

## [SE8-LT-1] Russia's Nuclear Energy

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### Full Summary

This panel focused on the state of Russia's nuclear energy sector. Leonid Ryabikhin from the Committee of Scientists for Global Security and Arms Control moderated the panel. Panelists included Mikhail Kobrinskiy of the Nuclear Safety Institute of the Russian Academy of Sciences (IBRAE), Viacheslav Amirov of the Institute of World Economy and International Relations (IMEMO), and Jonathan George of the Lawrence Livermore National Laboratory. The moderator began with some opening remarks then gave each of the panelists a few minutes to address issues pertaining to Russia's nuclear energy sector. This was then followed by a discussion with the audience in the panel and a few closing remarks from the moderator. Dr. Amirov's discussion was on the current state of Russia's nuclear energy sector. Mr. Kobrinskiy discussed the evolution of nuclear safety in the nuclear power industry of Russia. Finally General George put US relations with Russia in the context of nuclear safety and security.

In his opening remarks, Leonid Ryabikhin the moderator began by noting that Russia has been a pioneer in nuclear energy. The nuclear renaissance involving new states seeking nuclear technology and the recent accident at Fukushima have brought the issue of nuclear safety and security to the limelight. The purpose of the panel was to find ways of advancing safety and security at nuclear energy facilities as Russia and other states continue to advance nuclear energy technology. Russia's experience with nuclear safety was therefore used as an example that other states might seek to emulate especially because Russia has been a leader in nuclear technology.

The first panelist, Viacheslav Amirov, based his remarks on the current state of Russia's nuclear energy industry. Dr. Amirov began by reiterating the fact that the Soviet Union was a pioneer in developing peaceful use of nuclear energy for electricity. However, the Chernobyl accident and events following the demise of the Soviet Union in the 1990s had an adverse effect on various aspects of Russia's nuclear energy sector. It was not until later in the 1990s and 2000s that one was able to observe a revival in Russia's nuclear industry.

Dr. Amirov then outlined Russia's energy sector currently. He noted that the impetus for reviving Russia's nuclear sector was to make the economy less reliant on gas for energy. Currently, there are 32 nuclear power plants. Nuclear energy accounts for 15-16 percent of electricity in Russia. Nuclear energy furthermore supplies roughly 5 percent of Russia's heating energy. Dr. Amirov pointed out that Russia plans to increase the share of nuclear energy with the objective of raising this to 23% by the 2020. However, domestic politics especially the upcoming elections in 2012 are affecting plans for further development. Dr. Amirov concluded by stating that the hope is for the development of better techniques of producing nuclear energy in the future.

The Second panelist, Mikhail Kobrinskiy, provided a detailed assessment of Russia's energy sector in terms of safety. Mr. Kobrinskiy discussed the social, technological, economical, and psychological aspects of nuclear safety based on Russia's experience.

Mr. Kobrinskiy began with a look at the evolution of nuclear safety in the nuclear power industry of Russia. He noted that there have been major changes in nuclear safety due to accidents. Accidents such as Three Mile Island and Chernobyl led to more discussions on nuclear safety issues and resulted in the implementation of new and more reliable engineering systems and the introduction of new concepts of nuclear safety culture. There was a recognition following these accidents that human error and human attitudes towards safety are responsible and there was therefore a need to address this human element of nuclear safety. Since anthropogenic accidents are comparable to natural disasters, Mr. Kobrinskiy noted the need for a more universal and wider approach towards nuclear safety that encourages a nuclear safety culture.

In advocating for the development of a safety culture, Mr. Kobrinskiy called for governments to develop concepts of acceptable safety levels that influence both individual and group level perceptions of safety. Through the development of such concepts, Mr. Kobrinskiy noted that they would be able to consolidate attitudes of various individuals who work with nuclear technology and facilitate the emergence of a collective conscious on safety issues. In the engineering sphere, Mr. Kobrinskiy said effective nuclear safety strategy should be based on potential damage and risk management.

In the public however, safety conception is perceived differently. Mr. Kobrinskiy states that while nuclear accidents are rare events radiophobia can influence the public's reaction on nuclear safety issues. For example, the consequences of the earthquake in Japan early this year were serious damage to property and loss of life. This was not due to the nuclear accident that the earthquake caused at Fukushima. However, Mr. Kobrinskiy said mass media portrayal of the Fukushima as a nuclear as opposed to a natural disaster spread fear among

the public. This fear among the public is what Mr. Kobrinskiy referred to as radiophobia and it is a factor that is dangerous to humans when dealing with safety issues.

An example of radiophobia that Mr. Kobrinskiy cited was an accident response training at a nuclear facility in Bulukovo in 2004 that simulated a real nuclear accident and emergency response. Images of this training were leaked to the public through the media who were unaware of that this was a training session. The public's reaction was of fear and confusion. Mr. Kobrinskiy noted that the fear led some to drug smuggling and alcoholism. The social consequences due to this "nuclear" accident were severe showing the adverse effect radiophobia can have on nuclear safety matters and the public's reaction towards nuclear accidents. This example, Mr. Kobrinskiy said, shows that radiophobia is a factor that influences human beings during accidents and even rumored accidents.

Radiophobia is therefore a challenge to the nuclear power industry. In order to address this challenge directly, Mr. Kobrinskiy said that it is prudent to approach it in a more responsible manner. However, several stereotypes appear to influence the public's perception of nuclear energy. Mr. Kobrinskiy outlined these stereotypes including: nuclear power plants as normally operated, radioactivity as an anthropogenic activity absent in nature, residing near nuclear power plants produces high risks to ones health as opposed to living near a conventional power plant, and radiation is hidden making people to consider it as enigmatic.

Mr. Kobrinskiy stated that overcoming these stereotypes through education programs on nuclear energy production could help mitigate public fears and radiophobia and aid in formulating better safety mechanisms. There is also need to develop proper design solutions that limit the effect of nuclear accidents on the environment. Mr. Kobrinskiy observed that Russia has been a pioneer in developing new technical engineering solutions that have resulted in making nuclear energy a safe source of power. However, Mr. Kobrinskiy also noted the need for public-private partnerships in the development of more safe and efficient nuclear technology for the future that would address the needs of nuclear safety.

Jonathan George was the final panelist and his focus was on Russia-United States cooperation in nuclear energy. General George sought to evaluate Russia's nuclear energy sector in the context of US-Russia relations as the two powers seek to reset their relations. The two sides have begun cooperating on both nuclear and non-nuclear issues. For instance, Russia supported the United States in Afghanistan, while Russia and the United States have been partners in the START Treaty negotiations, United Nations resolutions against Iran's nuclear program, the development of safer reactors, the storage and elimination of spent fuel, increased environmental safety, bilateral agreements, forensic analysis, and cooperation

between nuclear labs in the United States and Russia. The relationship between the United States and Russia according to General George was key for the nuclear future.

Two important things that General George sought to address included work towards understanding the intent of nuclear proliferation and nuclear terrorism and the legal and peaceful use of nuclear technology. General George noted that the discussions in other panels at the Asan Plenum had addressed fundamental issues and challenges of nuclear safety and security including the rivalry between India and Pakistan, engagement with China, extended deterrence, the Non-Proliferation Treaty, and potential hotspots. All these challenges, General George stated, can only be addressed through better relations between the United States and Russia in the area of nuclear technology.

Following the panelists' comments, the audience asked questions on Russia's reaction to the Chernobyl accident, the negotiations on a convention on safety regulations following the Fukushima accident, and future development of nuclear reactors that Russia is engaging in. Additionally, it was pointed out that nuclear energy is key for Russia's economic development and Russia has also been involved in nuclear energy projects in other states including India, Turkey, and China.

The moderator finally concluded the panel by noting that with the nuclear renaissance, there is need for a further examination of nuclear safety and nuclear security. Dr. Ryabikhin called for more research and development on nuclear safety and nuclear security if more states are to proceed with using nuclear energy.

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