APPENDIX D – ENVIRONMENTAL AND ENERGY

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D-1. OVERVIEW

Environmental and energy projects help airport sponsors address requirements under Federal laws related to the protection of natural resources and improve energy efficiency at the airport. Criteria in Section D-2., apply to all types of environmental projects.

The projects in this appendix may be funded with Noise, Energy, and Accessibility (NEA) special noncompetitive discretionary funding and with other applicable AIP funding. If a sponsor wants to pursue NEA funding for a project included in this appendix, the sponsor must coordinate with the ARP Field Office.

D-2. GENERAL ELIGIBILITY AND JUSTIFICATION

See: 49 U.S.C. §§ 47101(a)(7) and (b)(4), 47102(3)(B)(v), 47102(3)(F), 47102(3)(G), 47102(3)(K), 47102(3)(L), 47102(3)(M), 47102(3)(P), 47102(3)(Q), 47102(3)(W), 47117(e)(1)(A), 47118, 47136, and 47140

See also: 33 U.S.C. § 1251, Federal Water Pollution Control Act, 42 U.S.C. 7401, the Clean Air Act, and 42 U.S.C. § 12101, Americans with Disabilities Act of 1990 (ADA)

For eligibility and justification requirements applicable to all projects funded with AIP, see Chapter 2, *Eligibility & Justification*.

D-2.1. ELIGIBILITY CRITERIA

TABLE D-2.1. GENERAL ELIGIBILITY REQUIREMENTS FOR ENVIRONMENTAL & ENERGY EFFICIENCY PROJECTS

Item	Description
Ownership & Operator	Facilities, equipment, and vehicles must be owned or leased and operated by the airport sponsor and must be for nonexclusive use.
Scope	Projects must support the operational needs that are specific to the airport's scope of service, geographic location, and physical layout.
Location	Facilities must be located on airport property and depicted on the latest FAA-approved ALP. Construction of environmental measures may occur off-airport property. An easement is required, and the easement must be shown on the Exhibit A Property Inventory Map.

D-2.2. JUSTIFICATION REQUIREMENTS

TABLE D-2.2. GENERAL JUSTIFICATION REQUIREMENTS FOR ENVIRONMENTAL & ENERGY EFFICIENCY PROJECTS

Item	Description
Objectives	▪ The project must achieve at least one of the congressionally directed priorities:

Item	Description
	○ accommodate capacity; ○ achieve compliance with standards; or ○ address safety determinations; and ▪ There is an actual need for the project and a timeframe for the need; and ▪ Only the elements required to obtain the full benefit of the project are included in the scope.
Demand / Documented Need	Airport sponsors must document that sufficient demand exists or the need for the project has been documented through airport planning. Revenue producing projects within this appendix are not required to increase the revenue production of the airport.

Specific projects and costs may require additional justification as discussed in Section D-3.

D-2.2.1. SCOPE & ALLOWABLE COSTS

Projects must align with the actual operational needs of the airport and not exceed the scope or quantities identified. The project's scope should contain only the elements that are required to obtain the full benefit of the project.

Excluded work and costs are not eligible.

D-2.2.2. USEFUL LIFE

Chapter 2 discusses minimum useful life requirements applicable to all AIP-funded projects. One component of the minimum useful life requirement for equipment or a facility being reconstructed is that the equipment or facility must no longer be operational or maintainable, while rehabilitation must extend the useful life. Chapter 2, Section 2-3.2., Minimum Useful Life, provides additional details on what factors the ARP Field Office must evaluate once the equipment or facility has not achieved its minimum useful life.

Useful life varies by project type. Tables D-3.1. and D-3.2. include specific minimum useful life requirements applicable to environmental and energy efficiency projects.

D-3. ELIGIBLE ENVIRONMENTAL & ENERGY EFFICIENCY PROJECTS

For scope of work requirements applicable to all AIP-funded projects, see Chapter 2.

Relevant Advisory Circulars (ACs), Orders, and guidance include, but are not limited to, the current version of:

- AC 150/5230-4, Aircraft Fuel Storage, Handling, Training, and Dispensing on Airports;
- The Voluntary Airport Low Emission Program (VALE) Technical Report;
- The Zero Emissions Vehicle (ZEV) Pilot Program Technical Guidance;
- AC 150/5300-14D, Design of Aircraft Deicing Facilities;

- FAA Order JO 6030.20, Electrical Power Policy; and
- FAA Order JO 6950.2, Electrical Power Policy Implementation at National Airspace System Facilities.

See the AC checklist for a list of the latest version of ACs applicable to AIP-funded projects.

D-3.1. ELIGIBLE ENVIRONMENTAL PROJECTS

For the purposes of this appendix, environmental projects support the protection and enhancement of natural resources and the quality of the environment.

TABLE D-3.1. ELIGIBLE ENVIRONMENTAL PROJECTS

Project Type	Justification and Useful Life	Additional Requirements and Considerations	Excluded Work
Unleaded Aviation Fuel and Hydrogen Infrastructure *Construct, Expand, Reconstruct, & Rehabilitate (Military Airport Program or MAP only)* ***Unit of Measure:*** *Item Type*	The sponsor must certify demand for unleaded and hydrogen aviation fuel exists; future efforts must be justified based on increased demand. Storage tanks should be sized to meet the purpose and need demonstrated by the sponsor. Costs must be tied directly to fueling piston-driven aircraft or certificated hydrogen-powered aircraft. Reconstruction after 20 years and the equipment is no longer functional or maintainable; or rehabilitation using MAP funding at 10 years. Replacement of fuel farm if facility has met or exceeded its useful life and is no longer	A centralized facility to store, manage, and dispense unleaded aviation fuel or hydrogen to aircraft, including bulk fuel storage tanks, the containment area, the pavement area needed for fueling operations, pumps, and associated equipment. Construction of mobile refueler parking. Construction of an access road if necessary to complete initial fuel farm construction. Additional fuel tanks for existing or a new fuel type. Self-service credit card aeronautical fueling systems.	Rehabilitation and routine work. Removal of tanks at airports not participating in the MAP, unless required by an environmental determination. Replacement of a mobile refueler or self-service credit card aeronautical fueling system. Costs to remove existing infrastructure.

Project Type	Justification and Useful Life	Additional Requirements and Considerations	Excluded Work
	functional or maintainable to a point that revenue is no longer being generated.		
Unleaded Aviation Fuel or Hydrogen Fuel Truck *Acquire* ***Unit of Measure:*** *Item Type*	The sponsor must certify demand for unleaded aviation fuel or hydrogen fuel exists; future efforts must be justified based on increased demand, but need does not have to be sufficient for revenue to be earned. Costs must be tied directly to fueling piston-driven aircraft or certificated hydrogen-powered aircraft.	Acquire a sponsor-owned and operated fuel truck that exclusively provides unleaded aviation fuels for piston-driven aircraft or fuel for type certificated hydrogen-powered aircraft. May include fueling apparatus.	Routine work, rehabilitation, or reconstruction. Equipment disposal.
VALE Infrastructure *Construct, Acquire, & Install* ***Unit of Measure:*** *Item Type*	The sponsor must document that the project will demonstrate an improvement to air quality by reduction in emissions for a criteria pollutant defined by the Clean Air Act; future efforts must be based on additional justification. Costs are limited to the portion of an eligible airport project that is directly associated with the VALE program.	Work necessary to construct or modify airport facilities to provide low-emission fuel systems, gate electrification, or other related air quality improvements. Acquisition of airport-owned vehicles or ground support equipment with low-emission technology, provided such vehicles are used exclusively within the airport boundary or to transport passengers and employees between the airport and the airport's consolidated rental facility or an intermodal surface transportation facility adjacent to the airport.	Routine work, rehabilitation, or reconstruction.

Project Type	Justification and Useful Life	Additional Requirements and Considerations	Excluded Work
	Projects are only eligible at commercial service airports. Reimbursement is limited to the incremental costs of the vehicle. Incremental cost is defined as the difference between the higher price for an eligible low-emission vehicle and the current market value for a new equivalent conventional fuel (e.g., gasoline or diesel) vehicle. Vehicle base costs are not eligible.		
Zero Emissions Infrastructure (ZEV) *Construct, Acquire, & Install* ***Unit of Measure:*** *Item Type*	The sponsor must certify that the project includes no emissions creating vehicles and that the power source will be maintained for the expected lifespan of the vehicle. Projects that achieve the greatest air quality benefits measured by the amount of emissions reduced per dollar of funds expended under the program (i.e., cost effectiveness) and/or are included in a long-term management plan receive priority consideration.	Zero emissions equipment, including purchase or lease of ZEV, removable power sources, refueling stations, rechargers, and on-site fuel storage tanks. Acquisition of airport-owned vehicles or ground support equipment with zero emissions technology, provided such vehicles are used exclusively within the airport boundary or to transport passengers and employees between the airport and the airport's consolidated rental facility or an intermodal surface transportation facility adjacent to the airport. ZEV and removable power sources may be acquired	Costs associated with hybrid vehicles. Off-road vehicles. Routine work, rehabilitation, or reconstruction.

Project Type	Justification and Useful Life	Additional Requirements and Considerations	Excluded Work
		under separate procurement transactions.	
Deicing Pad and Containment Facility and Deicing Containment Equipment *Acquire, Install, Construct, Expand, Reconstruct, & Rehabilitate* ***Unit of Measure:*** *Square yards*	Documented as needed in an airport planning document or required to comply with the ADA, Clean Air Act, or Federal Water Pollution Control Act. Projects are only eligible at commercial service airports. For the deicing pad, reconstruction after 20 years and the pad and containment facility are no longer functional or maintainable. Rehabilitation after 10 years to extend its useful life. For deicing containment equipment, reconstruction after 10 years and the equipment is no longer functional or maintainable. Rehabilitation after 5 years to extend the equipment's useful life.	Land acquisition needed for a deicing pad, a pad suitable for deicing aircraft, drainage collection structures, treatment and discharge systems, appropriate lighting, paved access for deicing vehicles and aircraft, and work necessary to acquire and install deicing containment equipment, including sponsor-owned and operated deicing vehicles. May include a sponsor-owned and operated glycol recovery truck or glycol vacuum.	Storage facilities for deicing equipment and fluids. Aircraft deicing fluids. Routine work.
Environmental Mitigation *Construct* ***Unit of Measure:*** *Item Type*	Documented in an FAA-approved environmental decision document as a project that will measurably reduce or mitigate	Projects that construct mitigation measures including noise barriers. Constructing a blast pad, a noise wall between the airport and a neighborhood,	Routine work, rehabilitation, or reconstruction.

Project Type	Justification and Useful Life	Additional Requirements and Considerations	Excluded Work
	environmental impacts related to aviation; future efforts are not eligible. For environmental mitigation projects that require a period of monitoring that is included in the FAA-approved environmental decision document, up to a maximum of five years is an allowable cost.	planting trees required as an environmental mitigation measure in an FAA-approved environmental decision document, etc. May include construction off-airport property. For a mitigation project to make property improvements, such as wetlands replacement, the sponsor must have a written agreement with the property owner that allows the work to be performed and transfers the responsibility of maintaining the development to the property owner once the project is complete.	
Accessibility Measures *Construct, Reconstruct, & Rehabilitate* ***Unit of Measure:*** *Must identify measure(s)*	Acquire and install ADA-compliant accessibility-related measures in public use facilities. Reconstruction after 10 years and the accessibility measure is no longer functional or maintainable. Rehabilitation after 5 years to extend its useful life.	May include accessibility-related features such as ramps, ADA compliance doors, etc.	Routine work.

D-3.2. ENERGY EFFICIENCY PROJECTS

For the purposes of this appendix, energy efficiency projects are on-airport projects designed to:

- Improve reliability and efficiency of the power supply of the airport;
- Meet current and future electrical power demands; and
- Prevent power disruptions to the airfield, passenger terminal, and any other airport facilities.

Energy efficiency projects also include projects identified in an airport's Energy Management Plan (EMP) that will improve energy efficiency, increase peak load savings at the airport, and meet future electrical power demands.

TABLE D-3.2. ELIGIBLE ENERGY EFFICIENCY PROJECTS

Project Type	Justification and Useful Life	Additional Requirements and Considerations	Excluded Work
Airport Microgrid Power Supply *Construct* ***Unit of Measure:*** *Item Type*	Documented in the airport's EMP or as part of a master plan as justified based on a current or future airport need; future efforts must be justified based on increased demand. The sponsor must certify that no safety projects are being deferred. Microgrid must be prorated for eligible on-airport facilities only.	Constructing an on-airport solar, geothermal, or wind-based power supply and microgrid supporting the airfield, eligible areas of terminals, and other necessary facilities. May also include modification of airport facilities to connect to the power supply; storage infrastructure including necessary substation upgrades. Requires coordination with the ARP Field Office.	Routine work, rehabilitation, and reconstruction. Costs associated with ineligible areas of terminals and other facilities.
Airport Energy Infrastructure *Construct, Acquire, & Install* ***Unit of Measure:*** *Item Type*	Documented in the airport's EMP or as part of a master plan as justified based on a current or future airport need; future efforts must be justified based on increased demand. Projects can be stand-alone or included in a terminal or facility project. The sponsor must certify that no safety projects are being deferred. If applicable, projects must be prorated for	Central utility plant, light emitting diode (LED) lighting, utility motion sensors, windows (including smart glass), insulation, programmable controls, doors, Leadership in Energy and Environmental Design (LEED) accredited initiatives, high efficiency heating, ventilation, and air conditioning (HVAC) systems, etc. Requires coordination with the ARP Field Office.	Routine work, rehabilitation, and reconstruction. Costs associated with ineligible areas of terminals and other facilities.

Project Type	Justification and Useful Life	Additional Requirements and Considerations	Excluded Work
	eligible on-airport facilities only. Once installed, these projects become part of the terminal or facility where installed and follow the rules for reconstruction and rehabilitation for the terminal or facility.		
Electrical Emergency Generator *Acquire, Install, & Replace* ***Unit of Measure:*** *Item Type*	Generator must be necessary to provide backup power to eligible areas of the airport, as documented in an EMP. Future efforts must be justified based on increased demand. Replacement after 10 years and the equipment is no longer functional or maintainable. The sponsor must certify that no safety projects are being deferred.	Requires coordination with the ARP Field Office, but certain navigational aids (NAVAIDs), towers, aircraft rescue and firefighting (ARFF) buildings, and terminals may be excluded from the EMP requirement.	Routine work and rehabilitation. Costs for ineligible areas, including areas to sustain operations inside the terminal.

D-4. RELATED PROJECTS

The projects in this section are not eligible for environmental or energy efficiency purposes; however, references to related projects that may be eligible are provided as applicable.

TABLE D-4.1. RELATED PROJECTS

Project Type	When Scope of Work Includes	See Appendix
Airfield Drainage or Erosion Control	Airfield drainage systems	C, Airfield Infrastructure
	Drainage study	K, Planning

Airport Energy Management	Energy Management Plan	K, Planning
Environmental Impact Statement Prepared Under NEPA	Required to support airport development	K, Planning
Environmental Mitigation Pilot Program Under Section 190 of the FAA Reauthorization Act of 2018 (P.L. 115-254)	Projects to reduce or mitigate aviation impacts on noise, air quality, and water quality	J, Pilot Programs
Fuel Farms Other Than Unleaded Aviation Fuel and Hydrogen Infrastructure	A centralized facility to store, manage, and dispense aviation fuel to aircraft, including bulk fuel storage tanks, the containment area, the pavement area needed for fueling operations, pumps, and associated equipment	L, Revenue Producing
Noise	Voluntary noise and mitigation measures	I, Noise
ZEV Management Plan	A plan that assesses the existing and future infrastructure requirements of the airport related to zero-emissions vehicles and infrastructure	K, Planning

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