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FOR SIGNATURE OF : ** GRN ** CRC NO: 10-0250

Chairman Jaczko

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From: GAO Reports [GAOReports@gao.gov]
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Subject: Release of GAO-10-489, Nuclear Safety: Convention on Nuclear Safety Is Viewed by Most Member Countries as Strengthening Safety Worldwide

Below is a link to the following product, which is being released today:

http://www.gao.gov/Products/GAO-10-489
GAO-10-489
Nuclear Safety: Convention on Nuclear Safety Is Viewed by Most Member Countries as Strengthening Safety Worldwide

This report contains recommendations to your agency. As you know, 31 U.S.C. 720 requires the head of a federal agency to submit a written statement of the actions taken on our recommendations to the Senate Committee on Homeland Security and Governmental Affairs and to the House Committee on Oversight and Government Reform not later than 60 calendar days from the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 calendar days after that date. Since the congressional requester has asked that the distribution of the report be restricted, as provided by GAO's Congressional Protocols, the 60-day period begins on the date the report is released and e-mailed to you. Because agency personnel serve as the primary source of information on the status of recommendations, GAO requests that you also provide GAO with a copy of your agency's statement of action to serve as preliminary information on the status of open recommendations. Please send your statement of action to me at AloiseE@GAO.GOV or Glen Levis at LevisG@GAO.GOV.

We appreciate the assistance and cooperation of your staff during our review.

Gene Aloise
Director, Natural Resources & Environment

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United States Government Accountability Office

GAO

Report to the Chairman, Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia, Committee on Homeland Security and Governmental Affairs, U.S. Senate

April 2010

NUCLEAR SAFETY

Convention on Nuclear Safety Is Viewed by Most Member Countries as Strengthening Safety Worldwide

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GAO-10-489

April 2010

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Highlights

Highlights of GAO-10-489, a report to the Chairman, Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia, Committee on Homeland Security and Governmental Affairs, U.S. Senate

NUCLEAR SAFETY

Convention on Nuclear Safety Is Viewed by Most Member Countries as Strengthening Safety Worldwide

Why GAO Did This Study

Currently, 437 civilian nuclear power reactors are operating in 29 countries, and 56 more are under construction. After the Chernobyl accident, representatives of over 50 nations, including the United States, participated in the development of the Convention on Nuclear Safety, a treaty that seeks to promote the safety of civilian nuclear power reactors. The Convention has been in force since 1996. GAO was asked to assess (1) parties' views on the benefits and limitations of the Convention, (2) efforts to improve implementation of the Convention, and (3) how International Atomic Energy Agency (IAEA) programs complement the Convention's safety goals. GAO surveyed the 64 parties to the Convention for which it was in force at the time of GAO's review and analyzed the responses of the 32 that completed it, analyzed relevant documents, and interviewed U.S. and foreign officials.

What GAO Recommends

GAO recommends, among other things, that the Department of State, in coordination with NRC, work with other parties to the Convention to encourage the use of performance metrics in national reports to track progress toward improving safety of civilian nuclear power plants and expand efforts to increase the number of reports posted to IAEA's public Web site. The Department of State generally agreed with these recommendations. NRC generally agreed with GAO's report but did not specifically agree or disagree with these recommendations.

View GAO-10-489 or key components. To view the survey results online, click on GAO-10-550SP. For more information, contact Gene Aloise at (202) 512-3841 or aloisee@gao.gov.

What GAO Found

The Convention on Nuclear Safety plays a useful role in strengthening the safety of civilian nuclear power reactors worldwide, according to most parties to the Convention that responded to GAO's survey and representatives of parties GAO interviewed. In particular, parties indicated that the Convention's obligations to (1) establish effective legislative and regulatory frameworks and strong, independent nuclear regulatory bodies and (2) prepare a national report every 3 years that describes the measures the country has taken to achieve the Convention's nuclear safety goals, are among its most useful contributions. The countries present their national reports at review meetings, address questions that may arise about the reports, and assess and ask questions about the reports of other parties. This is known as the peer review process. Some concerns were raised about limited public access to Convention proceedings, some countries' lack of resources to fully participate in the review meetings, and the absence of performance metrics in the national reports to gauge progress toward meeting safety goals and objectives. Half of the parties responding to GAO's survey stated that the lack of performance metrics limited the usefulness of the Convention. Neither the Department of State nor the Nuclear Regulatory Commission (NRC) has formally proposed the adoption of performance metrics. However, NRC officials told GAO that performance metrics could be useful. In addition, the number of parties posting their national reports to IAEA's public Web site has declined since 2005. NRC and Department of State officials told GAO that the United States has always made its national report available on the Internet. However, the U.S. approach has been to lead by example rather than taking an active role in encouraging other parties to post their reports. Further, universal participation would advance achievement of the Convention's goals. Several representatives from countries who are parties to the Convention told GAO that Iran should ratify the Convention. In their view, without Iran's participation, the international community has limited or no insight on, or access to, Iran's civilian nuclear power program. Russia, which is helping Iran build the nuclear reactor at Bushehr, may condition continued assistance on Iran becoming a party to the Convention, according to Russian officials.

The parties have taken some actions to improve the Convention's implementation, and more proposals are being considered. Steps have been taken to make the process for asking questions during peer review meetings more open and to increase the amount of time available for preparing for the review meetings.

IAEA nuclear safety programs, which predate the Convention, complement the Convention's safety goals through the Technical Cooperation program, safety standards, and peer review missions. The Technical Cooperation program supports, among other things, the development of nuclear power. IAEA has established nuclear safety standards and also promotes nuclear safety through peer review missions that evaluate the operations of a member state's nuclear regulatory system and nuclear power plant operational safety.

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Abbreviations

DOE	Department of Energy
ENSREG	European Nuclear Safety Regulators Group
EU	European Union
IAEA	International Atomic Energy Agency
INPO	Institute of Nuclear Power Operations
IRRS	Integrated Regulatory Review Service
FSA	Freedom Support Act
NEA	Nuclear Energy Agency
NRC	Nuclear Regulatory Commission
NSCI	Nuclear Safety Cooperation Instrument
OSART	Operational Safety Review Team
SEED	Support for Eastern European Democracies
TACIS	Technical Assistance to the Commonwealth of Independent States
TC	Technical Cooperation
WANO	World Association of Nuclear Operators
WENRA	Western European Nuclear Regulators' Association

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GAO
Accountability * Integrity * Reliability
United States Government Accountability Office
Washington, DC 20548

April 29, 2010

The Honorable Daniel K. Akaka
Chairman
Subcommittee on Oversight of Government
Management, the Federal Workforce,
and the District of Columbia
Committee on Homeland Security and Governmental Affairs
United States Senate

Dear Mr. Chairman:

There are currently 437 civilian nuclear power reactors operating in 29 countries, generating about 14 percent of the world's electricity, and 56 more nuclear power reactors are currently under construction. The safe operation of nuclear power reactors worldwide has been a long-standing concern of the international community. In the aftermath of the Chernobyl accident, representatives of over 50 nations, including the United States, participated in the development of the Convention on Nuclear Safety (the Convention), a multilateral treaty that seeks to strengthen the safety of civilian nuclear power reactors.[1] Established in the mid-1990s, the Convention seeks to achieve its safety objectives through countries' adherence to general safety principles rather than through technical standards. Officials describe the Convention as incentive-oriented, designed to maximize the number of countries that will support and sign it, with the goal of making it acceptable and useful to countries with potentially unsafe power reactors in Eastern Europe and the countries of the former Soviet Union. According to U.S. officials, the main purpose of the Convention is to get these countries, as well as developing nations, to

[1]On April 26, 1986, the worst accident in the history of civilian nuclear power occurred at the Chernobyl nuclear power plant in Ukraine, where an explosion destroyed the core of a reactor containing approximately 200 tons of nuclear fuel. The explosion also destroyed much of the reactor building, severed the reactor's cooling pipes, and spewed hot fragments of reactor fuel from the core. The explosion and heat from the reactor core propelled radioactive material up to 6 miles high, where it was then dispersed over 60,000 square miles of land primarily in Ukraine, Belarus, and Russia. Smaller amounts of radioactive material spread over Eastern and Western Europe and Scandinavia and were even detected in the United States.

make commitments to improve their reactors and develop a safety culture.[2]

Currently, 65 countries and 1 international organization are parties to the Convention, including all countries that currently operate civilian nuclear power reactors.[3] For the purpose of this report, we refer to countries that have ratified, accepted, or approved the Convention as parties. The United States ratified the Convention in 1999.

The Convention calls on parties to, among other things, (1) establish and maintain a legislative framework and an independent regulatory body to govern the safety of nuclear installations; (2) establish procedures to ensure that technical aspects of safety, such as the siting, design, construction, and operation of nuclear power reactors, are adequately considered; (3) maintain an acceptable level of safety throughout the life of the installations by, for example, considering safety to be a priority and establishing a quality assurance program; and (4) prepare and routinely test emergency plans. The Convention does not impose sanctions when countries do not follow these safety principles.

Under the terms of the Convention, each country—regardless of whether it operates nuclear power plants or not—is required to submit a national report that identifies the measures taken to implement each of the nuclear safety obligations contained in the Convention. Obligations cover such points as siting, design, construction, and operation of civilian nuclear power installations. The parties to the Convention have also established detailed guidance to help parties prepare their national reports. The purpose of the guidance is to encourage parties to describe the steps they are taking to meet the Convention's obligations and to facilitate other parties' review of the national reports of other countries. The countries meet every 3 years in Vienna, Austria, to present their national report, address questions that may arise about the report, and assess and ask questions about the reports of other parties.[4] This is known as the peer review process, and it is considered central to the Convention's success

[2]Safety culture implies individual and organizational awareness of and commitment to the importance of safety. It also refers to the personal dedication and accountability of all individuals engaged in any activity that has a bearing on the safety of nuclear power plants.

[3]Appendix I contains a list of these countries.

[4]The Convention also requires that no more than 3 years pass between meetings held to review national reports.

because it is the means by which the parties assess the steps being taken to meet safety obligations. As part of this peer review process, countries meet in six groups composed primarily on the basis of the number of reactors that each country operates. This process ensures that the six countries with the most reactors—the United States, France, Japan, Russia, South Korea, and the United Kingdom—are never in the same group. Within this confidential group setting, all member countries have the opportunity to examine and review what each country reports it is doing to meet its nuclear safety obligations. These meetings are hosted by the International Atomic Energy Agency (IAEA), which serves as the Convention's secretariat and provides administrative support.[5] To date, four review meetings have taken place, and the fifth is scheduled for April 2011.

The Convention has taken on increased significance in recent years as countries are either expanding their existing nuclear power capacity or planning to establish new programs. In 2009, IAEA estimated that by 2030 the world's capacity for nuclear electricity production will significantly increase. Most of this increase in capacity is expected to occur in countries that have established civilian nuclear power programs, such as China, Japan, and South Korea. China, for example, has announced its intention to spend $50 billion to build 32 new nuclear plants by 2020 and currently has 21 plants under construction. Both India and Pakistan are also moving forward with plans to significantly increase their production of nuclear power, building plants that will more than double their production of nuclear energy in the next decade.

In addition, countries such as Jordan and the United Arab Emirates, which do not yet have civilian nuclear power programs, are actively moving to build the necessary regulatory infrastructure for such programs as they explore agreements with the world's leading nuclear reactor vendors. The United Arab Emirates, for example, recently signed a $20 billion agreement with a consortium of South Korean vendors to begin construction of four 1,400-megawatt nuclear power reactors in 2012. Other countries, such as Indonesia, Libya, Thailand, and Vietnam, have expressed their intent to build civilian nuclear power plants. Still others,

[5]IAEA, an independent international organization based in Vienna, Austria, that is affiliated with the United Nations, has the dual mission of promoting the peaceful uses of nuclear energy and verifying that nuclear technologies and materials intended for peaceful purposes are not diverted to weapons development efforts. IAEA had 151 member states as of March 2010.

such as Algeria, Belarus, Egypt, Nigeria, and Yemen, are considering moving forward with civilian nuclear power programs.

To assist Congress in its deliberations in the past, we identified some limitations of the Convention.[6] Specifically, we noted that (1) public access to the peer review process was unclear and (2) the effectiveness of the peer review process was uncertain because of concerns about how well the country groups formed for peer review meetings would function. We also pointed out that the Convention lacked an enforcement mechanism.

Now that the Convention has been in force for more than a decade, you asked us to evaluate the extent to which it is achieving its primary goal: promoting the safe operation of civilian nuclear power reactors worldwide. Accordingly, we assessed (1) parties' views on the perceived benefits and limitations of the Convention, (2) efforts to improve the implementation of the Convention, and (3) how IAEA programs complement the Convention's safety goals and objectives.

To assess parties' views on the perceived benefits and limitations of the Convention for improving the safety of civilian nuclear power reactors worldwide, we administered a Web-based survey—which can be viewed at GAO-10-550SP—to 64 parties to the Convention and analyzed the responses of the 32 that completed it.[7] This report does not contain all the results from the survey. To assess the potential for nonresponse bias in our survey results, we compared selected characteristics of nonresponding countries, such as (1) length of time as a party to the Convention, (2) nuclear power status and number of nuclear power plants, (3) region, (4) countries that operate Soviet-designed reactors, and (5) European Union (EU) membership, to those of the responding parties. The distribution of these characteristics among responding and nonresponding parties was well-balanced. To encourage respondents to complete the survey, we sent an e-mail reminder to each nonrespondent about 2 weeks

[6]GAO, *Nuclear Safety: Progress Toward International Agreement to Improve Reactor Safety*, GAO/RCED-93-153 (Washington, D.C.: May 14, 1993); GAO, *Nuclear Safety: Uncertainties about the Implementation and Costs of the Nuclear Safety Convention*, GAO/RCED-97-39 (Washington, D.C.: Jan. 2, 1997); and GAO, *Nuclear Safety: The Convention on Nuclear Safety*, GAO/T-RCED-99-127 (Washington, D.C.: Mar. 17, 1999).

[7]At the time we disseminated our survey in October 2009, the Convention had not yet entered into force for two other countries, Libya and the United Arab Emirates, and we did not include them in our survey.

after our initial e-mail message and followed up with additional e-mails and telephone calls. Additionally, to encourage honest and open responses, in the introduction to the survey, we pledged that we would report information in the aggregate and not report data that could identify a particular respondent. We also interviewed representatives of 17 nuclear and nonnuclear parties to the Convention, including officials from the Nuclear Regulatory Commission (NRC) and the Department of State (State) who represent the United States at the Convention. Of the 17 we interviewed, 9 completed the survey, and 8 did not. In total, we obtained the views of 40 parties to the Convention. We also analyzed various Convention-related documents from NRC and State as well as from IAEA and the EU. To assess efforts to improve the implementation of the Convention, we reviewed Convention documents and interviewed NRC and State officials who have attended Convention organizational, working group, and review meetings where such efforts have been discussed. To assess the extent to which IAEA programs complement the Convention's safety goals and objectives, we analyzed, among other things, Convention minutes of meetings and rules of procedure. We also interviewed IAEA officials, U.S. officials at the U.S. Missions in Vienna and Brussels, and the representatives of 17 parties to the Convention. To determine the cost to the United States to participate in the Convention and IAEA's costs to support the Convention for one 3-year cycle, we analyzed budget information from NRC, State, and IAEA. We also assessed the reliability of the data we obtained and interviewed knowledgeable NRC, Department of Energy (DOE), State, EU, and IAEA officials on the reliability of the data. We determined that these data were sufficiently reliable for the purposes of this report. Appendix III explains our methodology in greater detail.

We conducted this performance audit from February 2009 to April 2010, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

The Convention is one of a number of cooperative efforts by the international community to improve nuclear safety worldwide and is meant to complement these other efforts. For example, as we previously

reported, the United States and 20 other countries and international organizations contributed $1.9 billion to improve nuclear safety in countries operating Soviet-designed nuclear reactors.[8] The United States alone has spent over $770 million since the Chernobyl accident on nuclear safety assistance to Russia, Ukraine, Kazakhstan, Armenia, and several other countries through DOE and NRC programs. According to an agency official, DOE's nuclear safety assistance programs have focused on physical safety enhancements to Soviet-designed reactors, while NRC has worked to increase the capacity and stature of recipient countries' regulatory bodies to ensure the continuing operational safety of such reactors. In addition, a separate fund was established to help stabilize the damaged reactor at Chernobyl by constructing a new containment structure. As we reported, the estimated cost of this effort was $1.2 billion as of 2007, of which the United States pledged $203 million.[9] Since 1991 the EU has spent over $1.9 billion on international nuclear safety assistance. See appendix II for more information about U.S. and EU expenditures to promote international nuclear safety. These expenditures are not used to support the implementation of the Convention. Matters pertaining to U.S. financial support to the Convention are contained on page 28 of this report.

In addition to the Convention, other multilateral organizations—the Nuclear Energy Agency (NEA),[10] the Western European Nuclear Regulators' Association (WENRA),[11] the European Nuclear Safety Regulators Group (ENSREG),[12] and the EU—are making efforts to advance the safety of civilian nuclear power. All member or observer

[8]GAO, *Nuclear Safety: Concerns with the Continuing Operation of Soviet-Designed Nuclear Power Reactors*, GAO/RCED-00-97 (Washington, D.C.: Apr. 25, 2000).

[9]GAO, *Nuclear Safety: Construction of the Protective Shelter for the Chernobyl Nuclear Reactor Faces Schedule Delays, Potential Cost Increases, and Technical Uncertainties*, GAO-07-923 (Washington, D.C.: July 19, 2007).

[10]The mission of the NEA is to assist its member countries in maintaining and further developing, through international cooperation, the scientific, technological and legal bases required for the safe and economical use of nuclear energy for peaceful purposes.

[11]WENRA is an organization composed of the chief nuclear regulators of EU countries with nuclear power plants and other interested European countries. WENRA's main objectives are to facilitate the exchange of nuclear safety information and experience among regulators, develop a common approach to nuclear safety, and provide an independent capability to examine nuclear safety in affiliated countries.

[12]ENSREG is an independent, authoritative expert body composed of senior officials from national regulatory or nuclear safety authorities from all 27 member states in the EU.

countries of the NEA, WENRA, ENSREG, and the EU are also parties to the Convention. The NEA, for example, has created several specialized committees to facilitate exchanges of technical information and to organize joint research projects to improve national safety practices. WENRA works to develop common approaches to nuclear safety among the chief nuclear regulators in Europe. ENSREG, among other things, aims to maintain and continuously improve the safety of nuclear installations in the EU. In June 2009, the EU adopted a directive creating a framework for (1) maintaining and promoting the continuous improvement of nuclear safety and its regulation and (2) ensuring that EU member states provide a high level of nuclear safety to protect workers and the public against radiation from nuclear installations. This framework is based in part on IAEA safety documents and the obligations of the Convention. EU members are required to incorporate the directive into their national legislation by June 2011.

Other conventions have been established to advance international nuclear safety and are administered by IAEA's Department of Safety and Security. Two "emergency conventions" obligate parties to provide early notification of a nuclear accident and to render assistance in the event of such an accident or a radiological emergency, and two other conventions obligate parties to safely manage spent fuel and radioactive waste and to take effective action to physically protect nuclear material.

The Majority of Parties We Surveyed and Interviewed Reported That the Convention Has Strengthened Nuclear Safety Worldwide

The Convention on Nuclear Safety has played a useful role in strengthening the safety of civilian nuclear power reactors worldwide, according to most survey respondents and representatives of parties to the Convention we interviewed. In their view, efforts to improve parties' nuclear regulatory capabilities and the obligation to prepare a national report every 3 years are among the most useful contributions the Convention has made to increased nuclear safety. In addition, parties responded that the Convention has promoted opportunities for communication and promoted sharing of useful technical information about nuclear safety. According to most parties we surveyed and interviewed, maintaining confidentiality about the safety issues discussed was key to the success of the peer review process. Despite the Convention's positive impacts on nuclear safety, some parties have concerns about limited public access to the Convention's proceedings, some parties' limited resources to fully participate in Convention activities, and the absence of metrics to assess progress toward meeting safety goals.

The Convention Has Strengthened Nuclear Safety by Promoting Improved Regulatory Capabilities and Requiring National Reports

Nearly all parties responding to our survey reported that the Convention has been very useful or somewhat useful in helping to strengthen nuclear safety both in their country and worldwide. In all, these parties operate 404—or more than 92 percent—of the world's 437 operating civilian nuclear power reactors. In addition, we also interviewed representatives from IAEA member states, nuclear regulatory organizations, and the EU (17 in all) who expressed similar views about the Convention. Survey respondents and parties we interviewed identified several Convention obligations as having helped strengthen the safety of civilian nuclear power programs. The obligations cited most frequently were (1) establishing an effective legislative and regulatory framework (laws and regulations) and a strong, effective, and independent nuclear regulatory body[13] and (2) preparing a national report every 3 years that describes the measures the country has taken to achieve the Convention's safety goals.

In addition, some of the 17 parties we interviewed stated that the Convention has contributed to and promoted the independence and effectiveness of their country's nuclear regulatory bodies. For example, an Austrian nuclear regulator told us he thought that this promotion of effective regulatory capacity is one of the Convention's greatest contributions to international nuclear safety. Moreover, representatives of China and Pakistan told us that the Convention was influential in leading their countries to increase the independence and effectiveness of their nuclear regulators. NRC officials expressed a similar view, noting that parties to the Convention have taken many steps to develop more effective laws and regulations and increase the capacities and independence of their nuclear regulators.

The requirement to prepare a national report describing the steps parties have taken to meet the Convention's nuclear safety obligations also plays a large role in strengthening the safety of civilian nuclear power programs, according to survey respondents. Almost all survey respondents indicated that the presentation of national reports in country groups was a very or somewhat effective way for sharing best safety practices. Most survey respondents reported that preparing the national report has either greatly or somewhat improved opportunities to examine their country's civilian nuclear power program. A number of parties we interviewed also said that

[13]According to NRC, a critical element of the U.S. international safety assistance administered by NRC since the early 1990s has been to promote the independence and effectiveness of countries' nuclear regulatory authorities.

this national report has been helpful in strengthening nuclear safety worldwide. NRC officials told us one effect of a national report is that nuclear regulators and plant operators are forced to think about even routine safety procedures and policies because the reports will be scrutinized by their peers. For example, as a result of questions raised by other parties on the national report prepared for the 2008 review meeting, the United States agreed to discuss with state governments and NRC licensees the benefits and costs of adopting stricter standards for protecting nuclear power plant workers and the public from exposure to radiation.

In our survey, we also asked some additional questions about parties' perceptions about how the peer review process affected the preparation of the 2008 reports. Specifically, among other things, we asked how likely parties thought reports were to include (1) comprehensive, detailed descriptions of measures taken to strengthen safety; (2) evidence that safety issues discussed in one review meeting were revisited in the next meeting and that the actions taken to address the issues were discussed in sufficient detail for parties to evaluate whether the safety concerns had been adequately addressed; and (3) sufficient technical detail to understand specific safety concerns. In each case, most survey respondents indicated that they thought reports were very or somewhat likely to include such information. We also asked how effectively the peer review process encouraged parties to provide detailed information in their 2008 national reports. Overall, most survey respondents indicated that the peer review process was very or somewhat likely to encourage parties to include detailed, comprehensive, and accurate information in their national reports.

According to Parties We Surveyed and Interviewed, the Convention Has Also Improved Communication and Promoted Sharing of Technical Information about Nuclear Safety Issues

According to both survey respondents and parties we interviewed, the Convention has increased communication and encouraged the sharing of technical information to improve nuclear safety worldwide. There was wide agreement among the survey respondents that the Convention has improved communication among nuclear regulators; nuclear power plant operators; and other national organizations involved in the civilian nuclear power industry, such as, in the case of the United States, the Institute of Nuclear Power Operations (INPO).[14] More than half of the respondents to our survey indicated the Convention had "greatly" improved communication about safety issues affecting civilian nuclear power reactors. Most respondents to our survey agreed that the Convention had improved opportunities for sharing technical solutions to improve safety, such as reactor design improvements or fire safety enhancements. Russian and Ukrainian officials we spoke to provided examples of how the Convention has led to the sharing of nuclear safety information. Following are some examples:

- Russian nuclear regulatory officials told us that the Convention has played a useful role in promoting technical solutions to problems shared by countries operating similar types of reactors. Specifically, Russia and Finland have been developing a system to improve communication between their plant operators based on discussions that began with contacts made at Convention review meetings.
- A Ukrainian official told us his country's participation in the Convention has increased other countries' awareness of the safety problems confronting Ukraine's aging Soviet-designed nuclear reactors. He further noted that the Convention is one of many forums that Ukraine participates in that supports the strengthening of nuclear safety.

Confidentiality among the Parties to the Convention Has Been Key to the Success of the Peer Review Process

According to most parties we surveyed and interviewed, maintaining the confidentiality of information obtained during the Convention's meetings is critical to the peer review process. Most party representatives we spoke with agree that confidentiality should be preserved. For example, when asked if the public should be allowed to directly observe review meetings—and thereby gain direct access to a party's national report and any concerns or questions raised about it by other parties—approximately two-thirds of survey respondents said the public probably or definitely

[14]INPO is a private organization established by American nuclear power plant operators to promote the safe and reliable operation of nuclear power plants.

should not be given such access. Some parties we interviewed told us that, as a result of the confidentiality of the peer review process, their country's national reports have become more comprehensive. Three-quarters of survey respondents indicated that the quality of national reports prepared for review meetings had improved in the past 10 years.

Concerns Exist about Some Aspects of the Convention's Implementation

While the parties' perceptions of the value of the Convention are generally very positive, some concerns were raised about the lack of information provided to the general public about the Convention's proceedings, some countries' lack of resources to fully participate in the review meetings, and the absence of performance metrics. In addition, parties emphasize that without the participation of all countries with nuclear power programs in the Convention, the international community will have limited access and insight into countries'—such as Iran—civilian nuclear power programs.

Limited Public Access to the Convention's Proceedings

Notwithstanding the general agreement that preserving the confidentiality of the peer review process is important, most parties responding to our survey would like to see more public access to the results of review meetings. We have testified that, according to some experts familiar with international agreements that rely primarily on peer review, the public dissemination of information about parties' progress in meeting the terms of the Convention can play a key role in influencing compliance with the Convention's nuclear safety obligations.[15] Currently, only summary information of the peer review meeting is released to the public. This summary provides a brief introduction containing background on the Convention, an overview of the review process, and a synopsis of what the parties agree were the most important points discussed at the meeting. For example, the public report on the fourth review meeting, which took place in 2008, briefly summarizes the discussions of the parties on many topics discussed at the meeting, including parties' efforts to meet the challenges of maintaining adequate staffing and competence levels and ongoing concerns about the degree of independence of some parties' regulatory bodies. Any further details about any party's national report or questions and answers on the report remain confidential unless the party voluntarily releases it.

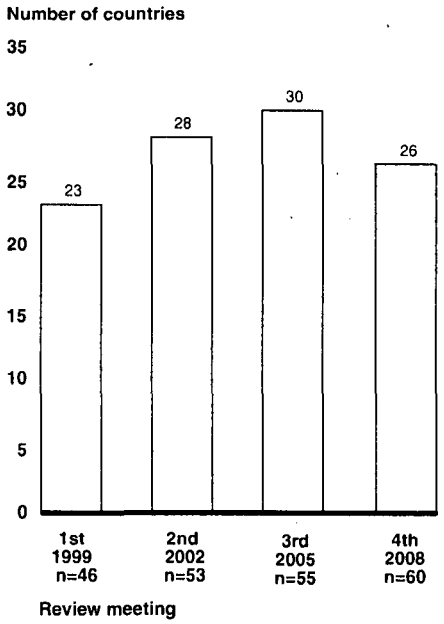
French officials in particular have expressed an especially strong view regarding public access to information about the Convention's

[15]GAO/T-RCED-99-127.

proceedings. In July 2009, in written responses to our questions, French officials stated that parties to the Convention should consider making the opening and closing sessions of review meetings open to the media. Further, a Norwegian official we spoke with suggested that some nongovernmental organizations should be allowed to attend review meetings as observers.

One way that some parties have attempted to increase public access to the Convention's proceedings is by posting their national reports and answers to written questions received on their national reports to IAEA's public Web site. While the number of parties to the Convention making their national reports available in this way has increased since the first review meeting was held in 1999, it has not increased significantly in several years and actually declined between the third review meeting in 2005 and the fourth review meeting in 2008. Specifically, 26 parties—about 43 percent of the 60 parties for whom the Convention had come into force by the due date for submitting the national report—posted their national report prepared for the 2008 review meeting. This was down from the 30 parties—or about 55 percent of parties to the Convention— posting reports prepared for the 2005 review meeting. In fact, eight countries that posted their national reports prepared for the 2005 review meeting—Argentina, Belgium, Bulgaria, Ireland, Japan, Latvia, the Slovak Republic, and South Korea—did not do so for the report prepared for the 2008 review meeting. However, three parties posted their national reports for the first time in 2008—Estonia and India, which had recently become parties to the Convention, and Pakistan, which became a party in the 1990s. Figure 1 shows the number of countries that posted their national reports to the IAEA public Web site for the four review meetings held thus far.

Figure 1: Number of Countries Posting National Reports on IAEA's Public Web Site, 1999-2008



Source: GAO analysis based on IAEA data.

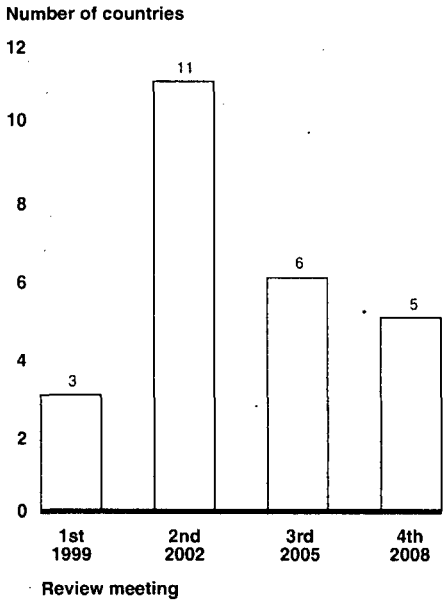
Note: This figure, with n = the number of parties that were obligated to submit a national report for that review meeting, includes national reports from all parties to the Convention that submitted them, regardless of their nuclear power status. All parties to the Convention are required to submit a national report for peer review. Parties that do not operate nuclear power plants, such as Austria, submit reports focusing, among other things, on the steps they have taken to prepare and test emergency plans to deal with an accident in a neighboring country that operate a nuclear power plant. Other nonnuclear countries may be considering establishing nuclear power programs and it is important for them to provide information in their national reports about the steps they are taking to meet the Convention's obligations including, for example, reactor design and siting requirements.

Officials from NRC and State told us that the United States has always made its national report available on the Internet. However, the U.S. approach has been to lead by example rather than taking an active role in encouraging other parties to the Convention to post their national reports to the Internet. IAEA officials told us it was important for parties to make as much information about their civilian nuclear power programs accessible as possible, but that it was for each party to determine how much information should be made public and how much should remain confidential. In addition to its public Web site, IAEA also maintains a secure, members-only Web site where parties are encouraged to post their national reports. According to NRC officials, parties have improved their participation in posting their reports to this Web site. Parties posted 17, 22, 57, and 61 national reports in 1999, 2002, 2005, and 2008, respectively.

The overwhelming majority of parties have never posted their answers to written questions about their nuclear power programs to the IAEA public Web site. The written questions and answers provide a great deal of information about each country's nuclear power program. According to an IAEA official, over 4,000 questions were prepared for the 2008 review meeting, and almost all were answered. As figure 2 shows, 3 countries posted these questions and answers to the IAEA public Web site for the first review meeting in 1999. While 11 countries posted questions and their answers to the IAEA's public Web site for the second review meeting, including the United States, 6 did so for the third review meeting, and 5 did so for the 2008 meeting. Only Slovenia and Switzerland—both nuclear power countries—have posted these questions and answers for all four meetings; the United Kingdom and Canada— the sixth and eighth largest nuclear power countries as measured by the number of operating reactors, respectively—have done so since 2002. The United States had not posted its answers to written questions received on its national report to IAEA's public Web site since 2002, although NRC officials stated that they have always posted them to the NRC Web site. We also found that other nuclear power countries such as Finland, Germany, Japan, and Spain have not posted their answers to written questions to the IAEA's public Web site since 2002, either. In 2008, Luxembourg became the first, and thus far only, nonnuclear party to post the answers to questions it received on its national report. Luxembourg's responses focused primarily on how it would respond to a nuclear accident in a neighboring country.

We met with NRC officials on March 15, 2010, to discuss an early draft of this report. At that time, we informed them that their answers to written questions on U.S. national reports were not available on IAEA's public Web site. NRC officials acknowledged that these responses were not readily accessible and said they would take steps to post them. On March 17, 2010, NRC informed us of the availability of their responses, and we verified that they were now on IAEA's public Web site.

Figure 2: Number of Countries Posting Responses to Questions Received on Their National Reports on IAEA's Public Web Site, 1999-2008



Source: GAO analysis based on IAEA data.

Lack of Resources to Fully Participate in the Convention's Review Meetings

Some respondents to our survey reported the lack of resources to fully participate in the review meetings. Specifically, almost half of the survey respondents—ranging from parties with well-established civilian nuclear power programs to those with no nuclear power programs—report that a lack of resources has limited their country's ability to develop their national report. As we noted in our March 1999 testimony,[16] NRC officials anticipated this lack of staff resources and/or travel money could be a problem. We reported that NRC officials told us that, because of differences in parties' nuclear safety programs and available resources, they anticipated unevenness in the quality and detail of some national reports. In addition, half of the parties responding to our survey reported that a lack of resources has limited their ability to attend review meetings, and more than three-quarters indicated that a lack of resources has inhibited their ability to send representatives to all of the country group meetings. According to NRC officials, this is important because the country groups meet simultaneously, and it is in these meetings where the national reports are presented and questions about them are addressed.

[16]GAO/T-RCED-99-127.

Not being able to attend country group meetings reduces opportunities to learn from other parties' nuclear safety experiences. In addition, NRC officials recently told us that since much of the peer review of national reports can occur in the 7 months before the review meeting, limited resources may reduce the ability of some parties to take full advantage of this opportunity. That is, according to NRC officials, some countries do not have the staff resources to devote to preparing for review meetings by reading national reports, formulating and submitting written questions, and reviewing the parties' written responses to the written questions.

Lack of Performance Metrics to Gauge Progress in Strengthening Safety

The Convention does not include performance metrics to gauge its impact on improving safety. As a result, it provides no systematic way to measure where and how progress in improving safety in each country has been made. During the course of this review, we asked parties if the lack of performance metrics limited the usefulness of the Convention. Half the parties responding to our survey indicated that it did. Performance indicators and benchmarks are currently being used to track safety in civilian nuclear power plants that could be adapted to help countries enhance safety. For example, the World Association of Nuclear Operators (WANO)[17] publishes quantitative indicators of nuclear plant performance for 11 key areas, including industrial safety accidents and unplanned automatic shutdowns of nuclear power plants. Although the Convention itself lacks performance metrics, one-quarter of parties responding to our survey reported that they themselves measure progress toward Convention goals using performance metrics—specifically, in some cases, by comparing their activities with the results of IAEA safety review missions to countries that request them and actions taken in response to questions and comments from other parties at Convention review meetings.

Neither State nor NRC has formally proposed the adoption of performance metrics. However, NRC officials told us that performance metrics could play a useful role in helping parties measure their progress toward meeting safety obligations and that they could be introduced through a modification to the rules and procedures governing the Convention. Specifically, Article 22 of the Convention provides for the preparation of

[17]WANO was established in 1989 to improve nuclear power plant safety worldwide. Every organization in the world that operates a nuclear electricity generating plant is a member of WANO. Members work together to improve nuclear safety through power plant assessments, benchmarks, mutual support, the sharing of information, and the promoting of best practices.

guidelines by the parties regarding the form and structure of their national reports. The guidelines can be revised by consensus at review meetings. The guidelines provide only suggestions for drafting the reports; parties remain free to structure their reports as they see fit. However, the suggestions provided are very detailed and touch upon more than just form and structure. For example, the guidelines provide detailed suggestions on the content of the national reports. They also contain an appendix detailing voluntary practices that parties are encouraged to engage in regarding the public availability of their national reports.

Universal Participation Would Advance Achievement of the Convention's Goals

The Convention is designed to maximize the number of countries that will participate in order to achieve its goal of promoting the safe operation of civilian nuclear power reactors worldwide; however, it is voluntary in nature. By and large, this approach has worked. Since 2009, three countries that are considering developing civilian nuclear power programs—Libya, Jordan, and the United Arab Emirates—have become parties to the Convention. Two others—Kazakhstan and Saudi Arabia—approved the Convention in 2010 and are expected to become parties to it later this year. An overwhelming majority of the parties we surveyed and interviewed said that all countries should be encouraged to join as soon as possible after making the decision to consider developing a nuclear power program. At present, all countries with such programs—except Iran—are parties to the Convention. Several parties we interviewed told us that Iran, which is on the verge of commissioning civilian nuclear power reactors, should ratify the Convention in order to benefit from the safety expertise that participation provides. In their view, without Iran's participation in the Convention, the international community has limited or no insight on, or access to, how Iran is developing, operating, and maintaining its burgeoning civilian nuclear power program. Russian officials with whom we spoke agreed that greater international access to Iran's civilian nuclear power program is needed and that the Convention could play a role in providing that access. Russia is helping Iran build the civilian nuclear power reactor at Bushehr, which is expected to be commissioned in the near future. Russian Ministry of Foreign Affairs officials told us that Russia's continued assistance to Iran's civilian nuclear program may be conditioned on Iran's becoming a party to the Convention.

The Convention Is Not a Mechanism for Shutting Down Unsafe Reactors

The Convention does not require that unsafe reactors be closed down. As noted in our 1999 testimony,[18] the Convention neither provides sanctions for noncompliance with any of its safety obligations nor does it require the closing of any unsafe nuclear reactors. However, more than 13 years after the Convention came into force, Russia continues to operate 11 Chernobyl-style RBMK reactors.[19] These reactors pose the highest risk, according to Western safety experts, because of their inherent design deficiencies, including their lack of a containment structure. The containment structure, generally a steel-lined concrete dome, serves as the ultimate barrier to the release of radioactive material in the event of a severe accident. Russian nuclear regulators told us that adequate safety upgrades have been made to all 11 RBMK reactors and that they will continue to operate for the foreseeable future. We also discussed the matter of shutdown of Soviet-designed reactors with EU officials, who told us that the Convention was never intended to be a mechanism for closing unsafe Soviet-designed reactors. The European Union has used a different strategy to accomplish shutdown of the unsafe nuclear reactors in its member countries: making EU membership contingent upon the closure of these reactors. As a result, all eight RBMK and first-generation VVER 440 Model 230 reactors in Bulgaria, Lithuania, and Slovakia have been permanently shut down in order for these countries to obtain EU membership.[20]

According to NRC officials, as is the case in other international law on reactor safety, under the Convention each country is responsible for regulating the safety of its own reactors. In addition, NRC noted that the Convention relies on the peer review process, that it cannot obligate countries to comply with safety standards, and that it does not provide for sanctions such as the closing of any unsafe nuclear power plants. State expressed a similar view. State pointed out that the Convention was never

[18]GAO/T-RCED-99-127.

[19]The Soviet-designed RBMK (reactor bolshoy moshchnosty kanalny, or in English, high-power channel reactor) is a pressurized water reactor that uses ordinary water as its coolant and solid graphite (a form of carbon), a very pure form of the same graphite found in pencils, as its moderator. These reactors were favored by the former Soviet Union primarily because, in addition to producing both power (electricity and heat) and plutonium, they were able to be refueled while the reactor was still running. This ability was important to the Soviet Union's national security.

[20]Bulgaria and Slovakia operated a different type of Soviet-designed reactor: the VVER-440-230. The VVER-440-230 is also an inherently unsafe reactor design, according to nuclear safety experts.

meant to have the authority to require that unsafe reactors be shut down. According to State, it is the position of IAEA and its member states that each country operating nuclear power plants should have its own nuclear regulatory agency that would have the authority to shut down plants.

Steps Have Been Taken to Improve the Convention's Peer Review Process, and Additional Proposals Are Being Considered

The parties to the Convention generally agree that it would be difficult to amend the Convention. Consequently, several parties have taken the lead in making changes to the Convention's rules and procedures. To date, some steps have been taken to improve the Convention's peer review process, and parties are considering several additional proposals.

Changes Have Been Adopted to Improve the Peer Review Process

Several parties have focused on improving the workings of the Convention's peer review process. The most significant change they have made, in our view, is to allow the parties to more freely ask questions about each others' national reports. NRC expressed concern in our January 1997 report about the rules governing how parties' country group assignments affect the parties' ability to discuss and seek clarification about other parties' national reports at review meetings.[21] According to NRC officials, in the past, parties assigned to a particular country group could ask questions about other parties' nuclear programs that were assigned to that group during the question-and-answer session following the presentation of a national report. However, parties that were not assigned to that country group could not ask questions unless they submitted a written question several months in advance of the review meeting. This restrictive practice began to change during the 2005 review meeting, when at least one country group allowed parties that were not assigned to it to ask questions. At the next review meeting in 2008, according to NRC officials who attended both meetings, no restrictions were placed on any parties' ability to ask questions about the national reports of any other parties. An NRC official told us that this change has made the process more open and accessible to all of the parties.

Another notable change to the rules and procedures of the peer review process is the recent decision to move up the date for the organizational

[21] GAO/RCED-97-39.

meeting and the selection of officers for the upcoming review meeting by almost a year and to advance by a few weeks the deadlines for submitting national reports and written questions for the peer review process. The purposes of the organizational meeting, among other things, are to elect the officers for the upcoming review meeting,[22] adopt a provisional agenda for the meeting, assign parties to particular country groups, and identify which proposals for enhancing the peer review process should be considered at the upcoming meeting. Previously, organizational meetings were held about 7 months before the upcoming review meeting. However, the parties at the 2008 review meeting agreed to hold the organizational meeting for the 2011 review meeting in September 2009—19 months in advance. According to NRC officials, the purpose of the scheduling change was to put officers in place earlier to give them more time to plan for the next meeting and to promote greater continuity from one meeting to the next. Moving up the deadlines for submitting national reports and written questions for peer review is intended to give countries more time to both review the national reports of other parties and answer any written questions submitted.

Parties Are Considering Additional Proposals to Improve the Implementation of the Convention

Additional proposals to improve the implementation of the Convention are currently under consideration by the parties. Specifically, these proposals include (1) allocating more country group meeting time to discuss, among other things, the national reports of countries with emerging nuclear programs; (2) expediting the process for calling a special meeting between review meetings to discuss urgent safety issues; and (3) changing the process for assigning parties to country groups.

Allocating More Time to Countries with Emerging Nuclear Programs

Some parties have suggested the peer review process might be more effective if more review meeting time were allocated to discussing the national reports of countries with emerging nuclear power programs or topics of general concern and less time presenting and discussing the national reports of parties with well-established nuclear programs. For example, according to NRC officials, the United Arab Emirates, which has only recently become a party to the Convention, is rapidly moving to establish its nuclear regulatory infrastructure and is soon to begin construction of several nuclear power reactors. Because its civilian

[22]Officers—a president and two vice presidents (one each from a nuclear power country and a nonnuclear country)—are elected for the upcoming review meeting at the organizational meeting. In addition, four officers are elected for each of the six country groups: a chairperson, vice-chairperson, rapporteur, and coordinator.

nuclear power program is so new, the United Arab Emirates could benefit from more time to present its national report during the peer review process. NRC officials told us that the United States, in contrast, does not need as much time as it is allocated to present its national report. Similarly, according to a senior NRC official, the United States has proposed that more time at review meetings might also be allocated to discuss topics of general concern—such as the safety challenges of dealing with aging reactors or the challenges parties face in maintaining adequate staffing and competence levels in both the regulatory bodies and at nuclear power plants.

Expediting the Process for Calling Special Meetings

Another proposal to be considered would create a more efficient process for calling a meeting to discuss topical or urgent nuclear safety issues that parties feel cannot wait until the next review meeting. Currently, in order to have such a meeting, a majority of parties are required to support the call for a meeting. One way of streamlining this process, according to an NRC official, would be to empower the officers elected for the most recent or upcoming review meeting to call a special meeting. An urgent issue might be, for example, a nuclear power plant accident. If such an accident occurred, parties might wish to convene a special meeting to discuss the causes of the accident and what might be done to avoid a similar accident.

Changing the Process for Assigning Parties to Country Groups

Finally, to promote greater variation in the composition of country groups from meeting to meeting, amending the method for assigning countries to the six country groups is being considered.[23] Specifically, the experience of the first four review meetings has been that the country groups have remained relatively static—that is, there has been little variation in the membership of each group among the nuclear power countries. According to NRC officials, it would be useful if the composition of the groups were more varied from meeting to meeting. While each group would still be anchored by a country with a large number of operating civilian nuclear power reactors, the remainder of the group would consist of a more varied mix of countries. This type of mix would provide greater opportunities for more information sharing among a more diverse group of countries. An

[23]Presently, NRC officials told us that parties are assigned to one of six country groups according to their number of operating civilian nuclear power reactors. For example, as the party with the most reactors, the United States is assigned to group 1; France, with the second largest number of reactors, is assigned to group 2; and Japan, with the third largest number, is assigned to group 3. This process continues until all the countries with operating civilian nuclear power reactors are assigned to country groups. Nonnuclear countries are assigned to each of the six groups on a random basis.

NRC official told us that many parties are generally in favor of some adjustment to the existing process but that there is not yet sufficient agreement on how to accomplish this change.

IAEA's Assistance Programs to Member States Complement the Convention's Safety Goals and Objectives

IAEA has a long history of serving as a technical advisor to member states to promote the safe operation of nuclear power plants. Although this role predates the establishment of the Convention, and regulating nuclear safety is a national responsibility, the Convention complements the role the agency plays in these matters. IAEA promotes the Convention's nuclear safety goals and objectives largely through its Technical Cooperation (TC) Program, safety standards, and peer review missions, which together help countries improve their nuclear regulatory bodies and the safety performance of their civilian nuclear power plants. Most survey respondents reported that they found IAEA effective in serving as a technical advisor. In addition, almost all parties responding to our survey consider IAEA to be effective in its role as secretariat to the Convention.

IAEA's Technical Cooperation Program, Safety Standards, and Peer Review Missions Play an Important and Growing Role in Promoting Nuclear Safety Worldwide

IAEA provides assistance to its member states to promote peaceful uses of nuclear energy in several ways, including providing technical cooperation, establishing safety standards, and conducting advisory and peer review missions. The importance of its role in providing this type of assistance was corroborated by our survey results. A majority of survey respondents reported that IAEA was either very effective or somewhat effective in serving as a technical advisor to countries requesting assistance to improve civilian nuclear power safety. IAEA's TC program supports, among other things, nuclear safety and the development of nuclear power.[24] For the 2009-2011 activities under the TC program, nuclear safety remains one of the top three priorities for IAEA member states. IAEA currently conducts 551 TC projects in 115 countries and territories, and program activities are tailored to the needs of each region. Specific TC projects have included activities to extend the operating life of nuclear power plants and establishing safety culture in nuclear facilities. TC projects that support member states considering or developing nuclear power also include strengthening nuclear regulatory authorities and preparing an emergency plan for a nuclear power plant. In 2007, IAEA

[24]GAO, *Nuclear Nonproliferation: Strengthened Oversight Needed to Address Proliferation and Management Challenges in IAEA's Technical Cooperation Program*, GAO-09-275 (Washington, D.C.: Mar. 5, 2009).

disbursed approximately $5.6 million to support the safety of civilian nuclear installations worldwide through the TC program. In addition to its TC program budget, IAEA plans to spend approximately $15.1 million in 2010 on other efforts to promote nuclear safety, such as strengthening countries' abilities to respond to nuclear incidents and emergencies and to assess the safety of the siting and design of nuclear installations. The role and importance of IAEA in promoting nuclear safety will likely grow if the cost of fossil fuels and the threat of climate change spur a nuclear renaissance, as an independent commission assessing the role of IAEA to 2020 and beyond reported recently.[25] According to this independent commission, this growing role may involve (1) leading an international effort to establish a global nuclear safety network, (2) helping countries with emerging nuclear power programs put in place the infrastructure needed to develop nuclear energy safely, and (3) ensuring that critical safety knowledge is widely shared among IAEA member states.

In addition, IAEA has established safety standards that provide a framework for fundamental safety principles, requirements, and guidance for member states. The standards, which reflect international consensus, cover a wide range of topics, including nuclear power plant design and operation, site evaluation, and emergency preparedness and response. Committees of senior experts from IAEA member states use an open and transparent process to develop the standards and any subsequent revisions. The guidelines governing the drafting of national reports state that IAEA safety standards can give valuable guidance on how to meet the Convention's safety obligations.

IAEA also promotes nuclear safety through advisory and voluntary peer review missions—the most prominent are Integrated Regulatory Review Service (IRRS) missions and Operational Safety Review Team (OSART) missions. These missions evaluate the operations of a member state's nuclear regulatory system and civilian nuclear power plant operational safety, respectively. IRRS missions assess the safety practices of the requesting country through an examination of its regulatory framework and organization and compare the country's practices with IAEA safety standards. Since 1992, IAEA has conducted 44 IRRS missions in 26 countries, with 15 of these missions taking place in countries that have

[25]"Reinforcing the Global Nuclear Order for Peace and Prosperity: The Role of the IAEA to 2020 and Beyond," prepared by an independent commission at the request of the Director General of the IAEA (May 2008).

operated—and in some cases continue to operate—Soviet-designed reactors. Table 1 shows the number of IRRS missions that member countries had hosted through 2009. The United States has sent approximately 20 experts on IRRS missions and has agreed to host an IRRS mission in October 2010.

Table 1: Number of IRRS Missions by Country, 1992 through 2009

Country	Number of IRRS missions[a]
Armenia	2
Australia	1
Bulgaria	2
Canada	1
China	2
Czech Republic	2
Finland	2
France	2
Germany	1
Hungary	2
Indonesia	1
Japan	2
Lithuania	1
Malaysia	2
Mexico	2
Pakistan	1
Peru	1
Romania	4
Russia	1
Slovakia	2
Slovenia	1
Spain	1
Switzerland	2
Ukraine	3
United Kingdom	2
Vietnam	1
Total	**44**

Source: GAO analysis of IAEA data.

[a]IRRS missions were preceded by a similar program from 1992-2004 called International Regulatory Review Team missions. This table combines numbers for both types of missions.

Some parties that responded to our survey reported that they found IRRS and OSART missions effective at improving civilian nuclear power safety. In addition, according to the summary report of the Convention's fourth meeting in 2008, many parties reported that they had positive experiences with IRRS and OSART missions, and parties who had not already hosted one of these missions were encouraged to do so. In February and March 2010, IAEA conducted an IRRS mission to Iran, which included a site visit to the nearly completed Bushehr nuclear power plant. IAEA recommended, among other things, that Iran join the Convention.

According to a senior Swedish official who was involved in drafting the Convention, these missions are increasingly being used to measure the safety standards of parties to the Convention. Parties face peer pressure to submit to these voluntary missions, as they provide a way for a country to show its commitment to enhancing safety. For example, ENSREG has promoted the use of IRRS missions by EU countries. Describing the missions as "well established and well respected," ENSREG has encouraged all EU member states to participate in one to obtain advice on improvements and to learn from the best practices of others.

IAEA also manages the OSART missions through which teams of experts drawn from IAEA member countries—including the United States, which has sent over 100 experts on missions—review operational safety at specific nuclear power plants. IAEA has conducted over 150 OSART missions in 32 countries since 1983, and has 9 more scheduled through the end of 2011. Table 2 shows the number of OSART missions that member countries had hosted through 2009.

Table 2: Number of OSART Missions by Country, 1983 through 2009

Country	Number of OSART missions
Argentina	1
Belgium	1
Brazil	5
Bulgaria	6
Canada	3
China	10
Czech Republic	8
Finland	3

Country	Number of OSART missions
France	21
Germany	6
Hungary	2
Italy	2
Japan	5
Kazakhstan	1
Korea, Republic of	6
Lithuania	2
Mexico	4
Netherlands	3
Pakistan	5
Philippines	2
Poland	1
Romania	3
Russia	6
Slovakia	5
Slovenia	3
South Africa	3
Spain	5
Sweden	6
Switzerland	4
Ukraine	14
United Kingdom	3
United States	6
Total	**155**

Source: GAO analysis of IAEA data.

As table 2 shows, the 2 countries that have hosted the most OSART missions are France and Ukraine, 21 and 14, respectively. Combined, those 2 countries have 73 reactors. China and the Czech Republic have hosted the second most missions, 10 and 8, respectively. These countries have a combined total of 17 operating reactors. Japan, which has 54 reactors, has hosted 5 OSART missions. Russia, which has 32 operating reactors, has hosted 6, and the United States, which has 104 operating reactors, has also hosted 6 missions. The only countries with operating civilian nuclear power programs that have not hosted OSART missions are Armenia and India, which operate 1 and 18 reactors, respectively.

While recommendations that result from safety review services such as IRRS and OSART missions are not mandates, IAEA officials told us that the agency nevertheless sees a high rate of implementation of those recommendations. IAEA also makes available on its public Web site a compilation of best practices learned from recent OSART missions, as well as the mission reports as authorized by the member states. This compilation serves to help member states improve the operational safety of their power plants and includes emergency plans and preparedness, training, and maintenance.

Finally, IAEA also promotes civilian nuclear safety through other means. For example, IAEA offers additional review services to member states by focusing on issues such as siting, seismic safety, research reactor safety, fuel cycle facilities' safety, power plant accident management, and safety culture assessments. IAEA also promotes education and training in nuclear safety through Web-based courses, electronic textbooks, and workshops. This training covers topics such as basic safety concepts, regulatory control of nuclear power plants, and instruction on IAEA safety standards. Much of this information is available to the public to download from IAEA's Web site. One survey respondent from Eastern Europe commented that the training courses and workshops had contributed significantly to the promotion of high safety standards and best practices. Moreover, IAEA regularly holds conferences and symposia on issues related to nuclear safety, with some event summaries available online. Recent topics have included promoting safety education and training for countries with new or expanding nuclear programs, ensuring safety for sustainable nuclear development, and managing nuclear power plant life.

IAEA Is Effective as the Convention's Secretariat, according to Almost All Survey Respondents and Parties We Interviewed

Almost all parties responding to our survey and parties we interviewed reported that IAEA effectively carries out its role as secretariat as outlined in the Convention. In this capacity, IAEA hosts the review meetings in Vienna, Austria; prepares documents; and provides translation and interpretation services. There was widespread agreement among the respondents that the agency is effective in convening, preparing, and servicing the meetings and at transmitting information received or prepared in accordance with the provisions of the Convention.

Some survey respondents and parties we interviewed called for more IAEA support during the Convention's review meetings in such areas as more translation services for all country group sessions and more administrative assistance for parties to the Convention. The Convention permits IAEA to provide other services in support of the review meetings,

if the parties reach consensus. Finally, some survey respondents reported that IAEA should play a more active role in the following areas:

- helping prepare national reports,
- providing other assistance to help prepare for the next review meeting,
- providing other technical support to improve safety, and
- helping address concerns about a country's civilian nuclear power program.

IAEA estimates its costs to support the last review meeting in 2008 at nearly $118,000 and expects to spend approximately $130,000 for the fifth review meeting scheduled for April 2011. The costs associated with the review meetings are modest for the U.S. government as well. NRC and State spent approximately $725,000 preparing for and participating in the 2008 review meeting and estimate they will spend $825,000 for the next review meeting.

Conclusions

The Convention plays an important role in strengthening nuclear safety and enjoys broad support among the parties we surveyed and interviewed. Support for the Convention continues to grow as evidenced by the increasing number of countries that have joined it, particularly those with emerging nuclear programs, such as the United Arab Emirates. Many parties to the Convention told us that all countries that are considering embarking on a nuclear power program—or currently operating civilian nuclear power reactors— should be encouraged to join the Convention, including Iran.

We are encouraged that the parties have taken steps to improve the Convention's peer review process. However, the Convention does not require parties to include performance metrics in their national reports, which makes it difficult to gauge its impact on improving nuclear safety. Without such metrics there is no systematic way to measure where and how progress has been made in improving safety in each country that operates civilian nuclear power reactors. In addition, more than half of the survey respondents reported that the lack of metrics hampers the Convention's usefulness, and NRC has noted that it would be feasible to add performance metrics into the guidelines that implement that national report process called for by the Convention. There are already international organizations that use such indicators to track nuclear safety

improvements and which could perhaps be incorporated into the guidelines as voluntary practices that parties are encouraged to implement. Further, public awareness about parties' progress toward meeting the terms of the Convention can play a key role in influencing compliance with the Convention's nuclear safety obligations. However, to date the public has had limited access to parties' national reports and written answers to questions about their nuclear power programs. More than half of the national reports prepared for the 2008 review meeting are not posted to IAEA's public Web site, and even fewer parties make their answers to written questions received on their national reports available on IAEA's public Web site. Putting this information on the Web site could increase public awareness of the nuclear safety issues facing countries and how they are addressing them.

Recommendations for Executive Action

To further enhance the usefulness of the Convention in promoting the safety of civilian nuclear power programs worldwide, we recommend that the Secretary of State, in coordination with the Chairman of the Nuclear Regulatory Commission, work with other parties to the Convention to take the following three actions:

- Encourage parties to include performance metrics in national reports to better track safety in civilian nuclear power plants and help countries more systematically measure where and how they have made progress in improving safety.
- Expand efforts to increase the number of parties' national reports made available to the public by posting them to IAEA's public Web site.
- Promote greater public dissemination of parties' written answers to questions about their nuclear power programs by posting this information to IAEA's public Web site.

Agency Comments and Our Evaluation

We provided a draft of this report to NRC and State for comment. We also provided IAEA with a detailed summary of facts contained in the draft report. State and NRC provided written comments on the draft report, which are presented in appendixes IV and V, respectively. IAEA, State, and NRC also provided technical comments, which we incorporated as appropriate.

NRC generally agreed with our report but did not specifically agree or disagree with the report's recommendations, and State generally agreed

with the recommendations to (1) encourage parties to the Convention to include performance metrics in their national reports to better track safety in civilian nuclear power plants, (2) increase the number of parties' national reports made available to the public by posting them to IAEA's public Web site, and (3) promote greater public dissemination of parties' written answers to questions about their nuclear power programs by posting this information to IAEA's public Web site. In its written comments, however, State provided some clarifications concerning the recommendations. First, State noted that it might be difficult to achieve metrics that would be meaningful across so many countries' nuclear power programs and to agree on the specific metrics to be used. Second, State noted that initiatives to increase public access to information would run counter to strong concerns regarding confidentiality of information on civilian nuclear power plants held by many parties. In addition, State asserted that the report somewhat mischaracterizes the Convention by noting that the Convention does not require that unsafe reactors be shut down. State noted that the Convention was never meant to have that authority, which would be contrary to IAEA practice and policy. It is the position of IAEA and member states that each country operating nuclear power plants should have its own national regulatory agency that would have the authority to shut down plants.

Regarding the first point, while it might be challenging to establish a common set of performance metrics, we believe there are already examples of standard metrics being used, such as those published by WANO. We believe that WANO's metrics, for instance, could be used as a benchmark for parties to follow in measuring safety progress when developing their national reports. With regard to encouraging public dissemination of information about the Convention, we agree that maintaining confidentiality of sensitive information about what is discussed among the parties during the peer review process should be maintained. However, we also believe that increasing public awareness of the Convention's proceedings—even on an incremental basis—through the posting of national reports to IAEA's public Web site is a worthwhile goal and should be encouraged to the extent practicable.

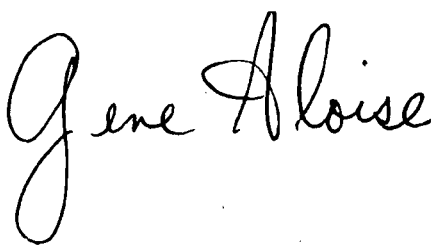
Finally, with respect to the issue of unsafe reactors, we have not mischaracterized the Convention. Rather, we pointed out in the report—as we have previously reported—that the Convention does not require the closing of any unsafe nuclear reactors. We also noted in this report that nuclear safety is a national responsibility and have not suggested or implied that the Convention is flawed because it does not require unsafe reactors to be closed. The fact remains, however, that Russia, which has

ratified the Convention, continues to operate numerous nuclear power plants that pose a safety risk according to Western safety experts. However, based on State's comments, we have clarified the text regarding this issue.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees, the Secretary of State, the Chairman of the Nuclear Regulatory Commission, and other interested parties. The report also will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or aloiseeg@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix VI.

Sincerely yours,



Gene Aloise
Director, Natural Resources
and Environment

Appendix I: Parties to the Convention on Nuclear Safety

Country	Number of civilian nuclear reactors	Entry into force
Argentina[a]	2	16 July 1997
Armenia[a]	1	20 December 1998
Australia	0	24 March 1997
Austria	0	24 November 1997
Bangladesh	0	24 October 1996
Belarus	0	27 January 1999
Belgium[a]	7	13 April 1997
Brazil[a]	2	2 June 1997
Bulgaria[a]	2	24 October 1996
Canada[a]	18	24 October 1996
Chile	0	20 March 1997
China[a]	11	24 October 1996
Croatia	0	24 October 1996
Cyprus	0	15 June 1999
Czech Republic[a]	6	24 October 1996
Denmark	0	11 February 1999
Estonia	0	4 May 2006
Finland[a]	4	24 October 1996
France[a]	58	24 October 1996
Germany[a]	17	20 April 1997
Greece	0	18 September 1997
Hungary[a]	4	24 October 1996
Iceland	0	2 September 2008
India[a]	18	29 June 2005
Indonesia	0	11 July 2002
Ireland	0	24 October 1996
Italy	0	14 July 1998
Japan[a]	54	24 October 1996
Jordan	0	10 September 2009
Korea, Republic of[a]	20	24 October 1996
Kuwait	0	9 August 2006
Latvia	0	23 January 1997
Lebanon	0	24 October 1996
Libya	0	11 November 2009

Country	Number of civilian nuclear reactors	Entry into force
Lithuania	0	24 October 1996
Luxembourg	0	6 July 1997
Mali	0	24 October 1996
Malta	0	13 February 2008
Mexico[a]	2	24 October 1996
Netherlands[a]	1	13 January 1997
Nigeria	0	3 July 2007
Norway	0	24 October 1996
Pakistan[a]	2	29 December 1997
Peru	0	29 September 1997
Poland	0	24 October 1996
Portugal	0	18 August 1998
Republic of Moldova	0	5 August 1998
Romania[a]	2	24 October 1996
Russian Federation[a]	32	24 October 1996
Saudi Arabia	0	16 June 2010[b]
Senegal	0	24 March 2009
Singapore	0	15 March 1998
Slovakia[a]	4	24 October 1996
Slovenia[a]	1	18 February 1997
South Africa[a]	2	24 March 1997
Spain[a]	8	24 October 1996
Sri Lanka	0	9 November 1999
Sweden[a]	10	24 October 1996
Switzerland[a]	5	11 December 1996
The FYR of Macedonia	0	13 June 2006
Turkey	0	24 October 1996
Ukraine[a]	15	7 July 1998
United Arab Emirates	0	29 October 2009
United Kingdom[a]	19	24 October 1996
United States[a]	104	10 July 1999
Uruguay	0	2 December 2003
EURATOM	0	30 April 2000
Total	**437**	

Source: IAEA.

Note: The total of 437 reactors represents the reactors in the list plus 6 reactors in Taiwan, which IAEA includes in the total number worldwide.

[a]Indicates that the state has at least one nuclear installation that has achieved criticality in a reactor core.

[b]Anticipated date of entry into force. Saudi Arabia deposited its instrument of accession to the Convention on March 18, 2010. By the terms of the Convention, it will enter into force for Saudi Arabia 90 days after the date of deposit of the instrument of accession.

Appendix II: Information on U.S. and European Union Funding to Promote International Nuclear Safety

United States

Table 3 reflects the cumulative amount of nuclear reactor safety assistance funds provided by the Department of Energy (DOE) from the inception of these programs.

Table 3: Obligations and Expenditures for DOE's Safety Assistance Programs as of September 30, 2009

Dollars in thousands

Recipient	Funds available	Funds unobligated	Funds obligated	Funds obligated and spent	Funds obligated but not spent
Ukraine	$369,223	$0	$369,223	$360,918	$8,305
Russia	179,917	0	179,917	179,917	0
Central and Eastern Europe	44,680	0	44,680	44,504	176
Armenia	50,813	0	50,813	47,734	3,079
Kazakhstan	7,732	0	7,732	7,317	415
Noncountry specific	73,269	0	73,269	73,269	0
DOE subtotal	**$725,634**	**$0**	**$725,634**	**$713,659**	**$11,975**

Source: DOE.

Notes:

Expenditures identified in this table are not linked to the Convention on Nuclear Safety. Rather, they refer only to DOE bilateral assistance programs to support nuclear safety efforts in various foreign countries.

According to DOE, funding appropriation end dates for the programs are as follows:

Ukraine: 2008
Russia: 2005
Central and Eastern Europe: 2006
Armenia: 2011 (estimated)
Kazakhstan: 2007
Noncountry specific: 2004

According to DOE, all programs will expend funds through at least fiscal year 2010, with the exception of Russia, which ceased expending funds in fiscal year 2006.

Table 4 reflects the cumulative amount of nuclear reactor safety assistance funds provided by the Nuclear Regulatory Commission (NRC) from the inception of these programs.

Table 4: Obligations and Expenditures for NRC's Reactor Safety Assistance Programs as of September 30, 2009

Dollars in thousands

Recipient	Funds available	Funds unobligated	Funds obligated	Funds obligated and spent	Funds obligated but not spent
Ukraine	$22,083	$0	$22,083	$21,482	$601
Russia	17,794	0	17,794	17,493	301
Central and Eastern Europe	8,044	0	8,044	8,044	0
Armenia	7,715	0	7,715	6,899	816
Kazakhstan	6,920	0	6,920	6,920	0
Total	**$62,556**	**$0**	**$62,556**	**$60,838**	**$1,718**

Source: NRC.

Notes:

According to NRC, these funds are provided through the Support for Eastern European Democracies (SEED) Act, which funded Central and Eastern European countries, and through the Freedom Support Act (FSA), which funds Armenia, Kazakhstan, Russia, and Ukraine. SEED Act figures are cumulative from fiscal year 1991, and FSA figures are cumulative from fiscal year 1992.

These expenditures identified in this table are not linked to the Convention on Nuclear Safety. Rather, they refer only to NRC bilateral assistance programs to support nuclear safety efforts in various foreign countries.

According to NRC, fiscal year 2008 was the last year for which NRC obligated FSA funds for Russia, shifting its focus with Russia to cooperation instead of assistance. NRC will expend all remaining FSA funds for assistance for Russia during fiscal year 2010.

European Union

Table 5 reflects nuclear safety expenditures from the European Union's Technical Assistance to the Commonwealth of Independent States program.

Table 5: Total Nuclear Safety Budget for the Technical Assistance to the Commonwealth of Independent States Program

Dollars in millions

Year	Amount
1991	$97.8
1992	112.9
1993	145.8
1994	149.8
1995	169.8
1996	198.6
1997	100.9
1998	121.7
1999	86.8
2000	61.2
2001	100.2
2002	86.6
2003	136.5
2004	145.3
2005	96.3
2006	109.4
Total	**$1,919.5**

Source: "International Nuclear Safety Actions of the European Commission," EuropeAid Co-operation Office.

Notes:

Figures are in millions of 2010 dollars.

The expenditures identified in this table are estimates and are not linked to the Convention on Nuclear Safety.

The figures include funding for the Russian Federation, the Northern Dimension Fund to the 'Nuclear Window,' Ukraine, other countries, and the Chernobyl Shelter Fund.

The Technical Assistance to the Commonwealth of Independent States (TACIS) program was replaced in 2007 by the Nuclear Safety Cooperation Instrument (NSCI), which finances measures to support nuclear safety, radiation protection, and safeguards of nuclear materials. The NSCI has a budget of roughly $730 million for 2007-2013.

Appendix III: Scope and Methodology

The objectives of our review were to evaluate the extent to which the Convention on Nuclear Safety is achieving its primary goal: promoting the safe operation of civilian nuclear power reactors worldwide. Specifically, we assessed (1) parties' views on the perceived benefits and limitations of the Convention; (2) efforts to improve the implementation of the Convention; and (3) how International Atomic Energy Agency (IAEA) programs complement the Convention's safety goals and objectives. In addition, we are providing information in appendix II about funding provided by the United States and the EU to promote international nuclear safety since the early 1990s.

To assess parties' views of the perceived benefits and limitations of the Convention and efforts to improve implementation, we (1) interviewed representatives of 17 nuclear and nonnuclear parties to the Convention as well as officials from NRC and State responsible for representing the United States at the Convention; (2) analyzed various Convention-related documents from NRC, State, IAEA, and EU; and (3) conducted a Web-based survey of 64[1] parties to the Convention. To encourage honest and open responses to our survey, we pledged member countries confidentiality[2] in their responses and indicated that we would report only aggregate information or examples that would not identify a particular party. The survey included questions about the usefulness of the Convention, the effectiveness of Convention activities, and the role of IAEA in the Convention.

To develop the survey questions, we analyzed the text of the Convention itself, as well as related rules and procedures. We also interviewed parties to the Convention and other experts to identify issues related to the Convention. Finally, we reviewed previous GAO reports to identify past issues and concerns related to the Convention and developed survey questions to gauge whether these issues were still relevant. The survey was pretested to ensure that (1) the questions were clear and unambiguous, especially to nonnative English-speaking respondents; (2) the terms we used were precise; (3) the survey did not place an undue

[1]As of the time we disseminated our survey, the Convention had not yet entered into force for two other countries, Libya and the United Arab Emirates, and we could not send our survey to a country for which it had not entered into force.

[2]We informed respondents that GAO is not authorized to withhold information from Congress, but that we received a written agreement from our congressional requester that he would not ask for individually identifiable survey information.

burden on the officials completing it; and (4) the survey was independent and unbiased. In addition, the survey was reviewed by an independent, internal survey expert and by NRC.

The survey was conducted using self-administered electronic questionnaires posted on the World Wide Web. We sent e-mail notifications to 64 parties to the Convention to alert them that we were conducting the survey and would be sending them log-in information in a separate e-mail. We also e-mailed each potential respondent a unique password and username to ensure that only members of the target population could participate in the survey. To encourage respondents to complete the survey, we sent an e-mail reminder to each nonrespondent about 2 weeks after our initial e-mail message. We also sent an additional e-mail reminder that extended the deadline to complete the survey. In addition to these e-mails, we also conducted extensive telephone and personalized e-mail follow-up to encourage those parties who contacted us with questions about the survey and to encourage the nonrespondents from the 17 parties whose representatives we interviewed to complete the survey. The survey data were collected from October 2009 through December 2009. Half (32) of the 64 parties to the Convention responded to the survey. To assess the potential for nonresponse bias in our survey results, we compared selected characteristics of nonresponding countries, such as (1) length of time as a party to the Convention, (2) nuclear power status and number of nuclear power plants, (3) region, (4) former Soviet bloc alignment, and (5) EU membership, to those of the responding parties. The distribution of these characteristics among responding and nonresponding parties was well-balanced. For example, 3 of the 32 respondents have been parties to the Convention for 2 years or less, 2 respondents for 3 to 9 years, and 27 respondents for 10 or more years. In addition, we also received responses from 13 nonnuclear countries and 19 nuclear countries and 17 EU-member countries and 15 nonmember countries. To eliminate data-processing errors, we independently verified the computer program that generated the survey results. This report does not contain all the results from the survey; the survey and a more complete tabulation of the results are provided in an electronic supplement to this report (this supplement can be viewed online at GAO-10-550SP).

To assess how IAEA programs complement the Convention's safety goals and objectives, we analyzed budget and other relevant documents from the Convention, such as meeting minutes and rules of procedure. We also interviewed IAEA officials; U.S. officials at the U.S. Missions in Vienna and Brussels; and the representatives of 17 parties to the Convention in Vienna, Brussels, Moscow, and Washington, D.C. To determine the amount

of money the United States has spent promoting nuclear safety from the early 1990s through September 30, 2009, we obtained expenditure information from DOE and NRC. To assess the reliability of the information provided, we interviewed knowledgeable officials from each agency to understand (1) how they had developed the estimates and (2) what supporting documentation had been used to develop them; we determined the information provided was sufficiently reliable for our purposes. To determine the amount of money the EU has spent promoting nuclear safety from 1991 through 2006, and the amount they have budgeted to spend from 2007 to 2013, we obtained budget information from EU officials. However, the reliability of these EU estimates is undetermined because we did not receive responses to our data reliability questions. Given these limitations, we characterize these costs as estimates, and we use them only as background. Because the EU budget information was provided in euros, we converted the original values to dollars. In all instances, when converting euros to dollars, we used nominal and purchasing power parity average annual exchange rates from the Organization for Economic Cooperation and Development. When converting euro values for future projections into dollars, we used the latest available annual exchange rate. In addition, to determine the amount of money IAEA has budgeted for nuclear safety in 2010, we obtained information from the agency's *Programme and Budget for 2010-11*. These IAEA budget figures—which we converted to dollars from euros—are also of undetermined reliability because we were unable to obtain sufficient detail about how they developed the estimates or the data sources that supported them. To determine the cost to the United States to participate in the Convention, and IAEA's costs to support the Convention for one 3-year cycle, we obtained expenditure information from NRC, State, and IAEA. To assess the reliability of this information, we also interviewed knowledgeable officials from each agency to understand (1) how they had developed the estimates and (2) what supporting documentation had been used to develop them. We determined the information provided by NRC was sufficiently reliable for our purposes. However, the reliability of the State and IAEA information is undetermined. The reliability of State estimates are unknown because staff typically combined work and travel related to the Convention with other work duties, so it is not possible to accurately determine the amount of money spent exclusively on Convention participation. IAEA estimates—which we converted to dollars from euros—are of undetermined reliability because they do not formally track costs to run the review meetings.

We conducted this performance audit from February 2009 to April 2010, in accordance with generally accepted government auditing standards. Those

standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix IV: Comments from the Department of State

United States Department of State

Chief Financial Officer

Washington, D.C. 20520

APR 19 2010

Ms. Jacquelyn Williams-Bridgers
Managing Director
International Affairs and Trade
Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548-0001

Dear Ms. Williams-Bridgers:

We appreciate the opportunity to review your draft report, "NUCLEAR SAFETY: Convention on Nuclear Safety Is Viewed by Most Member Countries as Strengthening Safety Worldwide," GAO Job Code 361054.

The enclosed Department of State comments are provided for incorporation with this letter as an appendix to the final report.

If you have any questions concerning this response, please contact Jan Fladeboe, Foreign Affairs Officer, Bureau of International Security and Nonproliferation at (202) 647-6957.

Sincerely,

James L. Millette

cc: GAO – Glen Levis
ISN – Vann Van Diepen
State/OIG – Tracy Burnett

Department of State Comments on GAO Draft Report

NUCLEAR SAFETY:
Convention on Nuclear Safety Is Viewed by Most Member Countries as Strengthening Safety Worldwide
(GAO-10-489, GAO Code 361054)

Thank you for the opportunity to comment on your draft report entitled "NUCLEAR SAFETY: Convention on Nuclear Safety Is Viewed by Most Member Countries as Strengthening Safety Worldwide." With the anticipated growth in the number of nations worldwide that operate nuclear power plants, the role of the Convention on Nuclear Safety will become more important in ensuring the safe operation of these plants.

Promotion of the safe operation of nuclear reactors worldwide is one of the U.S. Government's top foreign policy and national security priorities. The Convention on Nuclear Safety plays a very important role in the realization of that. However, it must be understood that the Convention is an incentive instrument. It is not designed to ensure fulfillment of obligations by Parties through control and sanction but is based on their common interest to achieve higher levels of safety which will be developed and promoted through regular meetings of the Parties. The Convention obliges Parties to submit reports on the implementation of their obligations for "peer review" at meetings of the Parties to be held at the IAEA. The GAO report focuses on suggested changes to these reports and their promulgation to the public.

The Department of State generally concurs with the recommendation to encourage Parties to include performance metrics in national reports to better track safety in civilian nuclear power plants and help countries more systematically measure where and how they have made progress in improving safety. However, it must be recognized that it will be difficult to achieve metrics that would be meaningful across so many countries' nuclear power programs. Further, due to the consensus nature of the Convention, it will also be difficult to agree on the specific metrics to be used.

The Department of State generally concurs in efforts to increase the numbers of Parties' national reports made available to the public by posting them to the IAEA's public Web site. However, this initiative will run counter to strong concerns regarding confidentiality of information on civilian nuclear power plants held by many Parties.

While the Department of State generally concurs in the promotion of greater public dissemination of Parties' written answers to questions about their nuclear power programs by posting this information to the IAEA's public Web site, again the concern of Parties over the confidentiality of information on their respective civilian nuclear power programs will make this problematical.

All of the above suggestions are in conflict with the IAEA's precept that it is up to each Party to determine what information should be made public and what should remain confidential. This is an important aspect of the Convention and its implementation, and is one of the factors that have convinced countries to join the Convention.

In addition, the GAO report somewhat mischaracterizes the Convention in its criticism that it "does not require that unsafe reactors should be shut down." The Convention was never meant to have that authority, which would be contrary to IAEA practice and policy. It is the position of the IAEA and Member States that each country operating nuclear power plants should have its own national regulatory agency that would have the authority to shut down plants. If the GAO report's position were taken, then the United States would be in a situation where an outside international body would have the authority to shut down a U.S. reactor, even over the Nuclear Regulatory Commission's authority. Further, the Convention does not require the imposition of sanctions when countries do not follow the safety principles the Parties are called upon to follow.

Appendix V: Comments from the Nuclear Regulatory Commission

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 16, 2010

Mr. Gene Aloise, Director
Natural Resources and Environment
Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Aloise:

I would like to thank you for the opportunity to review and submit comments on the April 2010 draft of the U.S. Government Accountability Office (GAO) report, "Convention on Nuclear Safety is Viewed by Most Member Countries as Strengthening Safety Worldwide."

In general, the U.S. Nuclear Regulatory Commission (NRC) agrees with the draft GAO report. However, I am providing certain technical comments concerning the Convention on Nuclear Safety (CNS) in the attached enclosure.

Should you have any questions about these comments, please contact Mr. Jesse Arildsen of my staff at (301) 415-1785 or at Jesse.Arildsen@nrc.gov.

Sincerely,

R. W. Borchardt
Executive Director for Operations

Enclosure:
NRC Technical Comments Regarding GA Draft Report, GAO-10-489

cc: Chairman Jaczko
Commissioner Svinicki
Commissioner Apostolakis
Commissioner Magwood
Commissioner Ostendorff

Appendix VI: GAO Contact and Staff Acknowledgments

GAO Contact

Gene Aloise, (202) 512-3841, or aloisee@gao.gov

Staff Acknowledgments

In addition to the individual named above, Glen Levis, Assistant Director; Dr. Timothy Persons, Chief Scientist; Antoinette Capaccio; Frederick Childers; Nancy Crothers; Bridget Grimes; Kirsten Lauber; Rebecca Shea; and Kevin Tarmann made key contributions to this report.

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