

Calendar No. 349

110TH CONGRESS
1ST SESSION**S. 1138****[Report No. 110–151]**

To enhance nuclear safeguards and to provide assurances of nuclear fuel supply to countries that forgo certain fuel cycle activities.

IN THE SENATE OF THE UNITED STATES

APRIL 18, 2007

Mr. LUGAR (for himself, Mr. BAYH, and Mr. HAGEL) introduced the following bill; which was read twice and referred to the Committee on Foreign Relations

SEPTEMBER 11, 2007

Reported by Mr. BIDEN, without amendment

A BILL

To enhance nuclear safeguards and to provide assurances of nuclear fuel supply to countries that forgo certain fuel cycle activities.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Nuclear Safeguards
5 and Supply Act of 2007”.

1 **SEC. 2. TABLE OF CONTENTS.**

Sec. 1. Short title.

Sec. 2. Table of contents.

Sec. 3. Appropriate congressional committees defined.

TITLE I—NUCLEAR SAFEGUARDS AND NUCLEAR FUEL SUPPLY

Sec. 101. Findings.

Sec. 102. Declaration of policy.

Sec. 103. Safeguards Analytical Laboratory.

Sec. 104. Safeguards technology development program.

TITLE II—NUCLEAR FUEL SUPPLY

Sec. 201. Authority for bilateral and multilateral nuclear fuel supply mechanisms.

Sec. 202. Report on the establishment of an international fuel authority.

Sec. 203. Sense of the Senate on IAEA fuel supply.

2 **SEC. 3. APPROPRIATE CONGRESSIONAL COMMITTEES DE-**
3 **FINED.**

4 In this Act, the term “appropriate congressional com-
5 mittees” means the Committee on Foreign Relations of
6 the Senate and the Committee on Foreign Affairs of the
7 House of Representatives.

8 **TITLE I—NUCLEAR SAFEGUARDS**
9 **AND NUCLEAR FUEL SUPPLY**

10 **SEC. 101. FINDINGS.**

11 Congress makes the following findings:

12 (1) The Treaty on the Non-Proliferation of Nu-
13 clear Weapons, done at Washington, London, and
14 Moscow July 1, 1968, and entered into force March
15 5, 1970 (commonly known as the “Nuclear Non-
16 Proliferation Treaty” or “NPT”) and the safeguards
17 system of the International Atomic Energy Agency

1 (IAEA) are indispensable to international peace and
2 security.

3 (2) Congress has long supported efforts aimed
4 at effective and efficient assurances of nuclear fuel
5 supply, the strengthening of IAEA safeguards, and
6 assistance to the developing world for nuclear and
7 non-nuclear energy sources, as embodied in the Nu-
8 clear Non-Proliferation Act of 1978 (22 U.S.C. 3201
9 et seq.).

10 (3) The February 22, 2005, Report of the
11 IAEA Experts Group on Multilateral Approaches to
12 the Nuclear Fuel Cycle found that, in addition to in-
13 creased verification activities in various nations such
14 as Iran, another factor contributing to significant
15 and troubling demands on the IAEA safeguards sys-
16 tem was that “the civilian nuclear industry appears
17 to be poised for worldwide expansion” and that
18 “[r]apidly growing global demand for electricity, the
19 uncertainty of supply and price of natural gas, soar-
20 ing prices for oil, concerns about air pollution and
21 the immense challenge of lowering greenhouse gas
22 emissions, are all forcing a fresh look at nuclear
23 power. As the technical and organizational founda-
24 tions of nuclear safety improve, there is increasing
25 confidence in the safety of nuclear power plants. In

1 light of existing, new and reawakened interest in
2 many regions of the world, the prospect of new nu-
3 clear power stations on a large scale is therefore
4 real. A greater number of States will consider devel-
5 oping their own fuel cycle facilities and nuclear
6 know-how, and will seek assurances of supply in ma-
7 terials, services and technologies.”

8 (4) The same report also found, “Two primary
9 deciding factors dominate all assessments of multi-
10 lateral nuclear approaches namely ‘Assurance of
11 non-proliferation’ and ‘Assurance of supply and serv-
12 ices.’ Both are recognised overall objectives for gov-
13 ernments and for the NPT community. In practice,
14 each of these two objectives can seldom be achieved
15 fully on its own. History has shown that it is even
16 more difficult to find an optimum arrangement that
17 will satisfy both objectives at the same time. As a
18 matter of fact, multilateral approaches could be a
19 way to satisfy both objectives.”

20 (5) The same report also found, “The non-pro-
21 liferation value of a multilateral arrangement is
22 measured by the various proliferation risks associ-
23 ated with a nuclear facility, whether national or mul-
24 tilateral. These risks include the diversion of mate-
25 rials from [a multilateral nuclear approach or MNA]

1 (reduced through the presence of a multinational
2 team), the theft of fissile materials, the diffusion of
3 proscribed or sensitive technologies from MNAs to
4 unauthorised entities, the development of clandestine
5 parallel programmes and the breakout scenario. The
6 latter refers to the case of the host country ‘break-
7 ing out’, for example, by expelling multinational
8 staff, withdrawing from the NPT (and thereby ter-
9 minating its safeguards agreement), and operating
10 the multilateral facility without international con-
11 trol.”

12 (6) The 2004 Report of the United Nations
13 Secretary-General’s High-Level Panel on Threats,
14 Challenges and Change found that creating incen-
15 tives for countries to forego the development of do-
16 mestic uranium enrichment and reprocessing facili-
17 ties is essential, and that such suggestions, if imple-
18 mented swiftly and firmly, offer a real chance to re-
19 duce the risk of a nuclear attack, whether by states
20 or non-state actors, and that such proposals “should
21 be put into effect without delay”.

22 (7) On February 11, 2004, President George
23 W. Bush stated, “The world’s leading nuclear ex-
24 porters should ensure that states have reliable access
25 at reasonable cost to fuel for civilian reactors, so

1 long as those states renounce enrichment and re-
2 processing. Enrichment and reprocessing are not
3 necessary for nations seeking to harness nuclear en-
4 ergy for peaceful purposes.”

5 (8) According to some experts, global energy
6 demand will grow by 50 percent in the next 20
7 years, predominantly in the developing world.

8 (9) Nuclear power may play an increasing role
9 in electricity supply to both the developed and the
10 developing world over the next several decades.

11 (10) The Government Accountability Office
12 (GAO) stated in testimony before Congress in Sep-
13 tember 2006 that a significant factor limiting the ef-
14 fectiveness of the current IAEA safeguards system is
15 that “more than half, or 111 out of 189, of the
16 NPT signatories have not yet brought the Additional
17 Protocol into force, including the United States”.

18 (11) The GAO also testified that an additional
19 “weakness in implementing strengthened safeguards
20 is that safeguards are significantly limited or not ap-
21 plied in about 60 percent, or 112 out of 189, of the
22 NPT signatory countries—either because they have
23 an agreement (known as a small quantities protocol)
24 with IAEA, and are not subject to most safeguards

1 measures, or because they have not concluded a
2 comprehensive safeguards agreement with IAEA”.

3 (12) The GAO also testified that “while IAEA
4 is increasingly relying on the analytical skills of its
5 staff to detect countries’ undeclared nuclear activi-
6 ties, the agency is facing a looming human capital
7 crisis. In the next 5 years, IAEA will experience a
8 large turnover of senior safeguards inspectors and
9 high-level management officials. Delays in filling
10 critical safeguards positions limit IAEA’s ability to
11 implement strengthened safeguards.”

12 (13) Outdated and unnecessary staff restric-
13 tions have prevented the IAEA from maintaining
14 and equipping a well-trained cadre of professional
15 staff at the IAEA’s Safeguards Analytical Labora-
16 tory (SAL), located at Seibersdorf, Austria.

17 (14) A goal of the Department of State’s budg-
18 et request for fiscal year 2007 for United States vol-
19 untary contributions to the IAEA was
20 “[s]trengthening quality control and sensitivity of
21 analyses by the Safeguards Analytical Laboratory
22 (SAL) and the Network of Analytical Laboratories,
23 and reviewing needs for possible refurbishment or
24 replacement of SAL”.

1 (15) Considerable investment is needed for SAL
2 to meet future IAEA requirements as its workload
3 is growing, the laboratory's infrastructure is aging,
4 and IAEA requirements have become more demand-
5 ing, and while initial plans have been made for lab-
6 oratory enhancement and are currently pending
7 budgetary approval (sometime in 2009), the simple
8 fact is that, as more countries implement IAEA
9 safeguards, many more nuclear samples come to
10 SAL for analysis.

11 (16) Any proposals for the creation of bilateral
12 or multilateral assurances of supply mechanisms
13 must take into account, and be achieved in a manner
14 that minimizes, the risk of nuclear proliferation or
15 regional arms races and maximizes adherence to
16 international nonproliferation regimes, including, in
17 particular, the Guidelines of the Nuclear Suppliers
18 Group (NSG), and the IAEA Additional Protocol.

19 (17) Any proposal to create an assurance of
20 supply mechanism in or with a certain country or
21 group of countries should not result in decreased
22 emphasis on existing nuclear safeguards verification
23 efforts and compliance challenges.

24 (18) The existing funding, planning, and execu-
25 tion of IAEA safeguards is not sufficient to meet the

1 predicted growth in the future of civilian nuclear
2 power, and therefore any growth in civilian nuclear
3 power must be evaluated against the challenges it
4 poses to verification of the assurances of peace and
5 security provided by the IAEA safeguards system.

6 (19) The existing IAEA safeguards system, and
7 the Additional Protocol and the Guidelines of the
8 NSG, represent the current, minimum standards for
9 controlling access to and trade in civilian nuclear
10 technology and should continue to be improved, ex-
11 panded, and strengthened.

12 **SEC. 102. DECLARATION OF POLICY.**

13 (a) CONTINUATION OF EXISTING POLICY.—It shall
14 remain the policy of the United States—

15 (1) to create mechanisms to provide adequate
16 supplies of nuclear fuel consistent with the provi-
17 sions of the Nuclear Non-Proliferation Act of 1978
18 (22 U.S.C. 3201 et seq.), in particular title I of such
19 Act (22 U.S.C. 3221 et seq.);

20 (2) to strengthen the IAEA safeguards system
21 consistent with the provisions of the Nuclear Non-
22 Proliferation Act of 1978 (22 U.S.C. 3201 et seq.),
23 in particular title II of such Act (22 U.S.C. 3241 et
24 seq.); and

1 (3) to cooperate with other nations, inter-
2 national institutions, and private organizations to
3 assist in the development of non-nuclear energy re-
4 sources under title V of the Nuclear Non-Prolifera-
5 tion Act of 1978 (22 U.S.C. 3261 et seq.).

6 (b) DECLARATION OF NEW POLICY.—It shall be the
7 policy of the United States to discourage the development
8 of enrichment and reprocessing capabilities in additional
9 countries, encourage the creation of bilateral and multilat-
10 eral assurances of nuclear fuel supply, and ensure that
11 all supply mechanisms operate in strict accordance with
12 the IAEA safeguards system and do not result in any ad-
13 ditional unmet verification burdens for the system.

14 **SEC. 103. SAFEGUARDS ANALYTICAL LABORATORY.**

15 (a) AUTHORIZATION OF APPROPRIATIONS.—In addi-
16 tion to the amount requested by the President for United
17 States Voluntary Contributions to the IAEA for Fiscal
18 Year 2008, an additional \$10,000,000 is authorized to be
19 appropriated under this Act for the refurbishment or pos-
20 sible replacement of the IAEA Safeguards Analytical Lab-
21 oratory.

22 (b) REPORT.—Not later than 180 days after the date
23 of the enactment of this Act, the Secretary of State shall
24 submit to the appropriate congressional committees a re-
25 port on the refurbishment or possible replacement of the

1 IAEA Safeguards Analytical Laboratory pursuant to sub-
2 section (a).

3 **SEC. 104. SAFEGUARDS TECHNOLOGY DEVELOPMENT PRO-**
4 **GRAM.**

5 The Secretary of State is authorized, in cooperation
6 with the Secretary of Energy and the Directors of the Na-
7 tional Laboratories and in consultation with the Secretary
8 of Defense and the Director of National Intelligence, to
9 pursue a program—

10 (1) to strengthen technical safeguards research
11 and development;

12 (2) to increase resources, identify near-term
13 technology goals, formulate a technology roadmap,
14 and improve interagency coordination on safeguards
15 technology; and

16 (3) to examine proliferation resistance in design
17 and development of all future nuclear energy sys-
18 tems.

19 **TITLE II—NUCLEAR FUEL**
20 **SUPPLY**

21 **SEC. 201. AUTHORITY FOR BILATERAL AND MULTILATERAL**
22 **NUCLEAR FUEL SUPPLY MECHANISMS.**

23 (a) IN GENERAL.—The President is authorized to
24 create, consistent with title I of the Nuclear Non-Pro-
25 liferation Act of 1978 (22 U.S.C. 3221 et seq.), and other

1 applicable provisions of law, bilateral and multilateral
2 mechanisms to provide a reliable supply of nuclear fuel
3 to those countries and groups of countries that adhere to
4 policies designed to prevent the proliferation of nuclear
5 weapons and that decide to forgo a national uranium en-
6 richment program and spent nuclear fuel reprocessing fa-
7 cilities.

8 (b) PURPOSE OF MECHANISMS.—The mechanisms
9 authorized under subsection (a) shall, to the maximum ex-
10 tent practicable, take into account the following:

11 (1) The economic rationale for a country or
12 countries pursuing nuclear power, including existing
13 sources of power for such country or countries.

14 (2) Whether such country or countries are in
15 compliance with their obligations under applicable
16 safeguards agreements and additional protocols with
17 the IAEA.

18 (3) Whether or not the development in such
19 country or countries of the complete nuclear fuel
20 cycle would impose new, costly IAEA safeguards
21 measures that cannot be supported by current IAEA
22 safeguards implementation in such country or coun-
23 tries, such that there is a reasonable assurance that
24 all nuclear materials in such country or countries
25 are for peaceful purposes and that there are no

1 undeclared nuclear materials or activities in such
2 country or countries.

3 (4) An evaluation of the proliferation dangers
4 of such country or countries developing nuclear fuel
5 cycle facilities for the production and disposition of
6 source and special nuclear materials.

7 (5) Whether or not the country or countries
8 that would be recipients of nuclear fuel or other as-
9 sistance provided by the United States are or have
10 ever been designated as state sponsors of terrorism
11 pursuant to section 620A of the Foreign Assistance
12 Act of 1961 (22 U.S.C. 2371), section 40 of the
13 Arms Export Control Act (22 U.S.C. 2780), or sec-
14 tion 6(j) of the Export Administration Act (50
15 U.S.C. App. 2405(j)).

16 (6) If done under a bilateral supply mechanism,
17 whether IAEA safeguards are being applied or will
18 be applied to any facility, site, or location where
19 international nuclear fuel supply activities are to be
20 carried out.

21 (7) Whether, in the case of a multilateral sup-
22 ply mechanism, procedures are in place to ensure
23 that when United States funds are used or when
24 United States nuclear materials are to be used, ex-

1 ported, or reexported, all applicable provisions of
2 United States law are followed.

3 (8) Whether the recipient country or countries
4 of any fuel provided under this Act are or will be-
5 come a party, prior to the commencement of any nu-
6 clear fuel supply under this Act, to—

7 (A) the Nuclear Non-Proliferation Treaty;

8 (B) in the case of a non-nuclear-weapon
9 State Party to the Nuclear Non-Proliferation
10 Treaty, a comprehensive safeguards agreement
11 that is in force, pursuant to which the IAEA
12 has the right and obligation to ensure that safe-
13 guards are applied, in accordance with the
14 terms of the agreement, on all source or special
15 fissionable material in all peaceful nuclear ac-
16 tivities within the territory of such country,
17 under its jurisdiction, or carried out under its
18 control anywhere, for the exclusive purpose of
19 verifying that such material is not diverted to
20 nuclear weapons or other nuclear explosive de-
21 vices;

22 (C) an additional protocol;

23 (D) the Convention on Nuclear Safety,
24 done at Vienna September 20, 1994, and en-
25 tered into force October 24, 1996;

1 (E) the Convention on Physical Protection
2 of Nuclear Materials, done at Vienna October
3 26, 1979, and entered into force February 8,
4 1987; and

5 (F) the Convention on Supplementary
6 Compensation for Nuclear Damage, done at Vi-
7 enna September 12, 1997.

8 (9) The extent to which the recipient country or
9 countries have or will have prior to the commence-
10 ment of any nuclear fuel supply under this Act effec-
11 tive and enforceable export controls regarding nu-
12 clear and dual-use nuclear technology and other sen-
13 sitive materials comparable to those maintained by
14 the United States.

15 (10) The conformity of the safety and regu-
16 latory regimes in the recipient country or countries
17 regarding the nuclear power sector with similar
18 United States laws and regulations.

19 (11) The history of safety or environmental
20 problems associated with any nuclear site, facility, or
21 location in the recipient country or countries in the
22 past, and the potential for future safety or environ-
23 mental problems or issues in connection with the ci-
24 vilian nuclear power development plan of the country
25 or countries.

1 (12) Whether the recipient country or countries
2 have resident within them any persons or entities in-
3 volved in the illicit trafficking of nuclear weapons,
4 nuclear materials, or dual-use nuclear technology.

5 (13) Whether the recipient country or countries
6 have or will have sufficiently open and transparent
7 civilian power markets such that United States firms
8 may benefit from any such bilateral or multilateral
9 supply mechanisms.

10 (c) RULE OF CONSTRUCTION.—Nothing in this Act
11 shall be construed to provide any authority with respect
12 to bilateral cooperation with another country or countries
13 or any international organization or organizations in
14 atomic energy that is additional to the authority provided
15 under the Atomic Energy Act of 1954 (42 U.S.C. 2011
16 et seq.) and all other applicable laws and regulations in
17 effect on the date of the enactment of this Act.

18 **SEC. 202. REPORT ON THE ESTABLISHMENT OF AN INTER-**
19 **NATIONAL FUEL AUTHORITY.**

20 (a) REPORT REQUIRED.—Not later than 180 days
21 after the date of enactment of this Act, the President shall
22 submit to the appropriate congressional committees a re-
23 port detailing the feasibility of establishing an Inter-
24 national Nuclear Fuel Authority (INFA) as called for in

1 section 104 (a)(1) of the Nuclear Non-Proliferation Act
2 of 1978 (22 U.S.C. 3223(a)(1)).

3 (b) CONTENT.—Without regard to any previous re-
4 ports submitted under section 104 (a)(1) of the Nuclear
5 Non-Proliferation Act of 1978 (22 U.S.C. 3223), the re-
6 port required under subsection (a) shall evaluate, with re-
7 spect to the feasibility of the establishment of the Inter-
8 national Nuclear Fuel Authority, the following:

9 (1) United States laws and regulations that
10 could be affected by the establishment of an INFA.

11 (2) What the cost to the United States Govern-
12 ment could be of establishing an INFA.

13 (3) Potential locations for the INFA.

14 (4) The potential for creating a fuel supply
15 bank under the control of the INFA.

16 (5) Nuclear materials that should be placed
17 within the control of the INFA, including which nu-
18 clear activities should be carried out by the INFA
19 for the production of nuclear fuel or for use as fuel.

20 (6) Whether the INFA should provide nuclear
21 fuel services to recipient countries.

22 (7) Whether a multilateral supply mechanism,
23 such as the INFA, is, in the judgment of the Presi-
24 dent, superior to bilateral mechanism for nuclear
25 fuel supply.

1 (8) How such an international organization
2 should operate to preserve freedom of markets in
3 nuclear fuel and avoid undue interference in the effi-
4 cient operation of the international nuclear fuel mar-
5 ket.

6 (9) The degree and extent to which such a mul-
7 tilateral supply mechanism should be under the con-
8 trol of, or a subordinate organization within, the
9 IAEA, including whether establishing such an INFA
10 would be superior or preferable to allowing the
11 IAEA, pursuant to Article IX of the Statute of the
12 IAEA, to become an international broker of nuclear
13 fuel and nuclear fuel services, including with respect
14 to an examination of the costs to IAEA Member
15 States of effectively carrying out clauses (1) through
16 (4) of paragraph (H) of such Article.

17 (10) The likely receptivity of the major coun-
18 tries involved in the supply of nuclear fuel and nu-
19 clear services to the creation of a multilateral supply
20 mechanism such as the INFA or one under the
21 IAEA.

22 **SEC. 203. SENSE OF THE SENATE ON IAEA FUEL SUPPLY.**

23 It is the sense of the Senate that—

24 (1) consistent with the long-standing support
25 provided by Congress for the nuclear verification and

1 technical cooperation projects of the IAEA, and with
2 a view toward effective verification of safeguards and
3 a desire to ensure that the expansion of nuclear
4 power remains only for peaceful purposes, the
5 United States should support, either in annual vol-
6 untary and off-budget contributions to the IAEA, or
7 in the provision of nuclear fuel to the IAEA, a nu-
8 clear fuel bank within the IAEA;

9 (2) the Senate commends the President for the
10 September 26, 2005, announcement at the 49th Ses-
11 sion of the General Conference of the IAEA that the
12 United States will reserve up to 17 metric tons of
13 highly enriched uranium for an IAEA verifiable as-
14 sured supply arrangement;

15 (3) the Senate commends the efforts of the Nu-
16 clear Threat Initiative (NTI) to contribute
17 \$50,000,000 to the IAEA to help create a low en-
18 riched uranium stockpile owned and managed by the
19 IAEA; and

20 (4) a combination of public and private efforts,
21 including the provisions of law previously enacted in
22 the Nuclear Non-Proliferation Act of 1978 (22
23 U.S.C. 3201 et seq.) and other applicable laws, ini-
24 tiatives supported by the President, efforts provided
25 for by private groups, and the recommendations of

1 many relevant studies, such as those cited in section
2 101, will be necessary to effectively and flexibly
3 manage the growth of civilian nuclear power in a
4 manner that does not result in undue burdens on
5 the IAEA safeguards system.

Calendar No. 349

110TH CONGRESS
1ST Session

S. 1138

[Report No. 110-151]

A BILL

To enhance nuclear safeguards and to provide assurances of nuclear fuel supply to countries that forgo certain fuel cycle activities.

SEPTEMBER 11, 2007

Reported without amendment