

“Paravani Hydro Power Plant Project”

in Georgia

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Project Details

The Project consists of the construction, operation and maintenance of an 87 MW run-off river hydro power plant (HPP), on the Paravani River, in Georgia, close to the Turkish border. In addition to the power generation facilities, the Project includes 32 km of 220 kV transmission line to the Akhalskhe substation which connects to the 400/500 kV high voltage Akhaltsikhe-Borchkha transmission line from Georgia to Turkey (the “Black Sea Transmission Project”).

The Project will supply electricity to the Georgian market in the three winter months (expected to be in December, January and February) and export power to the Turkish market in the remaining nine months of the year. Total Project cost is estimated at \$156.5 million.

- Net head : 390.7 m
- Rated water discharge: 25.0 m³/s
- Rated installed capacity : 85.77 MW
- Rated annual energy production : 450.746 GWh



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Project location



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CDM details

- Crediting period: Fixed - 10 years
- Annual estimation of emission reductions: about 130,000 tCO₂
- Methodology: ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, latest version 12.1.0
- Status: Letter of Endorsement issued by CDM DNA of Georgia
- No progress (difficulties to find foreign partner, as Grid emission factor of Georgia is low and has tendency to decrease, sell of CERs after 2012 will be problematic, etc)



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Main features of the project that makes it unique or innovative in the sector and/or the region

Paravani HPP will export power to the Turkish market (Turkish Grid).

Georgia is a very rich country in RE resources, especially in hydro. For the last years the energy policy of Georgia has been favorable to the climate change mitigation. The share of hydro power in total energy generation has increased from 72% in 2006 to 92% in 2010. Accordingly emissions of CO₂ have been reduced by 890 ktCO₂.

The overall goal of the Government of Georgia is to move to 100% hydro utilization and evolve into a major regional exporter of clean electricity. According to the experts judgments, by 2030 Georgia will be able to export more than 50 billion kWh “clean electricity” in neighboring countries and in European Union. With this regard, Georgia is a very specific country. Only a few mountainous countries having Comparable/similar potential can export huge amount of clean electricity in other countries with fossil fuel dominated grids.



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Turkey is meeting its ever-increasing electricity demand mostly from thermal sources since this seems to be the most financially feasible option for them. Electricity generated from Hydro power plants in Georgia is not competitive with the cheaper thermal electricity generated.

Carbon credits from CDM are vitally important to improve the HPP projects' (in particular Paravani HPPs') competitive capacity.

Taking into account global nature of climate change, Georgia can make significant contribution to the global efforts to combat climate change exporting clean energy into other countries. However, the cleaner Georgian Electricity Grid becomes, the less environmental incentives to develop RE remain. In case if Georgian grid becomes fully clean (with zero grid emissions factor), implementation of hydro power and in future wind farm CDM Projects, as well as energy efficiency projects (saving electricity) becomes unviable – CDM becomes ineligible, meaningless.

This issue needs proper attention - for a CDM projects (**in particular for Paravani HPP**), exporting clean electricity in other country (Turkey), a possibility to use Grid emission factor of this country should be considered – the use of importing country's (Turkey's) grid EF should be allowed.



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Turkey does not have a target under the Kyoto Protocol. Very likely, since 2013 Turkey will be obligated to reduce/limit its emissions. Turkey doesn't participate in CDM but the *Gold Standard* has registered several wind power projects in Turkey. One of them is "Belen 30 MW Wind PP Project" with Grid EF=0.646 tCO₂/MWh.

For comparison, estimated Grid emission factor of Georgia is about 0.3 tCO₂/MWh having tendency to decrease further.

A few new methodologies in relation to this issue /for such cases have been proposed but none of them have been approved. For instance:

NM269 "Reduction of emissions through one way export of power from lower To higher emissions factor" submitted by Cambodia (Meth Panel Recommendation "C - not to approve" issued in September 2009)

and

NM0272 "International interconnection for electric energy exchange" submitted by Colombia (MethPanel recommendation "C - not to approve" issued also in September 2009).



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Challenges

- Grid emission factor for Georgia is very low and has tendency to decrease further
- Sell of CERs after 2012 will be problematic
- Lack of CDM capacity,
- etc.



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CMP 6 (Decision 3/CMP.6) requested the CDM Executive Board to develop standardized baselines, as appropriate, in consultation with relevant designated national authorities (DNAs)...

Proposal:

Establish Standardised Baseline for mountainous countries

- with huge non utilised RE (hydro, wind, geothermal) resources,
- Share of RE in total electricity generation exceeds 90%
- Exporting electricity in countries with fossil fuel dominated grid

The Standardised Baseline will allow these countries to use importing country's grid EF.



Thank you for attention !

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