ment of the bioeconomy within the region served by the eligible entity, through coordination, education, outreach, and other endeavors by the eligible entity.

(d) Matching funds

(1) In general

Grant recipients shall provide matching non-Federal funds equal to the amount of the grant received.

(2) Expenditure

Matching funds shall be expended in advance of grant funding, so that for every dollar of grant that is advanced, an equal amount of matching funds shall have been funded prior to submitting the request for reimbursement.

(e) Administration

The Secretary shall establish such administrative requirements for grants under this section, including requirements for applications for the grants, as the Secretary considers appropriate.

(f) Amount

A grant made under this section shall not exceed $500,000.

(g) Authorizations of appropriations

There are authorized to be appropriated to make grants under this section—

(1) $1,000,000 for fiscal year 2006; and

(2) such sums as are necessary for each of fiscal years 2007 through 2015.

(Pub. L. 109–58, title IX, §945, Aug. 8, 2005, 119 Stat. 882.)

§16255. Preprocessing and harvesting demonstration grants

(a) In general

The Secretary of Agriculture (referred to in this section as the ''Secretary'') shall make grants available on a competitive basis to enterprises owned by agricultural producers, for the purposes of demonstrating cost-effective, cellulosic biomass innovations in—

(1) preprocessing of feedstocks, including cleaning, separating and sorting, mixing or blending, and chemical or biochemical treatments, to add value and lower the cost of feedstock processing at a biorefinery; or

(2) 1-pass or other efficient, multiple crop harvesting techniques.

(b) Limitations on grants

(1) Number of grants

Not more than 5 demonstration projects per fiscal year shall be funded under this section.

(2) Non-Federal cost share

The non-Federal cost share of a project under this section shall be not less than 20 percent, as determined by the Secretary.

(c) Condition of grant

To be eligible for a grant for a project under this section, a recipient of a grant or a participating entity shall agree to use the material harvested under the project—

(1) to produce ethanol; or

(2) for another energy purpose, such as the generation of heat or electricity.

(d) Authorization for appropriations

There is authorized to be appropriated to carry out this section $5,000,000 for each of fiscal years 2006 through 2010.

(Pub. L. 109–58, title IX, §946, Aug. 8, 2005, 119 Stat. 883.)

§16256. Education and outreach

(a) In general

The Secretary of Agriculture shall establish, within the Department of Agriculture or through an independent contracting entity, a program of education and outreach on biobased fuels and biobased products consisting of—

(1) training and technical assistance programs for feedstock producers to promote producer ownership, investment, and participation in the operation of processing facilities; and

(2) public education and outreach to familiarize consumers with the biobased fuels and biobased products.

(b) Authorization of appropriations

There is authorized to be appropriated to carry out this section $1,000,000 for each of fiscal years 2006 through 2010.

(Pub. L. 109–58, title IX, §947, Aug. 8, 2005, 119 Stat. 883.)

PART E—NUCLEAR ENERGY

§16271. Nuclear energy

(a) Mission

(1) In general

The Secretary shall carry out programs of civilian nuclear research, development, demonstration, and commercial application, including activities under this part.

(2) Considerations

The programs carried out under paragraph (1) shall take into consideration the following objectives:

(A) Providing research infrastructure to promote scientific progress and enable users from academia, the National Laboratories, and the private sector to make scientific discoveries relevant for nuclear, chemical, and materials science engineering.

(B) Maintaining nuclear energy research and development programs at the National Laboratories and institutions of higher education, including infrastructure at the National Laboratories and institutions of higher education.

(C) Providing the technical means to reduce the likelihood of nuclear proliferation.

(D) Increasing confidence margins for public safety of nuclear energy systems.

(E) Reducing the environmental impact of activities relating to nuclear energy.

(F) Supporting technology transfer from the National Laboratories to the private sector.

(G) Enabling the private sector to partner with the National Laboratories to demonstrate novel reactor concepts for the purpose of resolving technical uncertainty asso-

ciated with the objectives described in subparagraphs (A) through (F).

(b) Definitions

In this part:

(1) Advanced nuclear reactor

The term ''advanced nuclear reactor'' means—

(A) a nuclear fission reactor, including a prototype plant (as defined in sections 50.2 and 52.1 of title 10, Code of Federal Regulations (or successor regulations)), with significant improvements compared to reactors operating on December 27, 2020, including improvements such as—

(i) additional inherent safety features;

(ii) lower waste yields;

(iii) improved fuel and material performance;

(iv) increased tolerance to loss of fuel cooling;

(v) enhanced reliability or improved resilience;

(vi) increased proliferation resistance;

(vii) increased thermal efficiency;

(viii) reduced consumption of cooling water and other environmental impacts;

(ix) the ability to integrate into electric applications and nonelectric applications;

(x) modular sizes to allow for deployment that corresponds with the demand for electricity or process heat; and

(xi) operational flexibility to respond to changes in demand for electricity or process heat and to complement integration with intermittent renewable energy or energy storage; and

(B) a fusion reactor.

(2) Commission

The term ''Commission'' means the Nuclear Regulatory Commission.

(3) Fast neutron

The term ''fast neutron'' means a neutron with kinetic energy above 100 kiloelectron volts.

(4) National Laboratory

(A) In general

Except as provided in subparagraph (B), the term ''National Laboratory'' has the meaning given the term in section 15801 of this title.

(B) Limitation

With respect to the Lawrence Livermore National Laboratory, the Los Alamos National Laboratory, and the Sandia National Laboratories, the term ''National Laboratory'' means only the civilian activities of the laboratory.

(5) Neutron flux

The term ''neutron flux'' means the intensity of neutron radiation measured as a rate of flow of neutrons applied over an area.

(6) Neutron source

The term ''neutron source'' means a research machine that provides neutron irradiation services for—

(A) research on materials sciences and nuclear physics; and

(B) testing of advanced materials, nuclear fuels, and other related components for reactor systems.

(Pub. L. 109–58, title IX, § 951, Aug. 8, 2005, 119 Stat. 884; Pub. L. 115–248, § 2(a), Sept. 28, 2018, 132 Stat. 3154; Pub. L. 116–260, div. Z, title II, § 2002, Dec. 27, 2020, 134 Stat. 2459.)

AMENDMENTS

2020—Subsec. (b)(1). Pub. L. 116–260 amended par. (1) generally. Prior to amendment, par. (1) defined the term ''advanced nuclear reactor''.

2018—Pub. L. 115–248 amended section generally. Prior to amendment, section related to civilian nuclear energy research programs and authorizations of appropriations to carry out such programs.

§ 16272. Reactor concepts research, development, demonstration, and commercial application

(a) Sustainability program for light water reactors

(1) In general

The Secretary shall carry out a program of research, development, demonstration, and commercial application, including through the use of modeling and simulation, to support existing operating nuclear power plants which shall address technologies to modernize and improve, with respect to such plants—

(A) reliability;

(B) capacity;

(C) component aging;

(D) safety;

(E) physical security and security costs;

(F) plant lifetime;

(G) operations and maintenance costs, including by utilizing risk-informed systems analysis;

(H) the ability for plants to operate flexibly;

(I) nuclear integrated energy system applications described in subsection (c);

(J) efficiency;

(K) environmental impacts; and

(L) resilience.

(2) Authorization of appropriations

There are authorized to be appropriated to the Secretary to carry out the program under this subsection $55,000,000 for each of fiscal years 2021 through 2025.

(3) Report

The Secretary shall submit annually a public report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate documenting funds spent under the program that describes program activities, objectives, and outcomes, including those that could benefit the entirety of the existing reactor fleet, such as with respect to aging management and related sustainability concerns, and identifying funds awarded to private entities.

(b) Advanced reactor technologies

(1) In general

The Secretary shall carry out a program of research, development, demonstration, and