

**CHAPTER 9. ENERGY SUPPLY, NATURAL RESOURCES,
AND SUSTAINABLE DESIGN**

1. **INTRODUCTION.** Airport development actions have the potential to change energy requirements or use consumable natural resources. To comply with the Council on Environmental Quality (CEQ) regulations mentioned in Section 2 of this chapter, Federal Aviation Administration (FAA) environmental documents must evaluate potential impacts on supplies of energy and natural resources needed to build and maintain airports. FAA policy supports developments displaying environmental sustainability.

2. **APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.**

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
40 Code of Federal Regulations (CFR) 1502.16(e) and (f)	When reviewing the environmental effects of a proposed action and its reasonable alternatives assess each alternative’s energy requirements, energy conservation, and the use of natural or consumable resources. Mitigation must also address needed mitigation measures.	CEQ
Executive Order 13123, <i>Greening the Government Through Efficient Energy Management</i> (64 Federal Register 30851, dated June 8, 1999)	Encourages each Federal agency to expand the use of renewable energy in its facilities and for its actions.	FAA

3. **APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.**

a. FAA must evaluate any airport development action subject to FAA approval or funding under the Airport Improvement Program (AIP) to determine if the proposed action would cause significant impacts on energy supplies or natural resources. Typical actions that could cause such impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, airfield lighting, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or moved access roadways, remote parking facilities and rental car lots; significant changes in air traffic and airfield operations; and significant construction activity.

b. FAA should study how the action sponsor proposes to conserve resources, use pollution prevention, minimize aesthetic effects, and address public (both local and traveling) sensitivity to these concerns. This approach satisfies National Environmental Policy Act of 1969, as amended (NEPA). NEPA requires agencies to...“use a systematic interdisciplinary approach, which will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making.”

4. PERMITS, CERTIFICATIONS, AND APPROVALS. FAA does not require permits or certifications for these resources. However, FAA environmental documents should contain letters or other documents from local public utilities and suppliers addressing their capacities to provide energy and resources to build and operate the action.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

Typically, local agencies or businesses may have information on available energy supplies and consumable natural resources. When preparing an environmental document, consultation with the following entities may be helpful:

a. Local utility companies may be sources of information on available and planned electrical, natural gas, water, and sewage capacities.

b. If unusual, fuel-consuming construction or operational circumstances are expected, local suppliers of consumable construction materials and aircraft or ground vehicle fuels may be valuable sources for information concerning the materials or fuels.

c. State or local agencies responsible for enforcing local rules, ordinances, or guidelines may have information on sustainability measures.

6. DETERMINING IMPACTS.

a. **General.** To determine action-related impacts on energy supplies and consumable natural resources, the environmental document should contain the following information, as needed:

(1) Utility impacts. Proposed major changes in stationary facilities may require large demands on local existing or planned utilities. Examples utility impacts include projected airport or terminal lighting or heating demands or water supply for terminal-related water usage and sewage disposal.

(2) Consumable materials. If scarce or unusual materials are needed to build the proposed action or a reasonable alternative, estimate the volumes of consumable construction material and their availability from local suppliers.

(3) Aircraft fuel consumption. The environmental document should discuss how proposed changes would affect existing aircraft fuel use.

(a) Would ground movement or run-up times for aircraft increase substantially without matching increases in operational efficiency? If yes, estimate increased aircraft fuel consumption.

(b) If flight changes incorporated for action-induce noise abatement purposes noticeably increase flight times, provide estimates of increased aircraft fuel consumption.

(c) If the action would substantially increase aircraft operations, (i.e. siting a new hub operation or a new air carrier or air cargo service) provide estimates of increased fuel consumption for operations related to the action.

(d) If the action would substantially increase the number of on-airport service vehicles or substantially alter the time needed for the existing service fleet to arrive at gates, provide estimates of increased fuel consumption these vehicles would cause.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. After completing the consultation and analyses discussed above, use the significance threshold in column 1 of the following table. Consider factors in column 2 when determining if an action meets a threshold. The responsible FAA official should consider the following factors in consultation with agencies having special expertise on energy or natural resources, or sustainability.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
<p>When an action’s construction, operation, or maintenance would cause demands that would exceed available or future (project year) natural resource or energy supplies.</p>	<ul style="list-style-type: none"> • The action would cause a substantial demand on available energy or natural resource supplies. • When compared to future no action conditions, changes in aircraft movements or ground vehicle use would cause a statistically significant increase in fuel consumption. • Consumable natural resources necessary for construction are rare. • The action would not be consistent with smart growth requirements of the agency having jurisdiction over the area where the airport is located.

From Table 7-1, FAA Order 5050.4B.

b. Potential mitigation measures. During the environmental review process, local agencies or businesses may provide letters or information on energy or natural resource supplies or sustainability measures. Those letters may include recommendations to mitigate impacts. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If the sponsor or FAA does not adopt any recommended

mitigation, the environmental document should explain clearly why the recommendation was not adopted. Examples of mitigation measures may include:

- (1) airfield design improvements that provide efficient aircraft operations;
- (2) ground access improvements;
- (3) energy and resource conservation designs;
- (4) electric ground support equipment (GSE); or
- (5) sustainability measures (skylights, energy conservation plans, solar heating or electricity, or using drought-resistant landscaping that will not attract wildlife hazardous to aviation (see FAA Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants on and near Airports*).

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. If the action's impacts exceed the significance threshold for this resource category, FAA may need to prepare an EIS. If it does, FAA should invite the Department of Energy (DOE) to become a cooperating agency during the NEPA process due to DOE's expertise on energy and consumable natural resources. DOE can aid FAA in determining if any added analyses are needed or determining the severity of action-induced energy or consumable resource impacts.

b. Information. Besides the information discussed previously, the EIS should contain the following as appropriate:

- (1) any additional information needed to fully explain impact severity;
- (2) information verifying coordination with DOE and other interested parties occurred; or
- (3) a discussion of measures the sponsor will use to mitigate impacts (e.g., more efficient airfield design and operations, improved ground access, using renewable resources, etc.) not previously considered.

c. Mitigation. The EIS should describe proposed mitigation when agencies having expertise in energy, natural resource supply, or sustainable design issues provide that information. FAA or the sponsor should fully consider the mitigation and balance its benefits against those of the proposed action.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that environmental consequences have been fairly evaluated (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106 (c)(1)(B),

FAA may not approve a Federal funding for major airport development projects, unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203(b)(4). The EIS must discuss and adopt mitigation measures recommended by agencies having expertise in energy, natural resource supply, or sustainable design sciences in accordance with NEPA and 49 USC Section 47106(c)(1)(B). If feasible, provide an estimated schedule for undertaking accepted mitigation.