Hydropower LLC Project non-technical summary

1. Introduction

Private company Hydropower LLC has approached the European Bank for Reconstruction and Development (EBRD) for financing construction of two small hydropower plants at White Cheremosh River in Ivano-Frankivsk Oblast of Ukraine. This document provides an overview of the proposed development plans in non-technical language, a summary of potential environmental and social impacts, and appropriate measures to mitigate key adverse environmental and social effects.

This NTS document and other materials will be placed in the locations shown below for public review and comment:

- Hydropower web-site: www.hydropowerllc.com.ua, Tel.:+ 38 067 657 5302, +38 067 657 5304
- Information stand of Goloshyna local council in the local council building, Village Goloshyno, Verkhovyna District, Ivano-Frankivsk Oblast

Comments can also be made at the public meeting which will be announced at the project website late September 2012.

The date, time and location of public meeting will be announced two weeks before the event, and advertised in local mass media. For further information on this project, or to provide comments on the project or the environmental and social documentation, please contact:

Name	**Contact information**
Anton Senyuk, Project Director	Company: Hydropower LLC Mailing address: 78735 Village Goloshino, Verkhovyna District, Ivano-Frankivsk Oblast. Tel.: + 38 067 657 5304 E-mail: smallhp@ukr.net, info@hydropowerllc.com.ua

2. Description of the Proposed Development

The project developer Hydropower Limited Liability Company is based in the village of Goloshyna, Verkhovina District, Ivano-Frankivsk Region of Ukraine, the same area as the planned Project. The Company was established specially for construction and operation of two small hydropower plants (SHPP), located on Bily Cheremosh River. *Figure 1.1* further below shows the location of the project site.

The Project will comprise the installation of two SHPPs with a total capacity of 1.67 MW. With the installed capacity the two hydropower plants will produce around 6,470 MWh net electricity for feed-in to the local electricity grid via 10.4km long 10kV overhead transmission line. The electricity will be sold to the grid at the feed-in tariff under the "Green Tariff Law".

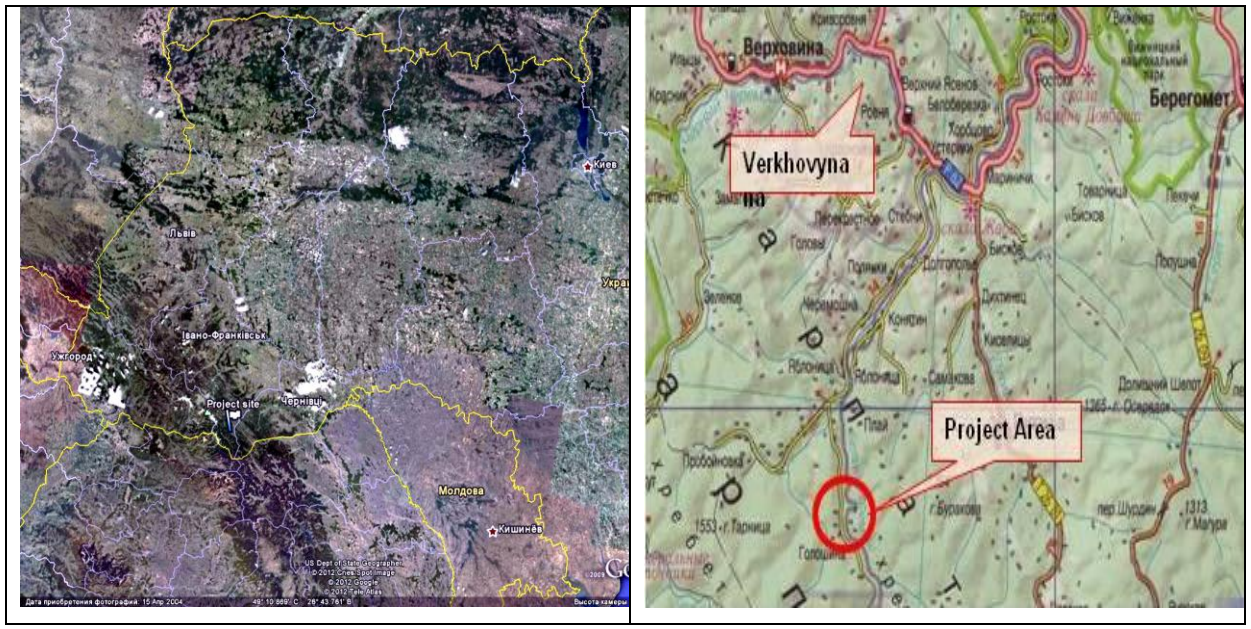
The two plants are arranged in cascade with SHPP 1 being downstream of SHPP 2. The SHPP 1 scheme is a typical low-head hydropower plant with a weir structure, an intake structure and a power house. The SHPP 2 scheme is a low- to medium-head diversion

hydro-power plant with a weir structure, an intake structure, a headrace tunnel with a length of 168 m and an internal width of about 3m, and a turbine house.

By using the renewable hydropower, the project will have tangible environmental benefits over other types of energy generation, such as those utilising fossil fuels (gas, coal) or nuclear. It will contribute to the reduction of emissions of approximately 6,469 tons of CO_2 annually, and flood control on the river, as well as create new jobs and improve security of energy supply in the area. Furthermore, the project will contribute finances to the village and district budgets in the form of taxes and other payments.

Figure 1. Location of the project site

General map view | Close-in image



3. Environmental, Health, Safety and Social Review

The project may be financed by the European Bank for Reconstruction and Developmemnt. Therefore, besides these Ukrainian laws and regulations, the Project will be required to comply with the Bank's 2008 Environmental and Social Policy and associated Performance Requirements, which in turn require that European Union standards be met.

3.1 Project studies and documents

Aquatic (Fish) Study

A study of fish and aquatic fauna and habitat of White Cheremosh River, with primary focus on fish population was carried out by a group of scientists from Kyiv-based Institute of Hydrobiology of the National Academy of Sciences in 2012. The study paid particular attention to the potential presence and conditions of the protected species of fish in the river. Two species from the Red Data Book of Ukraine, namely Danube salmon *Hucho hucho* (also on the European Red List) and Common barbell *Barbus barbus* were identified.

Terrestrial Fauna Study

An additional biodiversity study with focus on the protected species of terrestrial fauna in the project location is currently being carried out by a qualified specialist from Kyiv State University. The results expected in September 2012 will be used to design appropriate mitigation measures for project construction and operation. To date, no protected species which could be affected by the Project have been identified.

3.2 Sensitive locations

The project area is considered to have high environmental sensitivity due to the presence of valuable biodiversity habitats, protected species, and protected areas.

All of Cheremosh River with tributaries upstream of Vyzhnutsya town has a status of local ihtiological *zakaznik* (a type of protected area with mild protection regime). This status is mainly due to the presence of protected fish species, impacts of which are being addressed through aforementioned dedicated aquatic/fish study and the ESAP.

The nearest residential properties are located at approximately 400m from the site. Noise levels generated by the turbines will fully comply with applicable sanitary norms.

3.3 Project impacts and their mitigation

In addition to important benefits, the project could have negative impacts on the environment and people, if not managed carefully. Therefore, the Hydropower LLC will implement certain actions (called "mitigation measures") to prevent, reduce, or mitigate negative impacts of this project. A summary of key impacts and mitigation measures that have been identified, is provided in *Table 1* below.

Table 1. Overview of Key Potential Project Impacts and Their Mitigation

No	Issue	Potential impact	Mitigation measures
1	Water availability and maintanance of a minimum ecological flow throughout the year	Impact on the volume of water in the river	- Carry out dedicated water assessment studies and integrate their results into the project engineering design. - Maintain the minimum ecological water flow in the river at all times. - Monitor the water levels in the river throughout the year to verify the minimum level is maintained. - Adjust minimum levels if needed to protected biodiversity.
2	Water quality	Impacts on water quality	- Control erosion and sedimentation during construction. - Ensure that the facility does not contribute to deterioration of water quality and watershed either upstream or downstream of the facility. - Monitor the state of aquatic ecosystems impacted by the project.
3	Protected species (fish and terrestrial fauna) and sensitive habitats	Impacts on fish species composition and numbers, impacts on terrestrial fauna and sensitive habitats	- Undertake pre-construction ecological surveys and associated assessments of the project footprints to establish a robust baseline. - Develop and integrate effective fish protection and passage facilities (such as fish ladders) into the project design; sensitive habitats, and general wildlife. - Monitor ecosystem during operation and implement actions if needed to prevent or reduce unacceptable impacts.
4	Tourism	Impacts on tourism and recreation	- Identify any recreational uses of the river around the site and plan construction and operation to minimize negative impacts; - Leave access to the water unchanged by the facility to accommodate recreational uses of the river to the extent technically possible.
5	General construction activites	Impacts during construction of the main (dams, powerhouse, diversion tunnel) and associated (transmission line) project facilities, such as land excavation, dust, noise, air emissions from vehicles involved, increased road traffic, etc.	- Prepare and implement construction management plan to reduce and mitigate general construction impacts, including noise, air emissions, waste generation and disposal, increased road traffic. - Continuously monitor impacts to comply with appropriate national environmental standards and EBRD requirements. - Apply requirements to all construction contractors.
6	Emergencies: floods, land erosion and earthquakes	Impacts of the project on the magnitude and mitigation of floods, land slides and other potential emergencies.	- Plan and implement techniques to minimise the exacerbation of effects caused by landslides or erosion, which could arise from land use changes due to project activities; - Develop appropriate emergency plans and maintain high level of staff preparedness for emergencies.