumstances:

(1) If a land use authorization provides by its terms that it shall terminate on the occurrence of a fixed or agreed-upon event, the land use authorization shall thereupon automatically terminate by operation of law upon the occurrence of such event.

(2) Noncompliance with applicable law, regulations or terms and conditions of the land use authorization.

(3) Failure of the holder to use the land use authorization for the purpose for which it was authorized. Failure to construct or nonuse for any continuous 2-year period shall constitute a presumption of abandonment and termination.

(4) Mutual agreement that the land use authorization should be terminated.

(5) Nonpayment of rent for 2 consecutive months, following notice of payment due.

(6) So that the public lands covered by the permit can be disposed of or used for any other purpose.

(b)(1) Upon determination that there is noncompliance with the terms and conditions of a land use authorization which adversely affects the public health, safety or welfare or the environment, the authorized officer shall issue an immediate temporary suspension.

(2) The authorized officer may give an immediate temporary susension order orally or in writing at the site of the activity to the holder or a contractor or subcontractor of the holder, or to any representative, agent, employee or contractor of any of them, and the suspended activity shall cease at that time. As soon as practicable, the authorized officer shall confirm the order by a written notice to the holder addressed to the holder or the holder's designated agent. The authorized officer may also take such action considered necessary to require correction of such defects prior to an administrative proceeding.

(3) The authorized officer may order immediate temporary suspension of an activity regardless of any action that has been or is being taken by another Federal agency or a State agency.

(4) An order of temporary suspension of activities shall remain effective until the authorized officer issues an order permitting resumption of activities.

(5) Any time after an order of suspension has been issued, the holder may file with the authorized officer a request for permission to resume. The request shall be in writing and shall contain a statement of the facts supporting the request.

(6) The authorized officer may render an order to either grant or deny the request to resume within 5 working days of the date the request is filed. If the authorized officer does not render an order on the request within 5 working days, the request shall be considered denied, the holder shall have the same right to appeal the denial as if an order denying the request had been issued.

(c) Process for termination or suspension other than temporary immediate suspension.

(1) Prior to commencing any proceeding to suspend or terminate a land use authorization, the authorized officer shall give written notice to the holder of the legal grounds for such action and shall give the holder a reasonable time to correct any noncompliance.

(2) After due notice of termination or suspension to the holder of a land use authorization, if noncompliance still exists after a reasonable time, the authorized officer shall give written notice to the holder and refer the matter to the Office of Hearings and Appeals for a hearing before an Administrative Law Judge pursuant to 43 CFR 4.420–4.439. The authorized officer shall suspend or revoke the land use authorization if the Administrative Law Judge determines that grounds for suspension or revocation exists and that such action is justified.

(3) The authorized officer shall terminate a suspension order when the authorized officer determines that the violation causing such suspension has been rectified.

(d) Upon termination, revocation or cancellation of a land use authorization, the holder shall remove all structures and improvements except those owned by the United States within 60 days of the notice of termination, revocation or cancellation and shall restore the site to its pre-use condition, unless otherwise agreed upon in writing or in the land use authorization. If the holder fails to remove all such structures or improvements within a reasonable period, they shall become the property of the United States, but that shall not relieve the holder of liability for the cost of their removal and restoration of the site.

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