

THE INFLUENCE OF JAPANESE ATOMIC “CRISIS” ON RUSSIAN NUCLEAR EXPORT

Гужова А.А.

Научный руководитель - старший преподаватель Каширина В.М.

Сибирский федеральный университет

Nowadays atomic energy is used by more than 30 countries. According to World Nuclear Association (WNA) nuclear power plants (NPPs) provide about 14 % of energy generation. Sixteen countries such as Japan, Germany, Finland and Switzerland depend on atomic energy for more than quarter of whole energy production. In France more than 75 % of energy is produced by NPPs.

These data do not include more than 60 power blocks, which are already under construction. Nowadays over 440 power blocks are operating all over the world. In addition, 158 blocks were planned to build in the next 20 years. These plans have been already stated. Countries are still discussing building of 300 more power blocks in future.

This process is called "nuclear renaissance". The leaders among the countries that increase nuclear power production (data WNA): are China, India, Russia, South Korea, USA and France.

Nuclear industry is one of the few industries in the Russian economy realizing its competitive export potential through manufacture of science intensive high-tech products.

From the moment of its foundation the industry was designed as an integrated scientific and industrial complex oriented towards development and production of nuclear weapons under the conditions of a mobilization-type economy and addressing defense tasks only. In the years to follow the task of developing nuclear energy was added.

Since the 1990-ies the research and development programs faced a nearly complete curtailment of financial support from the state budget and a material reduction of the volume of government orders including defense order. In this situation export of civilian products became a guarantee for survival of Russian nuclear industry. The industry's involvement in commercial activities and presence at the world market enabled preserving Russian nuclear industry and avoiding closure of facilities.

In December 2010 Sergey Kirienko, Director General of State Atomic Energy Corporation "ROSATOM" estimated potential order on building NPPs abroad as 23-25 power blocks. At the moment Russian atomists build or prepare to build power blocks in India, China, Vietnam, Turkey, Belorussia and Ukraine. They participate in new tenders, for example, in Jordan.

Probably, some of these plans will not be realized due to Japanese atomic “crisis”. To begin with, that first accident at Japanese NPP “Fukushima-1” happened on March, 12 – this day explosion occurred in one of reactors and caused the loss of radiation. During the next week explosions occurred in three of six power blocks. Because of earthquake, happened on March, 11, cooling systems of reactors failed, so the reactors were cooled manually using sea water. International Nuclear and Radiological Event Scale (INES) rating for this disaster were initially declared as Level 4 by Japan's nuclear safety agency, but after subsequent explosions it was suggested to be Level 6. US based Institute for Science and International Security stated that it might reach Level 7.

Experts ask not to draw the analogies between “Fukushima” accident and accident in Chernobyl, and they tend to compare it with the Three Mile Island accident in USA (1979).

But course of event showed that consequences for nuclear energy industry could be similar to stagnation after 1979 and 1986.

Over and over again atomists raise the topic of new generation reactors which are resistant to tsunami and serious earthquake. But such statements are not resistant to society pressure. Governments of different “peace atom” countries have already made declarations: some say about safety of atomic energy, others say about freezing new projects. European countries were first to react on Japanese accident. European Union made consolidated decision about close checking of European NPPs on survival in extreme conditions (stress test). Germany considered to shut down 7 power blocks, had been built before 1980. Another German NPPs will be tested for safety in few months. Moreover, Germany stated that new projects in atomic sphere would be suspended. The same decision was made in Switzerland.

Minister for the environment of France claimed that peace nuclear energy still remains a trump card of the country.

Minister for energy of USA reported that States will not refuse their plans of building new NPPs. Moreover, USA is an oil importer and oil prices are considered to be significantly increasing.

Reaction of the countries, mentioned earlier, do not affect Russian NPPs export plans directly. Let’s analyze the reaction of potential importers of Russian NPPs.

Building of Kudankulam NPP (India) is in its active phase. India is not going to freeze the project. Bushehr NPP has been already built in Iran.

Bulgarian government won’t stop the cooperation with Russia in building Belene NPP.

China has frozen new atomic project in order to revise safety standards. In the end of August 2010 Russia and China proposed an agreement about construction of 3rd and 4th power blocks of Tianwan NPP. Except Tianwan NPP Russia and China discussed building of fast neutron reactor (BN-800).

There is no information about duration of pause in developing Chinese nuclear sphere. Turkey won’t stop cooperation with Russia in building Akkuyu NPP.

Position of Belarusian government in building Belarusian NPP was commented by Putin who said that before signing intergovernmental agreement he had discussed safety topics with Alexander Lukashenko. Also, Putin said that Belarusian NPP were protected much better than Japanese ones.

Ukraine reported about the necessity of improvement in NPP control and supervision system and additional checking of failure preventing systems. There is no information about refusal from project of foundation of 3rd and 4th power blocks of Khmelnytsky NPP by Russia.

In October 2010 Venezuela proposed an agreement with ROSATOM about building NPP. Due to the catastrophe developing of peace atom program was suspended.

So, most of Russian partners didn’t change their attitude to nuclear power. It can be assumed that Russian NPPs will be constructed in these countries.

It's possible that China will decide to develop its nuclear energy after revising safety standards. Energy deficit and steadily economic growth will contribute it.

Developing of nuclear program in Venezuela is motivated politically and nuclear renaissance itself. There is no urgent need in NPPs in this country because of a great number of hydrocarbons deposits. That’s why signing of contracts with Russia will be possible only after analyzing all consequences and reasons of Japanese catastrophe.

In conclusion, Russia doesn’t sustain heavy economic losses even in spite of non-cooperation with a number of partners in building Russian power blocks. Also, there’s suggestion that possible insignificant decline in NPP export volumes will be compensated by growing demand for Russian traditional energy sources, especially gas, in doubting countries (Japan and Germany). It is clear that growing of raw export volumes is going on today:

Russian market is coming to maximum indicators since 2009. Although replacement of hi-tech export with raw material export is negative for modernization of Russian economy.