

Stori-3 Hydro Power Plant

Stori River



The proposed project involves the construction of a 13.7 Megawatt (MW) run-of-river Hydro Power Plant (HPP) on the Stori River, near the village of Lechuri, in the Kakheti region of Eastern Georgia.

The HPP will be located south of Lechuri, and is downstream of the Stori-2 HPP in a cascade of four (Stori, Stori-1, -2, -3). The Stori River is characterized by high flows in spring and summer, with maximum flow in May and minimum water levels in winter. There is normally a reduced, but dependable, flow through the winter months.

Site accessibility is good. The Stori Valley is the route of National Road 44, connecting the Kakheti lowlands with the Tusheti National Park. The road section to the project, on the southern slope of the divide, is kept open during winter. No access road construction is needed to reach the dam sites from the main road. A 2-km-long transmission line of 35 or 10 kV will be built to reach the existing 35 kV transmission line near the Stori-3 powerhouse.

The site offers seasonally variable average annual generation of about 60.56 GWh, at a plant factor of about 50.5 percent. The watershed is a heavily wooded temperate forest, with mountain vegetation at higher elevations. The mean annual precipitation exceeds 1,300 mm.

The Stori-3 development is expected to include three 5-m-high concrete dams; 6,200-m-long, 3-m-diameter power tunnel; 150-m-long, 0.4-m-diameter diversion pipeline; a surge tank; a short penstock; and a surface powerhouse. The hydroelectric units will consist of two Francis 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: Kakheti, Eastern Georgia
River: Stori Gross Head: 123 meters
Rated Flow: 13.4 m³/sec
Number and Type of Units: 2 × Francis
Construction Time: 2.5 years
Potential Installed Capacity: 13.7 MW
Mean Annual Energy Output: 60.56 GWh
Anticipated Life-span: 50 years



Project Location Map

Project Area Social and Environmental Characteristics

Location: Eastern Georgia, Kakheti Region

Administrative District: Telavi

Area: 1,094.5 km²

Population: 68,000

Population density: 84.4 people/km²

Administrative center: Telavi

The Stori River is 38 km long and drains an area of 281 km². It originates at a height of 2,950 m above sea level. The river is fed mainly by snow, rain and underground waters. Its flow regime is characterized by low waters in winter and spring, and higher flows in summer and autumn.

The Telavi administrative district is bordered by the Akhmeta district (Kakheti region) on the west, the Gurjaani and Kvareli districts (Kakheti region) on the east (Kakheti region), the Sagarejo district (Kakheti region) on the south.

The administrative center of Telavi consists of one small city and 30 villages. The District population is about 68,000 people, mostly Georgians. The distance from Tbilisi to Telavi is about 95 km.

The total area of the district land equals 1,094.5 km². The major industrial activity is wood processing, mainly for construction. The main agricultural activities involve wine making, cultivating annual plants, and animal husbandry.

The Lechuri village is located in the gorge of the Stori River. The gorge is getting narrow there; therefore the village is arranged in a linear manner (along the riverbed of the Stori River). The Lechuri village is located at a height of 560 meters above sea level.

There are about 34 public schools, 7 vocational school, 2 museums and 33 libraries and one theatre in the community. The populated area is rich in old churches, monasteries and other cultural relics.

The territory around Lechuri village borders Tusheti – one of the unique historic-ethnographic mountain regions of Georgia. The majority of the Tusheti population has traditionally engaged in nomadic sheep breeding. They spend the warm seasons in mountains rich in forage, and move to the plains in the cold seasons to reach winter pastures. Sheep-driving routes include the road through Lechuri and the vicinity of the proposed HPPs.

Tusheti Protected Areas: The Tusheti Protected Areas begin about 50 km north from the village of Lechuri, over the pass from the Stori watershed. In 2003, in order to maintain the Tusheti ecosystems and protect its flora and fauna, including the native pine and birch woods, the Tusheti Protected Areas were created. Tusheti Protected Areas with total area of about 113,660 ha consist of the Tusheti Strict Nature Reserve (10,694 ha), Tusheti National Park (83,453 ha), and the Tusheti Protected Landscape (27,903 ha).