

DNIESTER HYDRO PUMP STORAGE PLANT COMPLETION PROJECT

The Dniester Hydro Power Complex (DHPC) project was developed in the 1970s and included a number of power facilities: hydro power plants HPP-1 and HPP-2, a pump storage plant (PSP) and a nuclear power plant (NPP). The PSP had to serve as loads shifting capacity for the NPP. Subsequently the project of NPP construction was withdrawn from the plan of the hydro power complex; PSP construction was suspended in 1991 because of a lack of funding and was resumed only in 2001. The plant was planned to have seven blocks, with planned production capacity of 2268 megawatts. As of January 2007, the construction was officially estimated to be 79 percent complete. It was planned that the first unit of the plant would be put into operation in December 2007, the second in September 2009 and the third in September 2010. But now it is clear that the first unit of Dniester PSP will not start its operations in December 2007.

Roughly 826 millions Hryvnas (about USD 163 million) are required to put the first starting complex of PSP into operation, and the cost of the whole project completion is estimated on the level of 3,5 billion Hryvnas (USD 623 million). Of this amount, Ukraine plans to attract USD 200-250 million as a loan from the World Bank. Negotiations with the World Bank about the possibility of financing the completion of Dniester PSP have been in progress for a few years now, but only recently have they begun to look specific. In 2006 the Ministry of Power and Energy asked the World Bank to support the Dniester PSP completion project.

It is not clear if the application for funding has been submitted to the Bank yet. There is uncertainty over the ownership of the plant, as this has been changed twice within less than two years. At the end of 2005 JSC “Dnistrovska PSP” was liquidated and all of its assets were passed to JSC “Ukrhydroenergo”, a state-owned company operating all of Ukraine’s hydro power plants. Ukrhydroenergo was supposed to be the sponsor of the project and apply for the loan to the World Bank. But in May 2007 JSC “Dnistrovska PSP” was restored again, making it once again responsible for the PSP completion.

Inefficiency of technology

A PSP is not an energy source; rather it is an accumulator, which stores the energy generated by other sources. When there is excess of electric power in the network, PSP pumps water to the upper reservoir located at a certain height creating a reserve of potential energy, which is converted into electric power by a water outlet through a turbine from the upper reservoir to the lower basin. In this way the PSP supplies electric power to the network if there is keen demand for electric power.

PSP technology envisages large losses of electric power. PSP returns to the integrated power system about 70-75 percent of consumed electric power and 25-30 percent is used for its own needs. The overall power effectiveness of PSP is even less if we take into account the power transmission losses.

PSP is part of a dubious strategy

In March 2006 the Cabinet of Ministers of Ukraine approved the “Energy Strategy of Ukraine for the period until the year 2030”. The Strategy foresees the growth of electric power generation mainly via the expensive development of nuclear energy. As NPPs do not have loads shifting abilities – the capacity to produce more or less electricity during peak or off hours – there is a costly problem of inconsistency between power generation and its demand.

However, instead of reducing the share of nuclear energy to a reasonable level, the authors of the Strategy proposed the installation of loads shifting capacities (PSP) inherited by Ukraine from the Soviet Union (Tashlyk, Kaniv and Dniester PSP). The Strategy raises a number of concerns as it overvalues the role of nuclear power, which completely depends on Russia and shows very low power effectiveness (according to the Strategy, by 2030 Ukraine must reach the level at which neighbouring Poland is now). The proposed energy strategy is not realistic. It should be reviewed making World Bank investments into projects like Dniestr PSP redundant.

Negative impacts of the project

Analysis of the economic, environmental, social, legal and political aspects of the Dniester PSP project has revealed a number of its negative consequences. A state ecological commission of experts in 1997 pointed out 17 substantial deficiencies with the project, yet surprisingly it has permitted the construction.

The project threatens to reduce water flow that will have catastrophic consequences for the lower course of the

Dniester, in particular for the wetlands system protected by the Ramsar Convention, and will cause problems with the drinking water in the Odessa region.

Implementation of the project will bring about negative consequences for local people. Putting the plant into operation requires the resettlement of the population from the territory which is included in the project's realisation (estimated 271 households). Moreover, the remainder of the local people will have their usual lifestyles changed as a result of the waterlogging of agricultural lands, changes in the water level in drinking water wells, and so on. At the same time the creation of new jobs for local people is not expected because Ukrhydroenergo is even now resettling workers to Novodnistrivka from the Tashlik PSP. Further, the influence on the population in the lower course of the Dniester, where a worsening of the drinking water situation is expected, should be considered as a separate problem.

Man-made risks

The upper reservoir of the PSP (32.7 million cubic metres) is located in territory with very complicated geological conditions and this involves serious risks. This includes caverns where cavern formation (karst type of caves) is still ongoing. The reliability of the clay-film screen of the reservoir floor suggested by the authors of the projects also provokes doubts. High seismicity in the region is evaluated with a rating of 8 (Richter scale). The risk of the subsidence of the upper layers of ground on Dniester and Sokiryanskiy slopes in the vicinity of the project construction has already resulted in cracks in all of the hydro constructions. This gives grounds to expect unpredictable consequences, and possible large-scale, man-made catastrophe can not be ruled out.

Political risks

Some problems exist as a result of the non-determination of the national border between Ukraine and Moldova; the border crosses the territory of the hydraulic complex. Other than this, the Moldavian authorities are making claims for a 20 percent share in the Dniester PSP. In this context the readiness of the government and the World Bank to invest in such a project with an indefinite future like this one is alarming. First of all the government should settle its political contradictions with Moldova.

Violation of procedures and international legislation

The project violates the state environmental impact assessment (EIA) procedures because the EIA was approved without the required participation of the public, in particular without the necessary public hearings. The Espoo Convention on EIA in the transboundary context was also violated as Ukraine has not provided Moldova with corresponding documents regarding the project's likely impacts on the environment.

Alternatives to the Dniester PSP project

The project does have alternatives, which from the economic, energy, ecological and strategic point of view would be able to solve the problems of peak loads in the overall power networks of Ukraine in a more efficient way. The simplest way is to avoid problems. This can be achieved through the combination of demand regulation measures and the creation of a system of power generation with a sufficient number of loads shifting capacities. Such an approach will also save fuel, which is in short supply in the country, generating power only in the case of demand for it without additional electricity loss for the storage of electricity.

Thermal power plants make up 60 percent of existing generating capacities in Ukraine and they can be operated in loads shifting mode; yet 80 percent of them stand idle. There is no need to build thermal power plants, but those existing ones need to be reconstructed on the basis of modern technologies, to operate with modern-day effectiveness.

The World Bank continues to assert the need to create market relations in the Ukrainian power sector, to develop small hydropower energy, to modernise thermal power plants and to not support the unprofitable coal industry. This is why we are confused by the readiness of the World Bank to support a project which has so many weak points and is an integral part of a national strategy that includes all the measures which were criticised by the World Bank's experts.

The World Bank should make efforts to help the Ukrainian government develop a power strategy which is much more effective, as well as support projects that aim to increase energy efficiency and the independence of the Ukrainian economy.

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