Georgia’s small and medium HPPs - finding the happy middle between sustainable and profitable

While the Georgian government seeks to boost its electricity export potential and intensively supports the construction of large hydropower plants, environmentalists recommend focusing on small HPPs. They argue that small plants would have a minimal negative impact on the environment, would help decentralize the energy sector and reduce losses in transmission lines.

Hydropower plants, apart from being cost-effective and the main prospective domestic energy producers in Georgia, are recognized as environmentally friendly renewable energy sources.

However, experts say that large hydropower plants have a dramatically negative impact on the environment; these plants can hardly be considered sustainable or as a source of clean energy, since they require the construction of dams for operation.

"Small and medium size run-of-river hydropower stations involve no reservoir. They involve diverting a portion of river flow through a spillway. The diverted water is returned to the river downstream from the turbine, thus run-of-river installations have an insignificant impact on the river's hydrological regime as compared to impoundment hydro installations,” said Mariam Bakhtadze, USAID Hydropower Investment Promotion Project (HIPP) Environmental Specialist, to Georgia Today. “[This] would not [require] altering the ecosystem of a river and local microclimate overall.”

Hydropower is among the most profitable industries in Georgia. With over 26,000 rivers, the country has the estimated potential of generating 32 TWh per year, if 80% of Georgia’s untapped hydro-resources are harnessed, according to the United States Agency for International Development (USAID).

At present, Georgia has 47 small and medium sized HPPs and 6 large plants such as Enguri, Vardnilhesi, Khrami 1, Khrami 2, Zhinvalhesi and Vartsikhehesi. The hydropower stations operating in Georgia generate 2,700 MW out of slightly over 3000 MW of total installed capacity. According to the Ministry of Energy and Natural Resources of Georgia, there is the potential that an additional 20,000 MW can be generated.

With this big potential in mind, the Georgian government has initiated efforts to attract investments in the energy sector in order to build up to 50 new small and medium size hydropower stations, together with large-scale plants and develop the necessary infrastructure for its proper exploitation. Determined to position the country as a future regional renewable energy hub, the government's long-term plan, as per the Ministry of Energy and Natural Resources, is to export hydropower to Turkey, Armenia, Azerbaijan, Iran, and Russia.

In recent years, the government has signed memorandums with private investors on the construction of over 30 hydro-electric power plants. According to Deputy Energy Minister Giorgi Kavelashvili, most of them are small and medium size hydro power plants.

Kavelashvili points out that the goal is to have Georgia's electricity demand be satisfied 100% by domestic resources. Presently, Georgia needs to import electricity only seasonally – in winter; and it exports abundant electricity in the summertime.

Shifting choice to smaller ones?

According to The World Commission on Dams report in 2000, despite the many benefits dams have contributed to human development, it appears that they are more costly than they are profitable.

The report concludes that the negative impacts of large dams/HPPs on natural and social environments include involuntary resettlement of persons living near the dams, environmental and cultural heritage damages such as landscape degradation, local climate change and the loss of traditions.

For instance, the construction of the Khudoni HPP, in Georgia’s high mountainous Svaneti region, will require the relocation of around 300 households living in and nearby the village of Khaishi. This area will be covered with water because of the dam.

"Applying a balance-sheet approach to assess the costs and benefits of large dams that trades off one group’s loss with another’s gain is seen as unacceptable, particularly given the existing commitments to human rights..."
and sustainable development” argues The World Commission on Dams report.

For such concerns, large hydro-power plant projects such as Khudoni, Namakhvani, Oni and Mtkvari, which appear to be on the government’s priority agenda, happen to be burning issues among local civil society representatives and environmentalists.

In her policy brief entitled Georgian Energy Sector Development Prospects, Manana Kochedze, the Head of Green Alternative, a Tbilisi-based environmental NGO, argues that the objectives of Georgia’s energy policy are being “misinterpreted.” She asserts that large hydropower development trends in Georgia’s energy system “could hardly be described as sustainable and renewable.”

The authorities do not seem to agree. Asked whether the state would benefit more if it focused more on small and medium size hydro power plants rather than large ones, Gorgi Kavelashvili responded: “In order to empower energy security, [we need] less dependence on energy import and an increase in electricity export; [So] it is crucial to build large hydro power plants alongside small and medium size ones”.

Considering both the government and environmentalists’ concerns, the United States Agency for International Development launched a three-year Hydropower Investment Project (HIPP), which is implemented by Deloitte Overseas Projects and is designed to facilitate Georgia’s private-sector development of a minimum of 400 MW in new, run-of-river hydropower stations.

As announced officially at the workshop organized for journalists by the USAID “Hydropower Investment Promotion Project” (HIPP) in mid July, the project will promote private investment exclusively into small and medium-sized hydropower projects, matching Georgia’s potential for the supply of clean and hydro-generated electricity.

The “USAID HIPP project considers only run-of-river (derivation type) hydropower stations, which implies that rivers will not be blocked to create reservoirs in order to ensure maximum electricity production,” Mariam Bakhtadze pointed out.

Within the framework of HIPP, USAID will assist the Ministry of Energy and Natural Resources in preparing the technical-economic research, provide legal assistance and help to attract potential investors.

According to Giorgi Chikovani, Deputy Head of the Project, more than 20 investors from Georgia, Turkey, Norway, Czech Republic and Estonia have signed memoranda on building small and medium hydro power stations in Georgia,

While making reference to the past mistakes made in HPP development in Georgia and the problems it created for local communities, Jake Delphia, Chief of Party of HIPP underscored in his speech to the audience the importance of “[continuing] the development of clean technologies [and making] sure that technologies are built in ways that improve the lives of the people by the plant sites”.

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