

(Pub. L. 109–58, title IX, §952, Aug. 8, 2005, 119 Stat. 885.)

**§ 16273. Advanced fuel cycle initiative**

**(a) In general**

The Secretary, acting through the Director of the Office of Nuclear Energy, Science and Technology, shall conduct an advanced fuel recycling technology research, development, and demonstration program (referred to in this section as the “program”) to evaluate proliferation-resistant fuel recycling and transmutation technologies that minimize environmental and public health and safety impacts as an alternative to aqueous reprocessing technologies deployed as of August 8, 2005, in support of evaluation of alternative national strategies for spent nuclear fuel and the Generation IV advanced reactor concepts.

**(b) Annual review**

The program shall be subject to annual review by the Nuclear Energy Research Advisory Committee of the Department or other independent entity, as appropriate.

**(c) International cooperation**

In carrying out the program, the Secretary is encouraged to seek opportunities to enhance the progress of the program through international cooperation.

**(d) Reports**

The Secretary shall submit, as part of the annual budget submission of the Department, a report on the activities of the program.

(Pub. L. 109–58, title IX, §953, Aug. 8, 2005, 119 Stat. 886.)

**§ 16274. University nuclear science and engineering support**

**(a) In general**

The Secretary shall conduct a program to invest in human resources and infrastructure in the nuclear sciences and related fields, including health physics, nuclear engineering, and radiochemistry, consistent with missions of the Department related to civilian nuclear research, development, demonstration, and commercial application.

**(b) Requirements**

In carrying out the program under this section, the Secretary shall—

(1) conduct a graduate and undergraduate fellowship program to attract new and talented students, which may include fellowships for students to spend time at National Laboratories in the areas of nuclear science, engineering, and health physics with a member of the National Laboratory staff acting as a mentor;

(2) conduct a junior faculty research initiation grant program to assist universities in recruiting and retaining new faculty in the nuclear sciences and engineering by awarding grants to junior faculty for research on issues related to nuclear energy engineering and science;

(3) support fundamental nuclear sciences, engineering, and health physics research

through a nuclear engineering education and research program;

(4) encourage collaborative nuclear research among industry, National Laboratories, and universities; and

(5) support communication and outreach related to nuclear science, engineering, and health physics.

**(c) University-National Laboratory interactions**

The Secretary shall conduct—

(1) a fellowship program for professors at universities to spend sabbaticals at National Laboratories in the areas of nuclear science and technology; and

(2) a visiting scientist program in which National Laboratory staff can spend time in academic nuclear science and engineering departments.

**(d) Strengthening university research and training reactors and associated infrastructure**

In carrying out the program under this section, the Secretary may support—

(1) converting research reactors from high-enrichment fuels to low-enrichment fuels and upgrading operational instrumentation;

(2) consortia of universities to broaden access to university research reactors;

(3) student training programs, in collaboration with the United States nuclear industry, in relicensing and upgrading reactors, including through the provision of technical assistance; and

(4) reactor improvements as part of a taking into consideration effort that emphasizes research, training, and education, including through the Innovations in Nuclear Infrastructure and Education Program or any similar program.

**(e) Operations and maintenance**

Funding for a project provided under this section may be used for a portion of the operating and maintenance costs of a research reactor at a university used in the project.

**(f) Definition**

In this section, the term “junior faculty” means a faculty member who was awarded a doctorate less than 10 years before receipt of an award from the grant program described in subsection (b)(2).

(Pub. L. 109–58, title IX, §954, Aug. 8, 2005, 119 Stat. 886.)

**§ 16274a. Integrated University Program**

(a) The Secretary of Energy, along with the Administrator of the National Nuclear Security Administration and the Chairman of the Nuclear Regulatory Commission, shall establish an Integrated University Program.

(b) For the purposes of carrying out this section, \$45,000,000 is authorized to be appropriated in each of fiscal years 2009 to 2019 as follows:

(1) \$15,000,000 for the Department of Energy;

(2) \$15,000,000 for the Nuclear Regulatory Commission; and

(3) \$15,000,000 for the National Nuclear Security Administration.

(c) Of the amounts authorized to carry out this section, \$10,000,000 shall be used by each or-

ganization to support university research and development in areas relevant to their respective organization's mission, and \$5,000,000 shall be used by each organization to support a jointly implemented Nuclear Science and Engineering Grant Program that will support multiyear research projects that do not align with programmatic missions but are critical to maintaining the discipline of nuclear science and engineering.

(Pub. L. 111-8, div. C, title III, §313, Mar. 11, 2009, 123 Stat. 627.)

#### CODIFICATION

Section was enacted as part of the Energy and Water Development and Related Agencies Appropriations Act, 2009, and also as part of the Omnibus Appropriations Act, 2009, and not as part of the Energy Policy Act of 2005 which comprises this chapter.

### § 16275. Department of Energy civilian nuclear infrastructure and facilities

#### (a) In general

The Secretary shall operate and maintain infrastructure and facilities to support the nuclear energy research, development, demonstration, and commercial application programs, including radiological facilities management, isotope production, and facilities management.

#### (b) Duties

In carrying out this section, the Secretary shall—

(1) develop an inventory of nuclear science and engineering facilities, equipment, expertise, and other assets at all of the National Laboratories;

(2) develop a prioritized list of nuclear science and engineering plant and equipment improvements needed at each of the National Laboratories;

(3) consider the available facilities and expertise at all National Laboratories and emphasize investments which complement rather than duplicate capabilities; and

(4) develop a timeline and a proposed budget for the completion of deferred maintenance on plant and equipment, with the goal of ensuring that Department programs under this part will be generally recognized to be among the best in the world.

#### (c) Plan

The Secretary shall develop a comprehensive plan for the facilities at the Idaho National Laboratory, especially taking into account the resources available at other National Laboratories. In developing the plan, the Secretary shall—

(1) evaluate the facilities planning processes utilized by other physical science and engineering research and development institutions, both in the United States and abroad, that are generally recognized as being among the best in the world, and consider how those processes might be adapted toward developing such facilities plan;

(2) avoid duplicating, moving, or transferring nuclear science and engineering facilities, equipment, expertise, and other assets that currently exist at other National Laboratories;

(3) consider the establishment of a national transuranic analytic chemistry laboratory as a user facility at the Idaho National Laboratory;

(4) include a plan to develop, if feasible, the Advanced Test Reactor and Test Reactor Area into a user facility that is more readily accessible to academic and industrial researchers;

(5) consider the establishment of a fast neutron source as a user facility;

(6) consider the establishment of new hot cells and the configuration of hot cells most likely to advance research, development, demonstration, and commercial application in nuclear science and engineering, especially in the context of the condition and availability of these facilities elsewhere in the National Laboratories; and

(7) include a timeline and a proposed budget for the completion of deferred maintenance on plant and equipment.

#### (d) Transmittal to Congress

Not later than 1 year after August 8, 2005, the Secretary shall transmit the plan under subsection (c) to Congress.

(Pub. L. 109-58, title IX, §955, Aug. 8, 2005, 119 Stat. 887.)

### § 16276. Security of nuclear facilities

The Secretary, acting through the Director of the Office of Nuclear Energy, Science and Technology, shall conduct a research and development program on cost-effective technologies for increasing—

(1) the safety of nuclear facilities from natural phenomena; and

(2) the security of nuclear facilities from deliberate attacks.

(Pub. L. 109-58, title IX, §956, Aug. 8, 2005, 119 Stat. 888.)

### § 16277. Alternatives to industrial radioactive sources

#### (a) Survey

##### (1) In general

Not later than August 1, 2006, the Secretary shall submit to Congress the results of a survey of industrial applications of large radioactive sources.

##### (2) Administration

The survey shall—

(A) consider well-logging sources as one class of industrial sources;

(B) include information on current domestic and international Department, Department of Defense, State Department, and commercial programs to manage and dispose of radioactive sources; and

(C) analyze available disposal options for currently deployed or future sources and, if deficiencies are noted for either deployed or future sources, recommend legislative options that Congress may consider to remedy identified deficiencies.

#### (b) Plan

##### (1) In general

In conjunction with the survey conducted under subsection (a), the Secretary shall es-