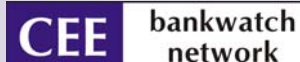


# Kaniv Pumped Storage Plant, Ukraine

*EBRD Annual Meeting, Kiev, May 2008*



CEE Bankwatch Network's mission is to prevent the environmentally and socially harmful impacts of international development finance, and to promote alternative solutions and public participation

## ***Background***

The Kaniv Pumped Storage Plant (PSP) construction project was developed in 1985 in compliance with the “Plan of the placement of HPPs and PSPs on the territory of the European part of the USSR till 1990”. The merits of constructing PSPs in the central part of the United Energy System of the USSR was substantiated by the authors of the project. The construction works started in 1984 and were suspended in 1992 because of the economic crisis. The moratorium on the construction of the Kaniv PSP was cancelled in 1999. The project provides for the construction of four power units with a total capacity of 1000 megawatts. The planned construction period for the Kaniv PSP is, according to different sources, from nine to twelve years.

The total cost of the Kaniv PSP construction project is even more controversial now. According to one of the earliest official statements given by the Deputy Minister of Power Engineering, approximately USD 500 million will be required to carry out the project.

In October 2007 a construction sponsor representative evaluated the total cost on the level of 8 billion Hryvnas (EUR 1 billion approximately). The third figure, 4.9 billion Hryvnas (approximately EUR 0.6 billion), can be found in the decree of Cabinet of Ministers “About the approval of technical and economical feasibility study of the Kaniv PSP construction” from 8.11.2007. It is still unknown which figure actually corresponds to the real cost of the Kaniv PSP construction and why the construction sponsor provides different estimations through different sources.

**In December 2006 the EBRD confirmed it had commenced a due diligence process on the Kaniv PSP project which was categorised as a high-risk project needing an Environmental Impact Assessment (EIA). “Ukrhydroenergo” JSC acts as the project sponsor.**

## ***Inefficient technology***

A PSP is not an independent energy source; rather it is an accumulator, which stores the energy generated by other sources. When there is an excess of electric power in the network, a 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 at the time of high demand for electric power.

PSP technology envisages large losses of electric power. A PSP returns to the integrated power system about 70–75 percent of consumed electricity and 25–30 percent is used for its own needs. This is according to the estimation given by Ukrhydroenergo. But the overall power effectiveness of a PSP is even less if we consider power transmission losses and if we take a proper account of the fact that a PSP operates only a few hours per day.

PSPs operation regime can be evaluated on the example of Tashlyk PSP which was commissioned in 2006 and is a part of the South-Ukraine NPP complex. According to the project documentation, available to the public, Tashlyk PSP operates seven hours per day in pumping mode and only 2.9 hours in generating mode. Under such an operation regime, the PSP returns to the integrated power system only 28 percent of consumed electricity and 72 percent is used for its own operational needs. The project documentation for the Kaniv PSP, which is a similar type as the Tashlyk PSP, still remains undisclosed to the public, preventing the carrying out of an independent assessment by unbiased experts.

### **PSPs part of a dubious strategy**

In March 2006 the Cabinet of Ministers of Ukraine approved the “Energy Strategy through 2030”. The Strategy foresees the growth of electric power generation mainly via the development of nuclear energy. As nuclear power plants do not have loads shifting ability there is a 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 (PSPs) inherited by Ukraine from the Soviet Union (Tashlyk, Kaniv and Dniester PSPs). The Strategy raises a number of concerns as it does not take waste management into account, overvalues the role of nuclear power engineering which completely depends on Russia, and displays very low power effectiveness (by 2030 Ukraine has to reach the level at which neighbouring Poland is at now).

### **Negative impacts of the project**

Analysis of the economic, environmental and social aspects of the Kaniv PSP project has revealed a number of its negative consequences. In the first phase of the construction in the 1980s, local residents were involuntary resettled from the adjacent territory without proper compensation and consent. Moreover, the remaining local people will have their traditional lifestyles changed as a result of the water-logging of agricultural lands, changes in the water level in drinking water wells, and man-made risks related to the very complicated geological conditions in the construction area. The radioactive impact through the drinking water for the population residing in the lower flows of the river (especially for the city of Kaniv and its 28,000 inhabitants) is expected due to the inlet-outlet of PSP water, which will cause the migration of radioactive matters (namely strontium-90 and caesium-137) which accumulated at the bottom of the Kaniv reservoir after the Chernobyl disaster. The shore of the Kaniv reservoir will be destroyed due to regular water outlets. This may lead to the washing-out of the banks including the complete disappearance of the Zmeiny (Snakes) Islands, which represent a part of the Kaniv Natural Reserve where washing-out processes can be seen even today.

### **Man-made risks**

The location of the PSP in the area of the most dangerous exogenous geological processes is the major risk of the Kaniv PSP project, including the construction of a reservoir of 17.0 million m<sup>3</sup> and a dam from 20 to 90 metres high at 140–150 metres above the level of the Kaniv reservoir. The fact that the PSP will operate within the Kaniv HPP affected zone gives grounds to expect unpredictable consequences with possible large-scale, man-made catastrophe.

## Violation of EIA procedures of Ukrainian and international legislation

The project violates the state Environmental Impact Assessment (OVOS) procedures because the OVOS for the project was approved in November 2006 without fully meeting the requirements for public participation, particularly when it comes to public hearings.

Ukrainian environmental organisations believe that the project sponsor has violated various articles of Ukrainian laws “On Information” and “On Citizens’ Requests”, the Aarhus Convention, as well as the procedures of Ukrainian legislation regarding public consultations.

In 2006 the EBRD claimed that the EIA/OVOS and public consultation have been undertaken by Ukrhydroenergo in line with national requirements<sup>1</sup>. In order to be able to present the loan for the approval of the board, the EBRD will need to review the EIA/OVOS study and undertake a full EIA process to be in line with its environmental standards. The EBRD is to commission a consultant to assist with the conducting of the EIA process which was to be launched in the second half of 2007, but has not yet started as of now. In February 2008, the EBRD officially informed that the environmental and social due diligence for the Kaniv PSP project had not been commenced<sup>2</sup>.

## Disregard of the recommendations of the World Commission on Dams

The promoters of the project have violated almost all of the recommendations of the World Commission on Dams, including the required consent of local residents through consultations with the public and a comprehensive analysis of the various scenarios associated with the development of the energy sector of Ukraine.

## Alternatives to the Kaniv PSP project

The project does have alternatives, which from the economic, energy, ecological and strategic points 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 measure 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 existing ones need to be reconstructed on the basis of modern technologies, to operate with modern-day effectiveness.

The EBRD continues to assert the need to increase power efficiency and to develop renewable energy sources. This is why we are not entirely clear about the apparent readiness of the EBRD to support a project which has so many weak points and is an integral part of the national strategy that includes measures which have been criticised by the EBRD’s experts.

The EBRD should be making efforts to help the Ukrainian government develop a power strategy which is much more effective. It should also support projects that aim to increase energy efficiency and the independence of the Ukrainian economy.

---

1 Response from the EBRD to an information request on Kaniv Hydro PSP, December 22, 2006  
[http://bankwatch.org/documents/Letter\\_A\\_Marsh\\_22.12.2006.pdf](http://bankwatch.org/documents/Letter_A_Marsh_22.12.2006.pdf)

2 Response from the EBRD to the NECU\Bankwatch letter, February 5, 2008  
[http://bankwatch.org/documents/EBRD\\_response\\_WB\\_pull\\_out\\_DPSP.pdf](http://bankwatch.org/documents/EBRD_response_WB_pull_out_DPSP.pdf)

*For more information*

Iryna Holovko

National Ecological Center of Ukraine/CEE Bankwatch Network

Tel. (044) 507 06 16

Email: [iryna@bankwatch.org](mailto:iryna@bankwatch.org)