

## Khumpreri Hydro Power Plant

### Khumpreri River



The proposed project involves the construction of a 16.4 Megawatt (MW) run-of-river Hydro Power Plant (HPP) on the Khumpreri River, in the Dizi village, Samegrelo – Zemo (Upper) Svaneti Region of western Georgia.

The HPP will be located near the village of Dizi on the Khumpreri River, which is a tributary of the upper Enguri River. Without storage, the site offers sharply seasonal average annual generation of about 66 GWh, at a plant factor of about 46 percent. The river flow is characterized by high flows in late spring and summer, with maximum flows in May and minimum water levels in winter (when much of the basin precipitation is in the form of snow). The watershed is mostly heavily wooded temperate rainforest with mountain vegetation and rock outcrops at higher elevations. The mean annual precipitation exceeds 1,200 mm.

Site accessibility is fairly good. A new access road, about 3.5 km long, will be constructed along the route of an existing trail to reach the dam site from the village Dizi. A 500-m-long transmission line of 35 kV will be built to reach the grid connection from the Khumpreri powerhouse.

The Khumpreri development is expected to include a 5-m-high concrete dam; a 3,300-m-long, 2.5-meter-diameter power tunnel; a surge tank; a 300-m penstock; and a surface powerhouse. The hydroelectric units will consist of two Francis or Pelton turbines with synchronous generators. The power plant may work in island mode as well as in synchronization with the national power grid, allowing both direct and grid-connected supplies to consumers.

According to preliminary assessments, the plant offers a good opportunity to sell power during winter inside Georgia, supplementing expensive thermal power, and export part of the energy during the summer to take advantage of the seasonal differentials in power prices between Georgia and its neighboring countries.

Additional details on the project area are on the next page

### PROJECT SUMMARY

Location: Samegrelo - Zemo Svaneti,  
Western Georgia  
River: Khumpreri  
Gross Head: 320 meters  
Rated Flow: 6.3 m<sup>3</sup>/s  
Number and Type of Units: 2 × Francis or Pelton  
Construction Time: 2.5 years  
Potential Installed Capacity: 16.4 MW  
Mean Annual Power Output: 66.48 GWh  
Anticipated Life-span: 50 years



Project Location Map

## **Project Area Social and Environmental Characteristics**

**Location:** Western Georgia, Samegrelo - Zemo Svaneti Region

**Administrative District:** Mestia

**Area:** 3,044.5 km<sup>2</sup>

**Population:** 14,270

**Population density:** 4.7 people/km<sup>2</sup>

**Administrative center:** Mestia

The Enguri River is 213 km long and drains an area of 4,060 km<sup>2</sup>. It originates from northeastern Svaneti, on Mount Shkhara, at 5,058 meters above sea level. The Enguri plays an important role in the Georgian energy production. The largest Georgian dam, at a height of 240 m and with 1,300 megawatt capacity, has been built on the Enguri River. The Khumpreri River is a left tributary of the river, in the upper basin.

The administrative district of Mestia consists of one small town and 134 villages. The population of about 14,270 people is mostly Georgian. The distance from Tbilisi to the administrative center in the town of Mestia is about 490 km.

There are about 51 public schools, one museum and 43 libraries in the community. The populated area is rich in old churches, monasteries and other cultural relics.

The Mestia district is mountainous: there are about 200 glaciers within the district, with a total area of 285 km<sup>2</sup>.

The economy relies heavily on agriculture. The main agricultural activities involve potato growing and animal farming. The region is also rich in minerals (barite, zinc-lead, marble) and mineral waters.

The region has a unique potential for tourism and mountain sports development, like skiing, climbing, mountaineering, trekking, white water rafting, kayaking, and paragliding.

The infrastructure of the region is well-developed: there are highways connecting international airports, the Black Sea coast, and the regional capital of Zugdidi with Mestia and other towns in the Samegrelo - Zemo Svaneti Region. The Mestia Development Project includes extending a road rehabilitation program to reach the highest villages. A new ski cable lift and ski trails were constructed during 2010. The Georgian National Tourism Agency has already opened a center in Mestia providing all the necessary information for local and international visitors.

### **Zemo Svaneti Planned Protected Areas**

The Upper Svaneti Planned Protected Areas are located in Zemo Svaneti, in the territory of Mestia district at 600 - 5,200 m above sea level. The areas include: Zemo Svaneti National Park and Zemo Svaneti Protected Landscape. This planned area makes up 75,910 ha in total. The National Park is situated in the Enguri River Basin. It is separated from Racha-Lechkhumi and Kvemo Svaneti National Park by the Svaneti Mountain Range. Zemo Svaneti Protected Landscape is situated in the Enguri River basin between the southern slope of the Greater Caucasus Range, which forms the border with Russia, and the northern slope of the Svaneti Range.