Date, 31 January 2014

CDM Executive Board – UNFCCC Secretariat
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Subject: CDM project activity registration request for review "Chorokhi Hydro Power Plant Project" – UNFCCC Ref. 9320.

With reference to the request for review for registration of the "Chorokhi Hydro Power Plant Project" UNFCCC Ref. 9320, we wish to provide the following clarifications:

Question No. 1
The DOE is requested to further validate the input values used in the investment analysis, in particular:

(a) How it has validated that the tariff for Turkish grid is conservative, considering that the tariff for exporting (70 USD/MWh) is lower than DUY (market balancing and settlement mechanism – liberal electricity market) market price of 8.5 to 10 €cents/kWh in Turkey.
(b) How it has cross checked the suitability of the tariff for the power to be sold in Georgia (48 USD/MWh). Please refer to VVS version 3 para 120.

RINA's Response

(a) According to Article-2 of "Electricity Market Export and Import Regulation" (Regulation), only wholesale or retail sale companies can perform export or import activities[1]. Thus, it is not possible for **PP** to sale electricity to be generated from the project activity to the Turkish spot market (DUY). On the other hand, price figures mentioned for DUY are for the year of 2008 are based on an unofficial 2009 report[2]. As selling electricity to DUY is not possible for the project activity, , these figures are provided just for information. However, according to the report of Electricity Market Regulatory Authority (EMRA) average electricity price for DUY in 2011 (most recent year for during investment decision date, which is 16.03.2012)[3] is 125.86 TL/MWh[4], which corresponds to 75.14 USD/MWh with average USD/TL parity in 2011 (1.675 TL)[5]. Hence, 8.5 to 10 EURc/kWh for DUY market is not viable and reasonable for the project activity.

On the other hand, as already demonstrated in Sensitivity Analysis in order to exceed the benchmark IRR (12.9%), price for electricity to be exported to Turkey shall be 87.20 USD/MWh. This is 17.6% more than the average DUY price in 2011 (75.14 USD/MWh), which is too high and unrealistic for such risky project for which even there is no guarantee for export to Turkey, as wholesale companies need to enter tender process and compete

[1] Ref: http://www.epdk.org.tr/documents/elektrik/mevzuat/yonetmelik/elektrik/ithalat_ihracat/Elk_Ynt_ithalat_ihracat_SonHali.doc (Article-2)
[2] See: http://www.afd.fr/webdav/shared/PORTAILS/PAYS/TURQUIE/Nos%20publications/090604%20-%20AFD%20Turkey%20Report%20Scaling%20up%20investment%20on%20climat%20change_version%20publique%20_2_.pdf
[3] PDD, page 13.
[4] See: http://www.epdk.org.tr/documents/elektrik/rapor_yayin/ElektrikPiyasasiRaporu2011.pdf (page 24)
[5] See: http://hazine.gov.tr/File/?path=ROOT%2fDocuments%2fEkonomik+ve+Sekt%c3%b6rel+G%c3%b6stergeler%2ffiyatlar.xls , sheet VII.5, USD/TL average of 2011)

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with other wholesale companies if more than one wholesale companies will apply to import electricity via same interconnected lines, in accordance to the Regulation[6].

Finally, feed-in-tariff in Turkey is 73 USD/MWh (55 EUR/MWh)[7] for renewable electricity generation in Turkey. However, this tariff is applicable only to power plants using domestic sources and built in Turkey and thus not applicable for the project activity..

In conclusion, there is no clear price indication for electricity to be exported to Turkey. It is not possible to sell to the spot market (DUY) and feed-in-tariff for electricity generation from renewable sources is only applicable to the power plants built in Turkey. Thus, only viable option for PP for export to Turkey is to make bilateral agreement with a wholesale company. However, there is no guarantee for the export even by bilateral agreement, as capacity allocation of interconnection lines is determined by a tendering process, and wholesale companies need to compete and win the tender to be able to export the electricity. On the other hand, to exceed the benchmark IRR (12.9%), exported electricity needs to be sold with 87.20 USD/MWh, which is 16.0% more than average DUY price in 2011 (75.14 USD/MWh) and 19.3% more than feed-in-tariff (73 USD/MWh) in Turkey, which is not realistic.

Based on above arguments and evidences and taking into account also the risks and uncertainties behind electricity export to Turkey, all transmission fees and transaction costs, 70 USD/MWh price for the electricity to be exported is, thus, conservative.

(b) As the price is taken from the agreement signed between the **PP** and Georgian Government on bilateral basis, there are no publicly available official sources to cross-check the suitability of the tariff. However, a similar registered hydro project in Georgia (Project 7983 : Adjaristsqali Hydro Project) has indicated 45 USD/MWh[8] sale price to Georgian Government which demonstrates that tariff for the power to be sold in Georgia is suitable and even conservative for this project activity.

Question No. 2

The PDD (p 9, p11) states that Turkish grid is not included in project boundary and project electricity system for emission factor calculation and the baseline scenario is that the electricity delivered to the Georgian grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid. The DOE is requested to further validate explain 1) how the baseline for the proposed project activity can be considered as Georgian grid, considering that 60% of the power generated by the project will be exported to Turkey, an Annex I country and 2) how it has validated that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of the grid-connected power plants and by the addition of new generation sources in Georgian grid. Please refer to VVS version 3 paragraph 91.

RINA's Response

For the electricity which is planned to be exported to Turkey, there is neither the guarantee for export nor guarantee for selling price. As explained in the response to the Comment-1 (a) above,

[6] See: http://epdk.org.tr/documents/elektrik/mevzuat/yonetmelik/elektrik/ithalat_ihracat/Elk_Ynt_ithalat_ihracat_SonHali.doc (Article 8-(4), page 7)
[7] See: http://epdk.org.tr/documents/elektrik/mevzuat/kanun/Elk_Kanun_Yek_Kanun.doc (Page 9, "Hidroelektrik Uretim Tesisi")
[8] See PDD: http://cdm.unfccc.int/Projects/DB/DNV-CUK1351781407.28/view (page 21)

according the Electricity Market Export and Import Regulation issued by Electricity Market Regulatory Authority of Turkey (EMRA), electricity can only be exported to Turkey via wholesale or retail companies having license from the EMRA and in case of multiple application export-import activities depend on the result of tender process for allocation of the capacity from the interconnection line to the wholesale companies. Having no guarantee for export to Turkey, the baseline for the proposed project activity is considered the project power plant and all the power plants connected physically only to the Georgian National Grid. All the electricity produced by the project activity will be fed into Georgian grid, as the power plant will be connected to the Batumi substation in Batumi city of Georgia. Thus, even though it is expected that the 60% of electricity exported to Turkey, it will be through the Georgian grid and hence, only the electricity system of Georgia is considered in the project boundary. Currently, there is one 220 kV transmission line (interconnection line) between Turkey and Georgia currently having import-export capacity up to 150 MW and being operated under isolated region principle, i.e. there is no condition for synchronous operation of the interconnection line between Georgia and Turkey[9] and which means that both grids are being operated independently. Consequently, the combined margin is calculated using the OM and the BM sourced from the Baseline Emission Factor for the electricity system of Georgia which is made available by the Ministry of Environment Protection and Natural Resources[10].

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[9] See Net Transfer Capacities of Interconnection Lines of TEIAS:
http://www.teias.gov.tr/Dosyalar/NetTransferKapasiteleri.doc (page 4)).
[10] Ministry of Environment Protection and Natural Resources of Georgia: Baseline Emission Factor for the Electricity System of Georgia, dated 2008
Website: http://moe.gov.ge/files/Klimatis%20Cvlileba/Grid_Emission_Factor_Georgia.pdf