NEWSLETTER

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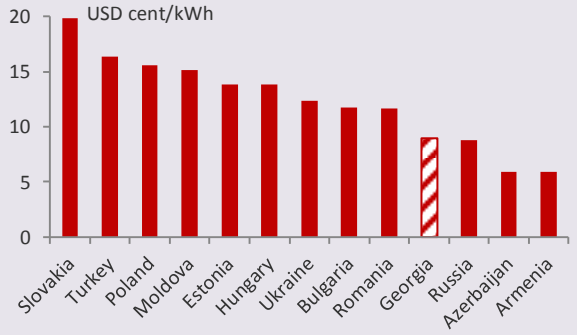
Hydropower: Great potential, necessity to improve policy framework

By international standards, Georgia enjoys low electricity costs. This may constitute a competitive advantage in energy-intensive industries. However, there is currently no redundant generating capacity. The construction of additional hydroelectric power plants (HPPs) with comparatively low electricity production costs (about USD 6 cents / kWh) seems possible. Investments in hydroelectric power plants with a capacity of 3,900 MW are foreseen until 2025. However, such an increase in capacity would cost about USD 9 bn. Investments on this scale can only be achieved with the help of foreign investors. This requires the adjustment of the legal framework of energy policy in Georgia.

Low electricity costs

Electricity prices in Georgia are low by international standards. This is partly due to the low generation costs associated with existing hydroelectric power plants, which account for 80% of electricity production. Additionally, Georgia can purchase even less expensive electricity from neighbouring countries.

Industrial customer electricity rates, including taxes, 2012



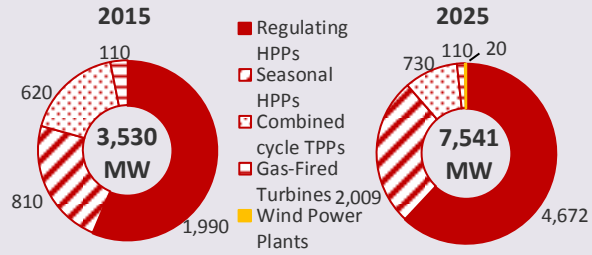
Source: Energy Regulators Regional Association (ERRA)

However, the current capacity is insufficient to cover additional needs, such as those associated with new energy-intensive businesses. Georgia is already a net importer of electricity (2014: 2.3% of demand) and importing more would lead to higher electricity prices. Especially in the winter months, when hydroelectric production of decreases by more than a third in comparison to the summer months, Georgia relies on expensive thermal power plants and imported electricity. Additional power consumption can therefore only be supplied if new generating capacity is created.

Great potential

Georgia has great untapped potential to generate hydroelectricity. The transmission system operator GSE assumes that by 2025, an additional 3,900 MW of HPP capacity will be installed.

Generation capacity in 2015 and 2025 (planning scenario)



Source: Georgian State Electrosystem, 10-year development plan

According to public information about projects currently being planned, we can expect the generation costs at these plants to remain relatively low due to favourable geographic conditions. Calculating roughly, we expect long-term average generation cost of USD 6 cents / kWh.

High investment need

However, costs associated with HPPs are incurred almost exclusively prior to production. If the average cost of these projects is similar to that of previous years, investments of approximately USD 9 bn would be necessary to construct an additional 3,900 MW of capacity. This corresponds to about half the annual economic output of Georgia and therefore cannot be financed using Georgian resources alone. Such ambitious expansion plans can only be achieved with the involvement of foreign investors.

Attracting investors

Attempts to attract investors to HPP projects reveal an essential conflict. By keeping energy costs low, the expansion of hydroelectric capacity should allow the Georgian economy to competitively produce and export energy-intensive goods in a significant volume. However, foreign investors will only invest in hydroelectric plants if they can expect sufficient and stable electricity prices. To avoid exposing its public finances to developments in the energy market and possibly having to purchase electricity at inflated prices in the long-term, the Georgian government cannot and should not give guarantees in this regard. The Georgian market is too small and its price development to dependent on marginal changes in supply, demand, and regulation for investors to be willing to invest large sums in projects that depend only on Georgian electricity prices. For this reason, Georgia can only attract investors with the prospect of being able to sell

electricity produced in Georgia on the considerably larger and more attractive Turkish market. Georgia has already started down this path by expanding its ability to transmit electricity to Turkey, a project that has also been supported by development banks such as the KfW. Several hydroelectric projects currently in planning or under construction are clearly geared to the Turkish market.

The trade-off lies in the fact that exporting to Turkey will eventually raise the price of electricity in Georgia, thus mitigating the competitive advantage of Georgia enjoys at current prices.

Resolving the Conflict

Energy policy towards the hydroelectricity industry should begin with the premise that local resources are used toward the economic development of the country. This contribution should be larger and longer-term than the economic impulses associated with the construction of HPPs. Such a contribution could be made in two ways: by the Treasury sharing in the rents generated by electricity exports or by attracting energy-intensive businesses that create jobs and generate tax revenue.

Currently, neither approach is being pursued consistently. The procedure for awarding rights to large hydroelectric sites is not designed such as to attain the maximum possible fees from investors for these valuable resources. In the opinion of international experts, the tendering process is not sufficiently formally structured and therefore difficult for new investors to understand. As a result, there are typically only few participants in the process. The price at which project developers supply a certain amount of power into the Georgian grid during the winter months, that is, during the time of relative power shortage on Georgian market, serves as the primary selection criterion.

The attraction of energy-intensive businesses to Georgia also suffers from this license-granting process (as well as the unusual power market design). For this reason, it can be very difficult for energy-intensive businesses intending to self-generate electricity to gain access to attractive hydropower sites.

This results in delays in the allocation of attractive hydroelectric sites. Some small developers (which have surprisingly won bids) are not able to carry out their projects. The level of investments in large hydropower plants in Georgia thus remains significantly below its potential.

The projects that are realised, however, are carried out with the goal of exporting electricity to Turkey. In the process, a large portion of the resource rent is repatriated by foreign investors, and thus contributes little to the development of the Georgian economy.

Conclusion

Conditions are very good for the expansion of low-cost and low-emission electricity generation from hydropower in Georgia, and such an expansion could be an important factor in its economic development. We see significant development potential for Georgia in particular in attracting investments by energy-intensive businesses self-generating their electricity.
However, without more competitive tendering procedures for the most attractive hydroelectric sites, Georgia will fall short of its potential and the contribution by projects that are carried out to Georgia's economic development will remain too small.

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Note: The results presented here are based on the paper PP/02/2015 "Can low electricity prices be a comparative advantage of Georgia?"

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