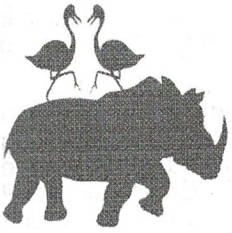


Hoang Anh Tuan

VIETNAM'S NUCLEAR POWER INDUSTRY: KEY PROJECTS AND INTERNATIONAL COOPERATION PRIORITIES


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Vietnam launched its first projects in the field of nuclear power at the end of 1990s. Today the annual total power generation in the country has reached 20GW. The governmental programs imply that the nuclear power plants (NPPs) will already provide 15 percent of the nation's demand for power supply by 2015. In order to meet this ambitious goal Vietnam has been intensively developing international cooperation with the nuclear powers that possess vast experience in this field. The list of major Vietnamese partners in the field of nuclear power includes Russia, the United States, France, South Korea, and Japan. Cooperation with Russia is a special priority for Vietnam. In October 2010, an intergovernmental agreement between Russia and Vietnam was signed which implied construction of the NPP Ninh Thuan 1 which includes two electric power units with 1.2MW pressurized water reactors (PWRs). The first power unit is planned to be brought into operation by 2020.

Security Index discussed the development of the Vietnamese nuclear energy industry, its priorities in terms of international cooperation, aims for the future, and plans for further cooperation with Russia with Director General of the Vietnam Atomic Energy Agency Dr Hoang Anh Tuan.

SECURITY INDEX: In recent years, Vietnam has been actively implementing its plans of construction of a NPP. What is the role of the nuclear energy in the Vietnamese power industry? What share of the national power generation mix is nuclear power expected to reach in the foreseeable future?

TUAN: Nuclear power today plays an important role in ensuring the energy security, environmental protection, and industrialization of Vietnam. This type of power generation is planned to make a considerable contribution to the national electricity generation mix of Vietnam in the period up to 2030. It is also expected that the role of nuclear power for the national electricity generation mix will further increase by 2050. A share of 20–25 percent of total power generation should be provided by the nuclear power industry by that time.

A major milestone on the way towards implementation of these goals was achieved in November 2009. Then the National Assembly of Vietnam passed Resolution No. 41/2009/NQ-QH12 on investment in the Ninh Thuan Nuclear Power Project, which consists of Ninh Thuan 1 and Ninh Thuan 2 NPPs (NPPs). Each of the NPPs will have two 1,000MW power units of the PWR type.

SECURITY INDEX: How is the preparation for the construction of Ninh Thuan 1 NPP being conducted? What role does Russia play in these activities?

TUAN: In October 2010, Vietnam and Russia signed the Intergovernmental Agreement on the construction of the Ninh Thuan 1 NPP. Since then, multiple activities have been conducted in the framework of cooperation with Russia, which were aimed to contribute to the implementation of the project. In November 2011, the Agreement on Credit Support by the Russian Federation for the Construction of the Ninh Thuan 1 NPP was signed. One year

later, in November 2012, the Agreement on the Construction of the Center for Nuclear Energy Science and Technology (CNEST) in Vietnam was signed, which is expected to help Vietnam in building capacity for a nuclear workforce.

In November 2011, Vietnam Electricity (EVN), the largest power company in Vietnam with installed electricity generation capacity of 8,860MW, signed the Contract on Consulting Service for development of the Site Approval Dossier (SAD) and Feasibility Study (FS) of the Ninh Thuan 1 Nuclear Power Project with the Consortium consisting of E4 Group Jsc., KIEP Jsc., and EPT Llc. Currently, both the Feasibility Study and Site Approval Dossier for Ninh Thuan 1 NPP are largely completed.

SECURITY INDEX: Expanding the topic of Russia–Vietnam cooperation in the nuclear power area, what mechanisms are used to promote education, training, and human capacity building for the nuclear power industry?

TUAN: Taking into account the priority of human resource development, the Ministry of Education and Training of Vietnam has sent around 320 students to the National Research Nuclear University MEPhI in Moscow for undergraduate and graduate programs on nuclear power since 2010. The government agency will continue sending students to Russia for nuclear programs in coming years.

Regarding public information and communication, in October 2011, the Ministry of Education and Training and Rosatom State Nuclear Energy Corporation signed an agreement on the establishment of the Atomic Energy Information Center located in Hanoi. The Center opened just one year later, in December 2012. Also, Vietnam and Russia have exchanged information on NPP technologies in order to select safe, proven, and advanced technology for the Ninh Thuan 1 NPP.

In general, the two nations have achieved comprehensive cooperation in the work on implementation of the Ninh Thuan 1 NPP Project through joint activities in the project's framework, human resource development, and public information.

SECURITY INDEX: At what stage is the preparation for the Ninh Thuan 2 Nuclear Power Project currently, and how has it been conducted?

TUAN: In 2011, the Intergovernmental Arrangement on the Construction of the Ninh Thuan 2 NPP was signed by Vietnam and Japan. Activities supporting the implementation of the Ninh Thuan 2 NPP Project have been conducted almost in parallel with the implementation of the Ninh Thuan 1 Nuclear Power Project. The EVN signed the Contract on Consulting Service for development of the Site Approval Dossier (SAD) and Feasibility Study (FS) of the Ninh Thuan 2 project with the Japan Atomic Power Company (JAPC) in September 2011. Similarly to the Ninh Thuan 1 case, the FS and SAD of the Ninh Thuan 2 NPP are almost finished now. The siting has also taken into account the risks to plant safety that might potentially arise from natural disasters such as tsunami and earthquakes.

SECURITY INDEX: These comments provide quite a clear and optimistic picture of Vietnamese cooperation with two advanced actors in the global nuclear power market—Russia and Japan. As for some broader frameworks of international cooperation in this area, is Vietnam involved in such multilateral formats and mechanisms? Did the Socialist Republic join any international treaties or conventions regulating the nuclear power sector?

TUAN: So far, Vietnam has signed governmental agreements on the peaceful use of atomic energy with eight countries: Argentina, China, France, India, Japan, Korea, Russia, and the United States. With regard to the international norms in the field of nuclear security, Vietnam signed the Additional Protocol to the Safeguards Agreement in August 2007 and ratified it in September 2012. In October 2012, the country acceded to the Convention on Physical Protection of Nuclear Material (CPPNM) and ratified its Amendment. In September 2013, Vietnam took part joined the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Source Management. Also, Vietnamese representatives actively participated in the Nuclear Security Summits in 2010, 2012, and 2014.

SECURITY INDEX: How much attention is paid in Vietnam to the issues of nuclear safety with regard to the country's new ambitious projects? Did the incident of 2011 at the Fukushima 1 NPP influence the methods and approaches that Vietnam has developed with regard to nuclear safety issues?

TUAN: With regard to nuclear power, Vietnam conducted the Pre-Feasibility Study on Nuclear Power Introduction during the 1990s. In the process of development of its national nuclear power infrastructure, Vietnam has continuously received significant support and assistance from the International Atomic Energy Agency (IAEA).

Special attention has been paid to the comprehensive and simultaneous development of nuclear infrastructure in Vietnam to ensure safety, security, and safeguards. After the Fukushima accident, the Vietnam Government has shown its consistent commitment to pursuing a nuclear power program and has put the highest priority on the nuclear safety and security of the NPP projects.

SECURITY INDEX: The issues of international cooperation and assistance to developing countries implementing their programs in the field of nuclear power cannot be discussed without mentioning the IAEA and its role. How does the Agency assist in the development of the nuclear power infrastructure and promote a nuclear security and safety culture in Vietnam?

TUAN: As a newcomer in the nuclear energy field, Vietnam has received valuable support from the IAEA and advanced nuclear power countries such as Russia, Japan, Korea, France, and the United States in developing its nuclear infrastructure. The Vietnam Atomic Energy Agency, in cooperation with relevant organizations, has been promoting national capacity building and conducting studies on the international experience of participation in supply chain and local industries' involvement in the NPP projects. These two working directions were listed among the 19 infrastructure issues according to the IAEA Milestones guide, so they are indeed important.

In January 2014, Mr Yukiya Amano, the Director General of the IAEA, during his second visit to Vietnam stated that Vietnam demonstrated significant progress in nuclear infrastructure development since the official decision to launch a nuclear power program was made in 2009. However, a lot of work still had to be done. He also reaffirmed that the IAEA was ready to support Vietnam in preparation of the necessary infrastructure for the safe and secure implementation of the Ninh Thuan Nuclear Power Project.

Finally, it is important to note that during the past decades Vietnam has received effective, fruitful, and timely technical assistances from the IAEA as well as from other advanced nuclear power countries. It should also be mentioned that the IAEA Integrated Nuclear Infrastructure Review (INIR Mission) conducted in Hanoi in December 2012, and the IAEA Integrated Regulatory Review Service (IRRS Mission) conducted recently in October 2014 have shown the important contributions of the IAEA's experts and international experts invited by the IAEA to Vietnam's preparation for nuclear power introduction.



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