**Due Diligence of E&M parts of four HPP**

**GWP**

**1 Electro-mechanical equipment**

The main electric power devices include: hydro turbines, hydrogenerators, power transformers, high voltage equipments. Their purpose is to generate and transmit electricity to the electrical system.

***Task***

* Conduct diagnostic studies on individual installations, primarily on hydro-turbines and generators
* Measure efficiency at site and conducting energy tests and test of each turbine unit to determine the efficiency coefficients, in different working modes.
* Cost measurements should be conducted experimentally and existing turbine flowmeters should be adjusted, or new, modern type of flowmeters should be arranged
* Identification of Cavitation / Erosion situation of Turbines
* Determination of possibility of increase of Turbine efficiency and Generator efficiency
* Determination of the equipment which need to be modernized and provision of Technical specifications of the whole equipment which need to be modernized
* Possibility of less water usage for the Turbines instead of the existing Turbines
* Long term strategy development with specific rehabilitation/upgrade recommendations, timeline and budgetary estimate.
* Evaluation of existing a 10-year CAPEX plan and its optimization based on the fundings for above mentioned surveys/studies

The tasks presented above should be implemented in the following manner: the efficiency tests of turbines and generators should be done firstly, the recommendations for improvement assessed according to the result of the efficiency tests to be done afterwards.

Bidder could propose optional tasks. In this case the clear explanation need to be provided in order to identify the neccessity of optional tasks. The optional task must be costed separatly.

1. DELIVERABLES

The selected bidder (Consultant) shall work closely together with the Client’s team, and shall develop the following outputs:

* The Consultant shall deliver a kick-off meeting report on the above mentioned topics, consisting of the tasks clarifications, data availability, new data and all other relevant issues discussed during the kick of meeting.
* The Consultant shall deliver a draft report on the above mentioned topics consisting of initial condition assessment of the above mentioned assets, identified risks and ways for their mitigation and other relevant inforamtion in regards to the task presented above.
* Upon clarification of Consultant’s comments together with the Client, the Consultant shall prepare a final report, summarizing all findings of the completed services, risk assessments (both technical and economic), specific rehabilitation/modernization works recommendations and long term strategy development, including an optimized 10-year CAPEX program.
1. Contract value:

The Bidder should bid on lump-sum basis to carry out the following activities:

* + Performing of the services as described under the Scope of Work, including preparation of deliverables as described.
	+ Costs need to be presented for each desribed scope of works sections and divided per each task under each section.
	+ Bidder to elaborate and submit financial offer of the presented Due Dilligence TOR together with the bid.

In addition, the Consultant shall provide time allocation of team members and hourly / daily rates for all proposed team members. No additional work shall be carried out outside of lump sum amount -- all costs shall be incorporated in the fixed bid amount.

1. SPECIFIC TERMS & CONDITION

All deliverables shall be prepared in English language and submitted in electronic format only. In general, the Client will review deliverables and convey its comments to the Consultants within fourteen (14) days from the date of their reception. The Consultant shall present the final version of report to the Client within fourteen (14) days from the date he receives the Client’s comments. If no comments are received by the Consultant from the Client within the 14 days review period by the Client, the reports and drawings are deemed to be approved. The approval of all the Consultant's reports and drawings shall not relief the Consultant from any of its obligations under the scope of Services. The Period for comments of the Client is not counted as part of the Consultant's time schedule.