10. Natural Resources and Energy Supply

This impact category provides an evaluation of a project's consumption of natural resources (such as water, asphalt, aggregate, wood, etc.) and use of energy supplies (such as coal for electricity; natural gas for heating; and fuel for aircraft, commercial space launch vehicles, or other ground vehicles). Consumption of natural resources and use of energy supplies may result from construction, operation, and/or maintenance of the proposed action or alternative(s).

It is the policy of the Federal Aviation Administration (FAA) (as discussed in FAA Order 1053.1, *Energy and Water Management Program for FAA Buildings and Facilities*) consistent with National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) Regulations, to encourage the development of FAA facilities that exemplify the highest standards of design, including sustainability principles. All elements of the transportation system should be designed with a view to conservation of energy and other resources, pollution prevention, harmonization with the community environment, and sensitivity to the concerns of the traveling public.

10.1. Regulatory Setting

Exhibit 10-1 provides a summary of the statutes and Executive Orders that may be relevant to natural resources and energy supply impacts. See Appendix B.8 for more detailed information about these requirements.

Exhibit 10-1. Statutes and Executive Orders Related to Natural Resources and Energy Supply

Statute or Executive Order	Location in U.S. Code or *Federal Register*	Implementing Regulation(s) or Instructions	Oversight Agency[a]	Summary[a]
Energy Independence and Security Act	42 U.S.C. § 17001 et seq.		DOE	Requires federal agencies to take actions to move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy GHG capture and storage options, and to improve the energy performance of the federal government.
Energy Policy Act	42 U.S.C. § 15801 et seq.		DOE	Requires federal agencies to take actions to ensure jobs for our future with secure, affordable, and reliable energy. The Energy Policy Act contains provisions that address energy production, including: energy efficiency, renewable energy; oil and gas; coal, Tribal energy, nuclear matters and security, vehicles and motor fuels, energy tax incentives, hydropower and geothermal energy, and climate change technology.
Executive Order 13834, *Efficient Federal Operations*	83 *Federal Register* 23771, (May 17, 2018)			Requires federal agencies to meet energy and environmental performance statutory requirements in a manner that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment. Agencies are tasked to prioritize actions that reduce waste, cut costs, and enhance the resilience of federal infrastructure and operations.

[a] DOE = U.S. Department of Energy; GHG = Greenhouse gas; U.S.C. = United States Code.

Sections 1502.16(e) and (f) of the CEQ Regulations require that federal agencies consider energy requirements, natural depletable resource requirements, and the conservation potential of alternatives and mitigation measures in the Environmental Consequences section of NEPA documents.

Additional requirements apply to federal facilities under the Energy Policy Act (EPAct) and the Energy Independence and Security Act (EISA) and Executive Order 13834.

10.1.1. Permits, Certifications, and Other Approvals

No federal permits or certifications are required under this impact category. However, consultation with state and local entities may be necessary to determine if any state or local permits are required.

10.1.2. Consultation

Consult with local agencies around the study area as they typically understand the energy and resource constraints of the area. In such cases, the NEPA document (e.g., the appendix) or a project administrative file should include letters or documents addressing the capacities of local public utilities and suppliers to provide energy and natural resources for the proposed action and alternative(s). If there are major changes in natural resource or energy supply requirements, the following organizations should be consulted if projected demands can be met by existing or planned source facilities:

- **State, tribal, and local agencies responsible for enforcing local rules, ordinances, and guidelines** – may provide insight on recommended sustainability measures;
- **Local utility companies** – may have useful information on the available and planned electrical, natural gas, water, and sewage capabilities of the area; and
- **Local suppliers of consumable construction materials** – may be a good source of information if there are unusual construction circumstances.

If, during consultation, local agencies or businesses that provide information on energy or natural resource supplies recommend sustainability measures, consider incorporating those suggestions.

If an Environmental Impact Statement (EIS) is being prepared and the proposed action or alternative(s) has energy implications, the FAA may want to invite DOE to become a cooperating agency in the NEPA process due to its expertise on energy and consumable natural resources. DOE can aid the FAA in determining if any additional analyses are needed for energy use, and in judging the seriousness of impacts.

10.2. Affected Environment

To adequately describe the existing conditions for natural resources and energy supply within the study area, the NEPA document should, at a minimum, contain the following information:

- The suppliers of energy resources found in the area such as power plants, water utilities, sewage disposal utilities, and suppliers of natural gas and petroleum; and
- The amount of other resources such as water, asphalt, aggregate, and wood a project would use in the construction, operation, and maintenance of a project and identify where the suppliers are located.

10.3. Environmental Consequences

After the affected environment for natural resources and energy supply is adequately described, the potential impacts of the proposed action and alternative(s) on the natural resources and energy supplies in the study area should be evaluated. It is recommended that enough information be included to accurately explain the future demands for energy and natural resources at the proposed project's location as well as measures taken to minimize any impacts and a summary of consultation with local resource and energy managers.

The consideration should include the potential increased demands on energy utilities, water supplies and treatment, and natural resources that the proposed action or alternative(s) may cause. For example, major construction projects or operations often involve a high demand for

energy and/or natural resources. When preparing a NEPA document, consider looking at whether and how a project plan could directly or indirectly increase demand on the following:

- utilities servicing the area (in other words, increases in electricity demands, water usage, or sewage disposal);
- water sources (rivers, lakes, aquifers, etc.) and if they have the capacity to support a project's construction, operation, and maintenance (for example, if a proposed project would require a large volume of water, the NEPA review should consider the availability of water from existing or planned water facilities or from surface or groundwater sources);
- fuel consumption (including consumption from construction, operations, and maintenance that is directly or indirectly related to the proposed action or alternative[s]);
- consumable materials, especially scarce or unusual materials, in and around the study area. If scarce or unusual materials are needed for the proposed action or alternative(s), estimate the amount of consumable material that is available from local suppliers and determine what the current demand is for those resources; and
- state or local rules, ordinances, or guidelines that apply to natural resources, energy supply, and any resulting by-products of increased usage of either resource.

> ***Energy Intensity:*** The amount of energy (in British Thermal Units) consumed per gross square foot of the facility.
>
> ***Potable Water Intensity:*** The amount of potable water (in gallons) consumed per gross square foot of the facility.

10.3.1. Federal Facilities

EISA and EPAct contain requirements for federal facilities, which should be discussed in an Environmental Assessment (EA) or Environmental Impact Statement (EIS), including any action involving large capital energy or water investment in an existing building; new construction or major renovation of an FAA-owned building or built to suit lease; and any proposed action or alternative(s) involving the development, redevelopment, or leasing of an FAA facility. For more information, consult FAA Order 1053.1C, *Energy and Water Management Program for FAA Buildings and Facilities*, or AEE.

For appropriate[1] federal facilities, discuss how the proposed action and alternative(s) contribute to the FAA's energy goals to annually reduce energy intensity in "goal subject buildings," as defined in FAA Order 1053.1C; reduce potable water use intensity; and improve agency water use efficiency and management by installing water meters, consistent with the most recent version of DOE metering guidance. See text box above for definitions of energy intensity and potable water intensity.

reduce potable water use intensity; and improve agency water use efficiency and management by installing water meters, consistent with the most recent version of DOE metering guidance. See text box above for definitions of energy intensity and potable water intensity.

[1] See FAA Order 1053.1C to determine which FAA facilities are subject to each sustainability requirement. This may vary based on a facility's gross square footage, line of business and/or ownership/leasing status.

10.3.2. Significance Determination

The FAA has not established a significance threshold for natural resources and energy supply in FAA Order 1050.1F; however, the FAA has identified a factor to consider when evaluating the context and intensity of potential environmental impacts for natural resources and energy supply (see Exhibit 4-1 of FAA Order 1050.1F). Please note that this factor is not intended to be a threshold. If this factor exists, there is not necessarily a significant impact.

This factor includes, but is not limited to, situations in which the proposed action or alternative(s) would have the potential to cause demand to exceed available or future supplies of these resources. For most actions, changes in energy demands or other natural resource consumption for FAA projects will not result in significant impacts. If an EA identifies problems such as demands exceeding supplies, additional analysis may be required in an EIS. Otherwise, it may be assumed that impacts are not significant.

To make a significance determination, evaluate the estimated amount of natural and energy resources that are expected to be needed for a project and compare the information to the local context of supply and demand to make an evaluation of significance. As mentioned above, contact local utilities and suppliers to evaluate capacities and local demand for the resources in question, or DOE in determining and judging the seriousness of impacts (especially if DOE is a cooperating agency).

10.4. Mitigation

Examples of potential measures to mitigate impacts related to natural resources and energy supply include:

- following principles of environmental design and sustainability (including pollution prevention, waste minimization, and resource conservation) in project or program planning;
- incorporating into project design measures such as more efficient facility design and operation, or improved ground transportation or access; and
- utilizing energy from renewable sources to the extent possible.

Appendix B. Natural Resources and Energy Supply

Federal activities affecting all environmental impact categories are governed by many statutes, regulations, and Executive Orders. Each impact category chapter of this Desk Reference (Chapters 1-14, as applicable) contains an exhibit with a tabular overview of the major applicable Federal statutes, regulations, Executive Orders, and the agencies responsible for overseeing their implementation. This appendix supplements the background information relevant to those requirements that is provided in the chapter exhibits. Please note that these requirements may not be applicable to every FAA action, and should only be included when relevant to the proposed project.

B.8. Natural Resources and Energy Supply

The following statute and Executive Order govern the protection of natural resources and energy supply.

As stated in the Energy Independence and Security Act (EISA), 72 *Federal Register* 3919, (January 26, 2007) the FAA must reduce building energy intensity[1] in goal subject buildings by 30 percent by the end of Fiscal Year (FY) 2015 relative to the FY 2003 baseline Section 431 of EISA (42 U.S.C. § 8253(a)(1)). The FAA must also seek to identify, promote, and implement water reuse strategies that reduce potable water consumption.

If an action involves large capital energy or water investment in an existing building that is not a major renovation but involves replacement of installed equipment (such as heating and cooling systems), or involves renovation, rehabilitation, expansion, or remodeling of existing space, the FAA must employ the most energy and water efficient designs, systems, equipment, and controls that are life cycle cost-effective (see Section 434(a) of EISA [42 U.S.C. § 8253]).

If the proposed action involves the new construction or major renovation of an FAA-owned building or built to suit lease, the following requirements must be met. It is the responsibility of the LOB/SO that is planning, designing, and constructing the building to ensure implementation of these requirements. These requirements must be incorporated into standard design criteria, statements of work, and construction documents.

1. All new FAA construction and major renovation projects must be completed in accordance with the federal building design standards most recently published by the U.S. Department of Energy (see 10 CFR part 433).
2. New and replacement FAA buildings must be designed to achieve energy consumption levels that are at least 30 percent below the levels established in ASHRAE 90.1 standard or International Energy Code, if life cycle cost-effective (see Section 109(2)(i) of the Energy Policy Act [EPAct] [42 U.S.C. § 6834(a)].
3. New construction and major renovation projects must be designed so that the fossil fuel-generated energy consumption of the buildings is reduced, as compared with such energy consumption by a similar building in FY 2003 (as measured by Commercial Buildings

[1] ***Energy Intensity*** refers to the amount of energy, in British Thermal Units consumed per gross square foot of a facility.

Energy Consumption Survey or Residential Energy Consumption Survey data from the Energy Information Agency), by the percentage specified in the following bullets (see Section 433(a)(D)(i) of EISA [42 U.S.C. § 6834 (a)(3)]):

- 55 percent reduction for building beginning design in FY 2010;
- 65 percent reduction for building beginning design in FY 2015;
- 80 percent reduction for building beginning design in FY 2020;
- 90 percent reduction for building beginning design in FY 2025; and
- 100 percent reduction for building beginning design in FY 2030.

4. The FAA must meet 30 percent of hot water demand in new construction and major renovations through installation and use of solar hot water heaters, where life cycle cost-effective (see Section 523(3) of EISA [42 U.S.C. § 6834(a)(3)(A)]).
5. All new construction and major renovation projects at FAA facilities must include installation of advanced meters for electricity (see Section 103(e)(1) of EPAct [42 U.S.C. § 8253]), and gas and steam advanced meters (see Section 434(b) of EISA [42 U.S.C. § 8253(e)(1)]), where practical and cost-effective. All meters must be installed at the building or sub metering level in accordance with current DOE Federal Energy Management Program metering best practices.
6. The FAA should implement renewable energy generation projects on FAA property for FAA use, to the extent feasible to take advantage of on-site bonus credit for federal counting and reporting (see EPAct §203(c)[42 USC §15852]).Any proposed action involving the development or redevelopment of an FAA facility with a footprint that exceeds 5,000 square feet must use site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow (see Section 438 of EISA [42 U.S.C. § 17094]).

For any proposed action involving the direct leasing of space, the lease must have received the ENERGY STAR® designation in the most recent year, if financially feasible (see Section 435(a) of EISA [42 U.S.C. § 17091]). The acquisition is considered financially feasible if the proposed rental is not more than 10 percent over the market rate for a comparable building in the same rental market. If one of the conditions described below is met, the FAA may enter into a contract to lease space in a building that has not earned the ENERGY STAR® label in the most recent year. However, the lease contract must include provisions requiring that, prior to occupancy, building owners must implement lease-duration cost-effective efficiency and conservation improvements. In the case of remaining in a current building, the owner must implement improvements not later than one year after signing the contract. This includes improvements in lighting, building envelope, and HVAC systems. The Real Estate Contracting Officer can make an exception when:

7. ENERGY STAR® rated space is not available that meets the FAA's functional requirements;
8. The FAA proposes to remain in a building that the agency has occupied previously;
9. The FAA proposes to lease a building of historical, architectural, or cultural significance (as defined in 40 U.S.C. § 3306(a)(4)) or space in such a building; or

10. The lease is for less than 10,000 gross square feet of space (see Section 435(b)(1)(D) of EISA [42 U.S.C. § 17091]).

A RECO may pay a premium for sustainable leased spaces to the extent that funds are available. The space acquisition will be considered financially feasible if:

11. The rental offer for space in a conforming building is no more than 10 percent greater than the market rate for a comparable conventional building in the same rental market.
12. If the market does not support buildings that meet the *Guiding Principles*, then the RECO must provide written justification in the Negotiator Report.