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EXECUTIVE SUMMARY

The Government of the Republic of Rwanda (the "Government" or the "GoR"), acting through the Ministry of Infrastructure ("MININFRA"), entered into a Contract for Technical Assistance (the "Contract") with Delphos International ("Delphos"), which along with Hunton & Williams ("H&W"), London Economics International ("LEI"), and Mr. Faroh Ndahiro form Team Delphos International ("TDI" or the "Consultants"), dated January 29, 2007 and regarding the Nyabarongo Hydropower Project ("Nyabarongo HPP") and Rukarara Hydropower Project ("Rukarara HPP") (Nyabarongo HPP and Rukarara HPP collectively form the "Projects"). The Final Report included herein is the deliverable pursuant to the Terms of Reference ("TOR") for the Contract.

Over the last decade, Rwanda ("Rwanda" or the "Country") has experienced significant, positive change in its economy, including increased private sector initiatives, a more liberalized market and greater transparency in commerce. Despite these positive developments and average annual growth in the gross domestic product ("GDP") of over 6.6% since 2006, Rwanda remains a very low income country – partly attributable to the inadequate infrastructure, a significant obstacle to social and economical progress. As such, there is an urgent need to develop Rwanda's energy infrastructure in order to serve the Country's burgeoning demand and enable the realization of economic and developmental potential.

In its Request for Proposals published in 2006, the U.S. Trade and Development Agency ("USTDA") identified that only 2.4% of the Rwandan population had access to electrical power supply and only 8% of energy need is fulfilled by electricity. Instead, firewood, charcoal, and agricultural residues serve as predominant energy sources. The lack of investment in electricity generation, which results in deforestation, overuse of existing hydropower capacity, and inevitable deterioration of water supply, has urged the GoR to seek new power capacity. Paving the way for private sector involvement in the energy sector (which should promote the development of new power capacity), the GoR has taken steps to abolish the legislated generation monopoly enjoyed by the state-owned Electrogaz and opened transmission and distribution to third-party providers in 2009. In that regard, the development of the two hydropower plants on the Nyabarongo and Rukarara rivers is aligned with the GoR's energy strategy, adding a total of 38MW to the Country's power generation capacity.

The hydropower potential of the two rivers has been known for some time - as early as 1977 in the case of Rukarara when an initial feasibility study was completed. In 1999, the French engineering firm, Société Grenobloise d'Etudes et d'Applications Hydrauliques ("SOGREAH"), conducted a detailed feasibility study and conceptual design in Nyabarongo for a hydropower plant. Based on the 1999 SOGREAH study and a more recent study completed for Rukarara by EcoPower Global ("EPG"), the GoR proceeded to the next step in the development of the Projects in 2006. More specifically, the GoR retained TDI to provide Technical Assistance in the financial, legal and economic development of the Projects and selected EPC contractors to undertake the site development and the construction of the Projects.

As of the date of this report, EPC contractors for both Nyabarongo HPP and Rukarara HPP have been selected (the consortium of Bharat Heavy Electrical Limited and Angelique International Limited, and EcoPower Global, respectively) with construction activities already underway. Rukarara is scheduled for completion in Q3 2010, whereas the Nyabarongo project is still awaiting completion of a (separately funded) environmental and social impact assessment.

The construction cost of the 9.5MW Rukarara HPP is estimated at US $16.8 million. Upon completion, Nyabarongo HPP – which will be the largest hydropower plant in the country with 27.8MW capacity - is estimated to cost $112.8 million, of which $97.7 million EPC contract price and $15.1 million of environmental and social mitigation, owner's engineer, and other 'soft' costs.

Name	Location	Capacity (MW)	Cost (US$M)
Rukarara	Gikongoro	9.5	16.8
Nyabarongo	Ngororero	27.8	112.8

The GoR is funding the construction of Rukarara HPP from its own resources, and has received credit facilities from the Export-Import Bank of India for the development of Nyabarongo HPP. The GoR is currently considering whether to seek creditworthy and experienced power operators to take ownership of the Projects' assets after completion. While the GoR intends to operate Rukarara HPP through a subsidiary operator for at least a limited period, it is considering privatization of the smaller project together with the larger Nyabarongo project upon the latter's completion. Each Rukarara HPP and Nyabarongo HPP could be either fully or partially privatized, whether in terms of equity ownership and/or the scope of assets (power generating facilities vs dam and associated civil works).

TDI presents the Grantee with the Final Report included herein, which is based on the work performed under the individual Tasks of the study – preparation of detailed financial and economic models (Task 2 and Task 3, respectively), completion of legal review (Task 4), analysis of the project structure (Task 5), advice on the underlying structure of the Projects (Task 6), preparation of an investment memorandum (Task 7), assistance with marketing, development and support of the transaction as deemed necessary by the GoR (Tasks 8 and 9), and completion of developmental analysis (Task 10).

Key Findings

In Task 1, TDI commenced their work under the Contract, including a Kick-Off Meeting with the Grantee. At the Kick-Off Meeting, after signing of the Contract, TDI gained a better understanding of the Grantee's objectives and timeline for the Projects. Deviating slightly from the implementation envisioned in the TOR, the Grantee had decided to fast track the Rukarara HPP by contributing its own capital toward the construction and development of the Project. Later in 2008, the Grantee decided to pursue a concessional loan from the Export-Import Bank of India to finance the construction of Nyabarongo. These developments required TDI to re-focus

its Task 2 and Task 5 analyses on possible options for privatizing the Projects during or after the completion of construction.

In Task 2, TDI prepared six initial financial models, each with a different financing scenario (100% Government Equity, Independent Power Producer ("IPP") with Sale Post-Construction, IPP with Sale Pre-Construction, Public-Private Partnership ("PPP") with Public Majority Ownership, PPP with Private Majority Ownership and 100% Government Ownership with Concessional Debt). The objective of the financial models was to calculate a levelized break-even tariff that would recover the cost of debt and equity required to fund the Projects (while also considering certain debt service coverage ratio (DSCR) covenants and operating and investment cost assumptions). As the development of the Projects evolved during the life of the Contract, so too did the focus of the financial modeling. Some of the key findings of Task 2 included the following:

- There is an inherent trade-off between the tariff and GoR's exposure. In particular, GoR-owned cases are at a lower tariff but require more GoR funding and/or direct exposure to indebtedness. For example, the scenario with the lowest break-even tariffs (a 100% GoR owned scenario), also has the highest debt exposure (as measured by the Net Present Value ("NPV") of debt service to exports).
- GoR can limit its financial exposure through privatization of the Projects; however, such cases require a significantly higher tariff and the negotiation of project contracts (Power Purchase Agreement ("PPA"), Concession Agreement ("CA"), Financing Agreements ("FA"), etc).
- The scenarios with private ownership have the highest break-even tariffs, but also generate the most significant foreign direct investment ("FDI") inflows into the country and support the GoR's stated goal of increasing private sector involvement in the energy sector.

In Task 3, TDI prepared a macroeconomic model, which was built in close coordination with the financial model from Task 2. The macroeconomic model assesses the impact of various project financing structures on key Rwandan macro-economic indicators, including government debt, government balance accounts and balance of payments. More specifically, the macroeconomic model of Task 3 is directly linked to the financial model of Task 2 and considers the *incremental* impact of each financing scenario on a year-on-year basis.

- Two main sources of economic risk are demand risk and hydrology risk.
- Demand risk assesses whether or not consumers will be both able and willing to pay for the produced energy. Based on a comparison of the Projects' estimated break-even tariffs with prevailing retail tariffs and the cost of diesel-fired generation, the demand risk for the Projects is relatively low in the short- to medium-term. In the long term, we note that Rwanda does not currently have a detailed least-cost power system development plan.
- Hydrology risk refers to the availability of water to enable electricity generation. The financial model in Task 2 analyzes the sensitivity of the tariff structure to hydrology conditions. The main issue, however, remains the quantity (number of consecutive years) and quality of hydrology data. Further technical analysis may be required to ascertain whether the lenders and private-sector sponsors will be willing to bear the hydrology risk of both projects.

- The impact of the GoR's IMF covenant (NPV of Debt/Exports) is significant but bearable for scenarios where the GoR guarantees concessional debt for the Projects. These scenarios involve an increase in the NPV of Debt/Exports in the range of 0.06 to 0.07, or around 10-12% from the base level (where the base level is estimated at 56.89% of exports for 2011).

Task 4 called for a Regulatory Analysis, which determined the impacts of the evolving regulatory structure on the success and viability of the Projects. Included in the analysis are recommendations on any changes that need to be adopted as pre-requisites for private financing of the Projects. The key findings of Task 4 are included below:

- GoR's demonstrated commitment to legislative reforms that establish an investment infrastructure conducive to competition and foreign investment will increase the likelihood of GoR attracting private investors for the Projects.
- The GoR will need to further develop the electricity sector infrastructure by enacting a comprehensive, transparent, and non-discriminatory electricity law, such as the Draft Electricity Law, as a pre-requisite to obtaining private financing of the Projects.
- For the GoR to facilitate private investment in the Projects, potential investors will most likely require the GoR to provide a government guarantee and enter into a concession or implementation agreement to contractually reduce some of the perceived risks associated with the evolving regulatory structure in Rwanda.
- If private investors require the GoR to enter into a concession agreement as a condition to finance the Projects, then the pertinent question regarding Rwanda's electricity regulatory structure becomes whether the laws permit the GoR to contractually provide concessions on issues that will be important to an investor in the Projects (i.e., licensing arrangements, electricity price control, title to land and land use, expatriation of profits, use of international arbitration, etc.).

On the basis of the first four tasks and the Grantee's progress in developing the Projects' at the time of writing, the Contractors analyzed and made recommendations for the Projects' ownership, management and financing structures in Task 5. At the time of completion of Task 5, the Grantee had started to fund and build Rukarara HPP with internal resources (i.e. GoR's capital) and financing had been secured through the Export-Import Bank of India ("ExIm Bank") for a concessional loan to construct the Nyabarongo HPP. As such, the TOR from this point was completed considering post-construction financing and ownership options only. The key findings are as follows:

- Based upon feedback from MININFRA, TDI recommends that GoR own, manage, and finance the Projects, leveraging concessional debt, during the construction phase of the Projects and then enter into a post-construction partnership with a private investor (the "Investor"). Upon commissioning of the power stations, GoR will sell the powerhouses at Nyabarongo and Rukarara, and the related switchyard facilities (the "Power Stations") to a project company established by the Investor to manage the Projects, but retain ownership of the dams and related civil works (the "Dams"). Simultaneously, GoR will lease the rights to the land upon which the Power Stations are situated, and issue a license to operate the civil works.
- The recommended financing structure for the Projects strikes a balance between the interests of GoR in minimizing the consumer tariff and the interests of the Investor in

minimizing investment risks. The recommended financing structure requires a smaller equity investment by the Investor than if the Investor purchased both the Power Stations and the Dams. The smaller amount invested in the Projects by the Investor should also correlate into a lower tariff for consumers because TDI have estimated that GoR's cost of capital for financing the construction of the Dams will be less than the average rate of return Investors typically require on similar investments

- Until commissioning, interim agreements should be put in place, the most immediate of which is the establishment of special purpose vehicles ("SPVs") as legal entities to hold Nyabarongo HPP and Rukarara HPP assets (2 companies for Nyabarongo HPP – one for Power Stations and one for Dams; 1 company for Rukarara HPP).
- Other interim steps include keeping separate accounting books, Rukarara employing a core management team (2-3 individuals and support staff) capable of running the plant more efficiently and at lower cost than an outsourced O&M contract, and Rukarara being run at cost during initial operation period.
- Given new project structure, greater attention and next steps should be focused on credit enhancement structures and tender documentation, among other items.

On the basis of the recommended structure in Task 5, TDI prepared term sheets ("Term Sheets") and key terms for other relevant agreements in Task 6. Key terms and conditions were developed for an EPC Contract, a PPA, an Implementation Agreement, an Operations and Maintenance Agreement, and a Concession Agreement.

In Task 7, TDI prepared an Investment Memorandum ("IM") for purposes of presenting the Projects to the investment community and for structuring and obtaining financing for implementation of the Projects. The IM is based on the findings of Tasks 1-6 and is included herein.

Tasks 8 and 9, Marketing of the Transaction and Ongoing Transaction Support, include a summary Power Point presentation suitable for a variety of potential key stakeholders (the "Marketing Presentation") and assistance to the Grantee to obtain financing after delivery of the Final Report. The Marketing Presentation is based on the findings of Tasks 1-7 and has been prepared as a tool to present investment and risk-sharing opportunities to Rwandan government officials, private investors, donors, International Financial Institutions ("IFIs"), regional development banks, insurers, and others. TDI is prepared to provide ongoing transaction support for the financing and structuring of the Project per Task 9 of the TOR.

Task 10 highlights potential development impacts of the Projects. In particular, development impacts are examined in the following contexts: the electricity sector, commercial and economic impacts, socio-political impacts and future private investment impacts (i.e. investment multipliers).

Chapter 1-Task 1: Background Research and Kick-Off Meeting

Pursuant to the TOR, TDI held kick-off meetings in Kigali during 27 February – 2 March 2007 with the Grantee and other public and private-sector stakeholders in Rwanda. Attending for the Contractors were Todd Morath of Delphos International (Team Leader & Financial Analyst), James Schmidt of Hunton & Williams LLP (Legal Specialist), and Bridgett Neely of London Economics (Economic & Developmental Impact Specialist). Main points of contact established by the Grantee were Anthe Vrijlandt (Expert, External Links) and Yussuf Uwamahoro (Energy Sector Coordinator) of MININFRA. The kick-off meetings established the framework for Tasks 2, 3 and 4, as well as for the balance of the TOR. In addition to meeting key players involved in Rwanda's energy sector (e.g. key officials from Electrogaz, Ministry of Infrastructure, RURA, etc.), TDI gained a better understanding of the Grantee's objectives and timeline for the Rukarara HPP and Nyabarongo HPP project development and construction.

Deviating slightly from the implementation envisioned in the TOR, TDI learned that the Government of Rwanda (through MININFRA as the implementing agency) had decided to fast-track both Rukarara HPP and Nyabarongo HPP by contributing the GoR's own capital toward the development and construction of the Projects. Effectively, in late 2006 or early 2007 GoR had already opted for the 100% government-ownership model before the study got underway.

Given the altered approach to the development of the Projects, the nature of TDI's technical assistance provided under the Contract deviated slightly (but not materially) from what had originally been envisioned in the TOR. Namely, TDI refocused its analysis on potential ownership and financing structures that GoR could employ *post-completion* of the projects, whether involving partial or full privatization of part or all of the upstream (i.e. dam) and/or downstream (i.e. power generation facilities) assets. In other words, apart from the aforementioned timing aspect, TDI performed its analysis as prescribed under the TOR.

The schedule of meetings held during the February – March 2007 kickoff visit was as follows:

27 February, 2007

9:00am – 5:00pm *Rwanda Ministry of Infrastructure (MININFRA)*

Anthe Vrijlandt, Expert, External Links
Yussuf Uwamahoro, Energy Sector Coordinator
Felicien Ndabamenye, Technical Specialist

28 February, 2007

11:00am *Electrogaz*

John Mirenge, General Director

4:00pm *Rwanda Investment and Export Promotion Agency (RIEPA)*

James Kamanzi, Head of "One-Stop Center"

5:00pm *International Finance Corporation*

Brian Kirungi, Team Leader / Legal Specialist, IFC Rwanda Leasing Program

1 March, 2007

9:00am *US Embassy*

Daniel Stoian, Economic Consul

10:00am *Rwanda Utilities Regulatory Agency (RURA)*

Francois Zimulinda, Managing Director

11:00am *Rwanda Investment Group*

Mr Fiacre Birasa

2:00pm *Rwanda Environment Management Authority (REMA)*

[did not receive business cards]

4:00pm *Rwanda Ministry of Economics and Finance (MINECOFIN)*

Jean-Jacques Nyirubutama, Director – External Finance Unit

2 March, 2007

8:30am *MINECOFIN*

Francois Nkulikiyimfura, Director of Treasury

10:00am *EU Commission Delegation*

Joel Neubert, Head of Section - Infrastructure

11:00am *International Monetary Fund*

Mr Sunday – J. Kayemba, National Economist

5:00pm *MININFRA*

Debriefing to Mr Albert Butare, Minister in Charge of Energy and Infrastructure

Chapter 2 - Task 2: Prepare Detailed Financial Models

In Task 2, TDI prepared six initial financial models to evaluate the impact of different potential financing and ownership structures for implementation of the Projects. Each of the six financial models featured a different financing scenario (100% Government Equity, Independent Power Producer ("IPP") with Sale Post-Construction, IPP with Sale Pre-Construction, Public-Private Partnership ("PPP") with Public Majority Ownership, PPP with Private Majority Ownership and 100% Government Ownership with Concessional Debt).

Per the TOR, TDI used all data from the project feasibility studies and EPC Contractor cost estimates to form the energy production projection, capital costs and operating expenses. TDI developed assumptions for macroeconomic data and financing terms.

The objective of the financial models was to calculate a levelized break-even tariff that would recover the cost of debt and equity required to fund the Projects (while also considering certain debt service coverage ratio (DSCR) covenants and operating and investment cost assumptions).

TDI developed a financial model prepared in Excel format for Grantee use designed with the intention to evaluate future hydropower projects. Please refer to **Appendix A, Task 2: Financial Model** for the complete financial model.

As the development of the Projects evolved during the life of the Contract, so too did the focus of the financial modeling. In addition to the models, the required deliverable for this Task, we have provided some commentary on Assumptions, Break-Even Cash Flow Analysis, Summary Financials and Key Findings below. Because of the altered nature of the scope, we have focused our commentary on three modified scenarios.

1. ASSUMPTIONS

1.1 Investing Assumptions

Fixed-price, date-certain, EPC contracts are in place for both Rukarara HPP and Nyabarongo HPP. The construction of Rukarara HPP is expected to last 28 months, having begun in June 2007 and concluding in early 2010. The duration of the Nyabarongo HPP EPC construction is expected to last 36 months, having begun in December 2008.

For Nyabarongo, the cost of the EPC contract is US$ 97.7 million, including $55.2 million for site preparation of civil works, $10.5 million for the construction of the transmission station and $31.9 million for electrical equipment. The EPC cost per installed kilowatt (at 27.8MW of installed capacity) is $3,514. In addition the fixed-price EPC price, other investment costs include $4.5 million of developer's fee (i.e. cost of owner's engineer) and $7.5 million of environmental and social costs (e.g. studies). Financing fees related to the construction of the Projects are discussed below.

The EPC contract price for Rukarara HPP is $16.2 million, in addition to a contingency budget of $499,000 (contingency cost is built into the cost of the EPC contract in the case of Nyabarongo). The EPC contract includes $6.2 million in equipment costs and $10.0 million in

civil works. The EPC cost per installed kilowatt is $1,703 (at 9.5 installed MW). Discussion of financing costs is included below.

The cost of transmission lines and 15-20 year overhauls are not included in the model.

1.2 Operating and Investing Assumptions

A variable generation tariff, rather than a fixed capacity payment to generator, is used to calculate revenue. Since the energy price is treated as a variable cost per kWh basis, the break-even tariff is the 'all-in' tariff. This methodology allows for the model to produce an 'all-in', break-even tariff.

Break-Even Tariff Methodology and Cost of Equity Calculations

Under a break-even tariff analysis, TDI solved for a levelized tariff at the point where the Equity Internal Rate of Return (EIRR) is equal to the Cost of Equity (CE). The tariff is adjusted as required to comply with assumed debt service coverage ratio (DSCR) constraints. A goal-seek finds an 'all-in' tariff that returns an EIRR equal to the CE.

The CE is the risk-adjusted cost to shareholders to provide funds. As such, the cost of equity, over the life of the project, reflects the minimum return required by shareholders. TDI's model requires both the 1) cost of government capital (CGC) as well as the cost of private capital (CPC). In scenarios involving private ownership, we have estimated the tariff required to meet the CPC. In scenarios assuming 100% government ownership, we have estimated the tariff in relation to the CGC. We have assumed the CGC is 10% per annum. In scenarios where the CPC is the driving factor, a number of various market premiums determine the cost:

- Risk Free Rate : 5.20% per annum (10 year U.S. Treasury)
- Market Premium : 6.00% per annum
- β : 0.62 (IPP)
- *Leverage Calculation = 1 + (1-Tax Rate)*Debt/Equity*β = Levered β*
- Country Premium = 4.75% per annum
- Project Premium = 3.00% per annum => to cover project risks

The CPC is then calculated using the following formula:

CPC per annum = Risk Free Security + U.S. (Market) Premium * Levered β + Country Premium + Project Premium

To reiterate, the levelized tariff is calculated at a point where the Equity Internal Rate of Return (EIRR) is equal to the CE. Since the CE is the rate at which cash flows are discounted, this is point is defined where the Equity Net Present Value (ENPV) is equal to zero.

As far as other revenue driving assumptions, it is assumed that an arrangement (such as a PPA) is in place upon commissioning of the Projects.

Any ancillary revenues, such as carbon credits and interest income, were not included in the base case analysis used to derive the break-even tariffs.

Based on the EPC contract, the estimated cost of Operation & Management for Rukarara HPP is US $280,000. For Nyabarongo HPP, TDI pro-rated this assumption for higher capacity to reach an estimate of $1 million.

Working capital assumptions include 30 receivable days and 30 payable days.

1.3 Financing and Tax Assumptions

The financing assumptions for the Projects include a Letter of Credit Fee on the EPC Contract, which is assumed to be 1.00% of the contract's total value. For Rukarara HPP, there are no other financing fees as it has been financed entirely by internal resources.

Nyabarongo HPP will be funded by GoR internal resources and a concessional debt facility from the Export-Import Bank of India ("India Exim Bank"). Approximately US $80 million, or 71% of Nyabarongo HPP's total project cost of $112.8 million, will come from the India Exim Bank facility. In October 2008, India Exim Bank signed an agreement to extend a Line of Credit (LOC) of $20 million to the GoR to finance the first tranche of the EPC component of Nyabarongo HPP's construction. The second tranche of $60 million was approved by India Exim Bank in 2009. India Exim Bank will pay 100% invoice value upfront to Indian Exporters upon shipment of machinery/provision of services from India for execution of the EPC contract. The facility has a 5 year grace period, 20 year payment period at a fixed interest of 1.75% per annum. There is a committee fee of 0.5% per annum on the undrawn amount of the facility.

The CIF Tax is 3% on imported equipment and materials needed for the construction of the Projects. A Valued Added Tax (VAT) of 18% may apply on those items but will be refundable within a 6-month claim period.

The Withholding Tax is 15% and only applies to transactions between the resident entities (e.g. a project company) and non-residents. These include interest payments, dividend payments, etc.

Income tax is assumed to be 30%. There will be accelerated tax depreciation, as 50% of capital expenditures are written off in the first year of operations, per Rwandan GAAP. It is assumed that there is a 5-year carry forward of net operating losses.

The assumptions for financing and ownership terms post-construction are summarized in the Break-Even Cash Flow Analysis section below.

2. BREAK-EVEN CASH FLOW ANALYSIS

2.1 Rukarara HPP

Table 1. Rukarara HPP

Rukarara	
Tariff	**6.77 cents /kWh**
Equity IRR	**14.46%**
Average DSCR	**1.32**
Min DSCR	**1.23**

Although several private ownership scenarios were originally considered, the scenario under consideration currently by the GoR and discussed in this section involves a full 100% privatization of all of Rukarara HPP's assets. We have assumed a privatization at the end of 2012 or early 2013 (at the same time as the completion of Nyabarongo HPP). The assumptions relating to the sale price of the assets are critical, as the sale terms serve as the 'return' to the public sector (i.e. to achieve a minimum 10% return, assumed CGC) and as the cost to the private sector investment. The calibrated break-even tariff is a product of the terms of the sale between the public sector and private sector. Under a privatization scenario, we assume that Rukarara HPP's assets will be sold from the GoR to an IPP through a cash equity investment upon signing equal to 25% of sales price, with the remaining 75% of the sales price financed by the GoR to the IPP at an all-in rate of 8.00% with a tenor of 15 years. We assume that the sales price is equal to the cost of the Rukarara HPP plus a premium of 26.5%. At that premium, the cash equity investment (paid from private investor) is equal to $5.3 million, with $15.9 million financed by the GoR through a long-term debt facility.

Based on the break-even cash flow analysis[1], the all-in tariff is calculated to be 6.77 cents per KWh, allowing the private investor an achievable minimum required return on investment of 14.4%. Under a long-term PPA contract with Electrogaz, annual revenue is projected to remain consistently at $2.6 million for 30 years (the PPA will actually consist of a guaranteed fixed capacity fee and associated energy fee. For the purposes of the break-even cash flow analysis, we have assumed a single, variable, all-in tariff.) After 2012, Rukarara HPP's net income, including the annual debt service payment, will grow at an average rate of approximately 10% per year, increasing to close to US$1 million by 2022.

Expenses are estimated at $500,000 for the first year of operations. The average annual operating cash flow for the entire project life after a privatization is expected to be approximately $2.2 million. With such strong forecasted cash flow, the HPP will achieve sustainable debt service coverage ratio (DSCR) of 1.23 at a minimum. Please see Table 2 below for a summary of Rukarara's expected cash flows.

[1] Break-even cash flow analysis is the cash flow analysis at a break-even level, which is the level where the levelized tariff EIRR is equal to the CE (see Section 1.2)

Table 2. Rukarara HPP Break-Even Cash Flow Summary

RUKARARA HPP Impact to IPP/Sponsors *(USD 000s)*	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Income	372	461	508	541	598	659	725	807	889	973
Operating Cash Flow	2,220	2,271	2,269	2,283	2,269	2,269	2,269	2,269	2,269	2,269
Total Equity Contribution	(5,326)	-	-	-	-	-	-	-	-	-
Debt Service: Principal	(283)	(601)	(650)	(704)	(762)	(825)	(893)	(966)	(1,046)	(1,132)
Debt Service: Interest	(1,275)	(1,238)	(1,188)	(1,135)	(1,077)	(1,014)	(946)	(872)	(793)	(706)
Dividend Payments	249	451	449	445	430	430	430	430	430	430
Private Sponsors Net Cash Flow	(5,077)	451	449	445	430	430	430	430	430	430

2.2 Nyabarongo HPP

This section outlines the break-even cash flow analysis for two possible privatization scenarios for the Nyabarongo HPP: 1) a partial privatization whereby ownership of the Power Station is sold to a private investor group, with GoR retaining ownership of the civil works and 2) a full privatization whereby the GoR transfers ownership of all assets (power house and civil works) to a private investor group. Under the partial privatization scenario, GoR will lease the rights to the land upon which the Power Station is situated, and issue a license to operate the civil works.

The sale will be executed through the transfer of ownership of SPVs, which will be established immediately. One SPV will hold the Power Station assets and one will hold the assets related to the civil works of the Nyarbarongo HPP.

It is important to note that one or the other variants (i.e. partial privatization or full privatization) may suit MININFRA better depending on GoR's priorities at the time of an eventual privatization. For example, if the priority is to maximize proceeds to GoR for reinvestment in other priority projects, then a full privatization may be more attractive. On the other hand, if the overarching goal is to minimize the tariff impact to end users of electricity, GoR may find the partial privatization structure optimal.

The break-even cash flow results of these two variants are presented below:

2.2.1 Partially Privatized

Table 3. Nyabarongo HPP – Partially Privatized.

Nyabarongo	
Tariff	9.21
Equity IRR	17.94%
Average DSCR	2.05
Min DSCR	1.47

Under this scenario, the GoR is expected to sell its shares in the Power Station SPV (i.e. the SPV which owns Nyabarongo HPP's generating assets) to the private investor for $56.5 million (the cost of the Power Station plus a premium of 29.6% on the public sector equity invested), of which $19.6 million will be in the form of equity and $36.9 million as long-term debt. The long-term debt would 'pass-through' the terms of the India Exim Bank financing plus a margin of 6.50% per annum (the margin would be retained GoR). These inflows to GoR, as well as a lease payment on the civil works, would provide a break-even point (where GoR's EIRR is equal to CGC) for the GoR's investment in the Nyabarongo project. The GoR would service liabilities to Exim Bank through the IPP's debt service payments and through the lease payment. The levelized tariff is calculated at a point where the IPP will break even.

The IPP (either the Power Station SPV or a NewCo) is responsible for paying the annual lease for the civil works, approximately 6.4% of the $65.8 million of total civil works construction cost. As such, estimated average Debt Service Coverage Ratio (DSCR) is 2.05 for life of the loan, with the minimum DSCR being 1.47. The IPP will assume payment of a partial risk guarantee equal to 1% per annum of the value of shareholder's equity and expected dividends.

The IPP is required to maintain $500,000 for working capital. With the all-in tariff calculated in the break-even analysis to be 9.21 cents per KWh to allow equity IRR of 17.94%, the IPP can expect to start generating in 2013 $1.7 million of dividends. Annual dividends are expected to average $2.5 million over the first 10 years of the Project's life.

Table 4. Partially Privatized Nyabarongo HPP Break-Even Cash Flow Summary. (USD Thousands)

NYABARONGO HPP **Impact to IPP/Sponsors** *(USD '000s)*	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Lease Payment	(4,235)	(4,235)	(4,235)	(4,235)	(4,235)	(4,235)	(4,235)	(4,235)	(4,235)	(4,235)
Income	(34)	254	414	509	674	840	1,005	1,169	1,332	1,495
Operating Cash Flow	6,499	7,840	7,762	7,755	7,602	7,523	7,441	7,356	7,268	7,178
Total Equity Contribution	(19,575)	-	-	-	-	-	-	-	-	-
Debt Service: Principal	(1,229)	(2,458)	(2,458)	(2,458)	(2,458)	(2,458)	(2,458)	(2,458)	(2,458)	(2,458)
Debt Service: Interest	(3,042)	(2,890)	(2,687)	(2,484)	(2,281)	(2,078)	(1,876)	(1,673)	(1,470)	(1,267)
Dividend Payments	1,728	2,493	2,617	2,813	2,863	2,987	3,108	3,226	3,340	3,452
Private Sponsors Net Cash Flow	(17,847)	2,493	2,617	2,813	2,863	2,987	3,108	3,226	3,340	3,452

2.2.2 100% Privatized

Table 5. Nyabarongo HPP – 100% Privatized.

Nyabarongo	
Tariff	11.98
Equity IRR	17.93%
Average DSCR	2.07
Min DSCR	1.40

Under this scenario, the GoR is expected to sell its shares in both the Power Station SPV (i.e. the SPV which owns Nyabarongo HPP's generating assets) and the SPV holding the assets for the civil works. The transaction would include a $41.1 million equity payment at the time of the transaction and $80 million of long-term debt (the equity piece includes a premium of 25.4% on the public sector invested). The long-term debt would 'pass-through' the terms of the India Exim Bank financing plus a margin of 6.50% per annum (the margin would be retained GoR). These inflows to GoR would provide a break-even point (where GoR's EIRR is equal to CGC) for the GoR's investment in the Nyabarongo HPP. The GoR would service liabilities to India Exim Bank through the IPP's debt service payments. The levelized tariff is calculated at a point where the IPP will break even.

The break-even tariff (lowest cost at which electricity can be produced on a full cost-recovery basis including repayment of debt and an appropriate return on capital) is approximately 12 cents per kWh. At this level, the equity investor's internal rate of return is equal to 17.93%. The average DSCR is 2.07, with a minimum DSCR of 1.40 (in later years, after certain tax advantages are lost).

After debt service payment, the Company can expect annual net operating cash flow in the range of $4.0- $5.0 million. The Company's net annual income is projected to grow at an average rate of 10% for the first 10 years then decrease to 3% for the next 10 years. Based on the break-even analysis, the Company will earn dividends as early as 2013, starting at $4.3 million then increasing to $7.5 million by 2022. The dividend stream will average $5.9 million annually for the first 10 years.

Table 6. Privatized Nyabarongo HPP Break-Even Cash Flow Summary. (in USD Thousands)

NYABARONGO HPP Impact to IPP/Sponsors *(USD '000s)*	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Lease Payment	-	-	-	-	-	-	-	-	-	-
Income	5,412	6,042	6,408	6,650	7,010	7,369	7,724	8,077	8,426	8,773
Operating Cash Flow	14,043	16,280	16,206	16,198	16,041	15,960	15,876	15,788	15,698	15,605
Total Equity Contribution	(41,113)	-	-	-	-	-	-	-	-	-
Debt Service: Principal	(2,667)	(5,333)	(5,333)	(5,333)	(5,333)	(5,333)	(5,333)	(5,333)	(5,333)	(5,333)
Debt Service: Interest	(6,600)	(6,270)	(5,830)	(5,390)	(4,950)	(4,510)	(4,070)	(3,630)	(3,190)	(2,750)
Dividend Payments	4,277	4,677	5,042	5,474	5,758	6,117	6,472	6,825	7,175	7,522
Private Sponsors Net Cash Flow	(36,836)	4,677	5,042	5,474	5,758	6,117	6,472	6,825	7,175	7,522

Some of the key findings of Task 2 included the following:

- There is an inherent trade-off between the tariff and GoR's exposure. In particular, GoR-owned cases are at a lower tariff but require more GoR funding and/or direct exposure to indebtedness. For example, the scenario with the lowest break-even tariffs (a 100% GoR owned scenario), also has the highest debt exposure (as measured by the Net Present Value ("NPV") of debt service to exports).
- GoR can limit its financial exposure through privatization of the Projects; however, such cases require a significantly higher tariff and the negotiation of project contracts (Power Purchase Agreement ("PPA"), Concession Agreement ("CA"), Financing Agreements ("FA"), etc).
- The scenarios with private ownership have the highest break-even tariffs, but also generate the most significant foreign direct investment ("FDI") inflows into the country and support the GoR's stated goal of increasing private sector involvement in the energy sector.

Chapter 3 - Task 3: Macro-Economic Analysis

Task 3 asks TDI to assess Rwanda's financial exposure to the Projects and evaluate the overall impact of the Projects on the Host Country's fiscal stability, particularly with respect to all covenants of its loan agreements with the IMF. Per the TOR, the Consulters have composed a memorandum summarizing all findings of the Macro-Economic Analysis. Please refer to **Appendix B, Task 3: Macroeconomic Model** for the complete macroeconomic model.

1. MACROECONOMIC OVERVIEW

Rwanda has exhibited significant progress in recovering from the 1994 civil war. Recent historical values of key macroeconomics indicators for the Rwandan economy are presented in Table 7.

Table 7 Selected Macroeconomic Indicators

Annual indicators:	2002	2003	2004	2005	2006
GDP at market prices (RWF bn)	825.0	905.3	1060.2	1229.4	1399.9
GDP (US$ bn)	1.7	1.7	1.8	2.2	2.5
Real GDP growth (%)	9.4	1.0	4.0	5.2	5.8
Consumer price inflation (avg. %)	2.0	7.5	11.9	9.2	8.0
Population (m)	8.6	8.8	8.9	9.0	9.2
Exports of goods fob (US$ m)	67.0	63.0	98.0	125.0	142.0
Imports of goods fob (US$ m)	233.0	229.0	276.0	374.0	438.0
Current-account balance (US$ m)	-126.0	-121.0	-198.0	-90.0	-172.2
Foreign-exchange reserves excl gold (US$ m)	243.7	214.7	314.6	405.8	443.1
Exchange rate (avg. RWF/US$)	457.9	511.9	580.3	566.9	553.7

Source: EIU, "Country Report: Rwanda", November 2006; BNR

There were several economic shocks in the first half of 2008. Political and social upheavals in neighboring Kenya led to the closing of Mombasa's port, an essential gateway for shipments into and out of the land-locked country. While there was very little transport of goods through Kenya in January, imports and exports through the country picked up again in February. Fuel prices, as a result of international market conditions exacerbated by the port shutdown, rose by 6%[2] in January and continued to rise throughout the first half of the year. A series of earthquakes that hit Rwanda in early February caused extensive damage - the cost of rebuilding is estimated at 0.3% of GDP, with donor financing reaching approximately 0.02% of GDP[3].

1.1 Domestic Production

Between 1996 and 2000, real gross domestic product (GDP) grew at annual rates greater than 10%. The economy stabilized through to 2006, with the annual growth rate averaging 6.4%[4]. A

[2] International Monetary Fund, "Rwanda: Poverty Reduction Strategy Paper", March 2008
[3] ibid
[4] International Monetary Fund, "Rwanda: Poverty Reduction Strategy Paper", March 2008

recent IMF report[5] estimated 2007 GDP growth if approximately 6%, exceeding initial projections of 4.9%, due primarily to increased activity in the construction and services sectors. Based on the higher-than-expected 2007 GDP growth rate combined with current expectations that the 2008 harvest will counterbalance the weakened outlook for growth in industry and services, the IMF anticipates that GDP growth in 2008 could reach 6.8%[6].

Table 8 breaks down GDP shares across major economic sectors.

Table 8. Rwandan GDP by Sector.

		Share of total GDP		Average annual growth	
		1996-2000	2001-2006	1996-2000	2001-2006
Gross Domestic Product (GDP)		100.0	100.0	10.5	6.1
Agriculture		37.7	36.4	9.5	4.8
	Food Crop	31.9	31.4	9.9	5.1
	Export Crop	1.0	1.1	11.7	6.3
	Livestock	3.0	2.2	7.8	3.5
	Forestry	1.5	1.3	10.7	3.7
	Fisheries	0.3	0.4	29.9	3.7
Industry		15.1	14.2	7.5	8.1
	Mining and quarrying	0.3	0.6	24.5	41.3
	Manufacturing	8.2	6.8	4.1	6.0
	Electricity, gas, water	0.6	0.5	11.3	4.2
	Construction	6.0	6.3	11.9	9.6
Services		41.9	43.8	11.7	7.4
	Wholesale & retail trade	10.7	9.7	2.2	6.0
	Hotels and restaurants	0.8	0.9	25.2	6.6
	Transport, storage, communication	4.8	6.0	15.5	9.4
	Finance, insurance	2.6	3.5	17.7	13.3
	Real estate, business services	10.3	9.6	11.2	5.0
	Public administration, education, health	12.4	13.2	21.0	7.9
	Other personal services	0.3	0.9	141.2	12.1
Adjustments		5.4	5.7	38.5	5.6
Less:Imputed bank service charge		-1.6	-1.7	4.7	9.6
Plus: VAT and other taxes on products		7.0	7.4	23.4	6.4

Source: IMF, "Rwanda: Poverty Reduction Strategy Paper", March 2008

There has been over the past several years an important structural shift in the economy - the services sector now contributes more to growth than agriculture does. However, agriculture still makes up a large component of GDP and remains an important source of employment.

[5] International Monetary Fund, "Rwanda: Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding", May 29, 2008
[6] International Monetary Fund, "Rwanda: Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding", May 29, 2008

Agricultural output declined by 1.3% in 2007, the result of poor growing conditions[7]. While the first half of 2008 yielded a better harvest than did 2007, overall output remains low relative to prior years.

Agriculture makes up a significant proportion of GDP, accounting for an average of 36.4 % between 2001 and 2006[8]. 2007 saw a decline in agricultural output due primarily to scarcity of land, lack of a well-defined land administration system, and poor settlement patterns on arable lands. Additionally, the lack of proper technology, infrastructure and physical capital has resulted in lower than expected agricultural productivity.

The construction and manufacturing sectors comprised 8%[9] of GDP in 2006. Food, beverages and tobacco grew by an estimated 5.3% in 2007. The construction industry is expected to continue to grow in 2008, as a result of increased activity in the development of Rwandan infrastructure, particularly in the electricity and transportation sectors. Based on the Poverty Reduction Strategy[10] developed by the Rwandan government working in conjunction with the IMF, there will be an increased focus on the building of hospitals and schools in rural areas.

The service sector has significantly increased as a share of total GDP over the past decade, with an average of 41.9% between 1996 and 2000, compared to an average of 43.8% between 2001 and 2006. The largest share of GDP in services is found in the fields of public administration, wholesale and retail trade, which accounts for approximately 50% of the sector. The employment in the service sector is roughly 6.5 % of the working population[11].

1.2 Fiscal Policy and Performance

Rwanda's fiscal condition improved substantially throughout the past decade. In 2007 government took in receipts equal to 28.1% of GDP[12] against aggregate expenditures, including net lending, constituting 28.5% of GDP, leading to a deficit of 0.4% of GD.P.

Government receipts have increased significantly as a result of improved economic growth and efficiency in tax collection efficiency. This has allowed for increased government spending on priority items, particularly in the areas of infrastructure, salary increases for school and hospital staff and agricultural improvement.

Capital expenditures increased from 8.6% of GDP in 2006 to 9.6% of GDP in 2007, contributing to an increase in the country's total gross capital formation as a percentage of GDP of 19%[13]. This is typical of the general growth in capital formation over the past decade. The composition

[7] International Monetary Fund, "Rwanda: Poverty Reduction Strategy Paper", March 2008
[8] International Monetary Fund, "Rwanda: Poverty Reduction Strategy Paper", March 2008
[9] International Monetary Fund, "Rwanda: Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding", May 2008
[10] International Monetary Fund, "Rwanda: Poverty Reduction Strategy Paper", March 2008
[11] UNDP, 'Turning Vision 2020 into Reality: From Recovery to Sustainable Human Development. National Human Development Report', Kigali, 2007
[12] International Monetary Fund, "Rwanda: Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding", May 2008
[13] African Development Bank, "African Economic Outlook: Rwanda", 2008

of investments between the public and private sectors has shifted in recent years as public investment began rising in 2004 following several years of steady decline. In 2007, much of the increase in public investment was financed by large infusions of international aid.

Government receipts are projected to remain stable as a share of GDP throughout 2008 and 2009 – there will likely be some erosion of import duties due to trade liberalization and most of the most promising opportunities for increased tax collection have already been exploited. The 2008 budget is focused on financing agriculture, energy, health, infrastructure and education.

Government debt, which was US$1.5 billion at the end of 2005, was reduced significantly to US$362.8 million by the end of 2006. Debt has since increased slightly to US$416.4 million, equivalent to 14.7% of GDP, in 2007[14]. The cost of servicing this debt will be substantially reduced in 2008-09 due to multilateral debt relief

1.3 Employment and Poverty

Employment levels in Rwanda are rising. Between 2000 and 2006, an estimated 60,000 new jobs were created. One-third of these jobs came from non-farm paid employment, a category encompassing 480,000 jobs. The percentage of the labor force engaged in formal employment during the same time period rose from 5% to 10%. Additionally, the percentage of the labor force engaged with the monetized economy, receiving wage payments and/or other forms of cash income was 26% in 2005/06[15]. While the declared unemployment rates are very low, underemployment in Rwanda remains relatively high.

Poverty levels in Rwanda remain a concern. In 2005/2006, 56.9% of the population was living below the poverty line, a decrease from the 2000/2001 level of 60.3%[16]. Poverty reduction efforts have been challenged by rapid population growth due to the combined effects of decreased infant mortality, increased fertility rates and increasing numbers of refugees returning to Rwanda from neighboring countries.

1.4 Monetary Policy and Performance

Rwanda's monetary policy has focused on containing headline inflation (including food and fuel) to single-digits, and core inflation (excluding food and fuel) to below 5%. In 2007, however, the consumer price index (CPI) and the rate of core inflation had year-on-year rises of 10.2% and 9.4% respectively[17], due primarily to increases in health and education fees and food and fuel prices.

The outlook for inflation in 2008 is troubling because of high international oil and food prices exacerbated by the Mombossa port closing. Fuel import costs have risen significantly

[14] African Development Bank, "African Economic Outlook: Rwanda", 2008
[15] International Monetary Fund, "Rwanda: Poverty Reduction Strategy Paper", March 2008
[16] African Development Bank, "African Economic Outlook", 2008
[17] International Monetary Fund, "Rwanda: Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding", May 2008

throughout the first half of 2008 as alternative supply routes through Tanzania have replaced transportation routes through Kenya. While a good local harvest temporarily offset the impact of rising world food prices, allowing the headline inflation to remain in single digits, core inflation continued to increase, peaking at 11% in March 2008.

The inflation rates for 2008 and 2009 are forecast to be 8.5% and 8% respectively[18].

Net foreign exchange reserves have been increasing significantly - US$46 million at the end of 2007 and projected to increase in 2008 and 2009. The increases have been largely due to donor disbursements of approximately US$157.9 million in 2007,

Over the past two years, the Rwandan Franc has remained stable against the US Dollar, and is expected to remain so in 2008.

1.5 International Transactions

1.5.1 Trade

Table 9 overviews imports and exports from 1996 through 2006, with breakdowns across major categories.

Table 9. Historical Trade Statistics.

Trade (US$ millions)		1986	1996	2005	2006
Total Exports (fob)		186	62	125	142
	Coffee	143	43	38	54
	Tea	20	9	24	32
	Manufactures	10	5	29	30
Total Imports (fob)		323	257	374	438
	Food	38	51	69	70
	Fuel and energy	55	27	71	58
	Capital goods	85	54	76	73

Source: Development Economics LDB Database

Between 2001 and 2006, Rwanda exhibited strong trade performance, with exports growing at an average of 12.5% per year. In 2006, exports reached US$152 million, more than double the 2002 level.[19] The growth in exports was primarily fuelled by coffee, tourism and tea, which accounted for 60% of total exports. The most important export product is coffee, and this is expected to continue to drive future export growth. In 2007, however, exports declined slightly

[18] ibid
[19] ibid

as a percentage of GDP, to 5.3% from 5.7% the previous year[20], due primarily to declines in exports of coffee and tea.

Exports of minerals have increased significantly as a result of strong international demand. Exports of hides and skins and other horticulture products are projected to increase in the short-term. Tourism has become the second highest source of export earnings. The number of tourists has increased, and tourism receipts have risen from less than US$5 million in 2002 to US$33 million in 2006[21].

While exports have been growing substantially since the 1994 civil war, imports have been growing even more. This has increased the country's trade deficit from 8% of GDP in 2001 to 12% of GDP in 2006[22]. The rise in imports is primarily due to increased demand for capital and intermediate goods for development purposes. Also, increased private consumption has led to a substantial rise in demand for petroleum products.

1.5.2 Foreign Direct Investment

The share of private investment substantially increased starting in the late 1990s, primarily as a result of newly instituted government policies for privatization and liberalization. This growth became has moderated over the years, with the private capital formation measured at 20% in 2007.[23] Private capital formation is expected to stabilize in 2008 and 2009. The main reasons for the decline in foreign direct investment are due to Rwanda's land-locked position, deficient infrastructure, and small domestic market with constrained purchasing power.

However, the legislation and policies that the Rwandan Government has put in place in the last several years have been targeted at increasing the amount of foreign direct investment. Rwanda established a new investment law (March 2006), that outlines investment and exports promotion and facilitation, and is intended to assist investors in obtaining licenses, and provides further incentives to invest. In order to spur economic growth through investment, the government of Rwanda established a policy that all sectors should be open to foreign investment.

Additionally, Rwanda participates in organizations that also promote foreign investment: the Multilateral Investment Guarantee Agency (MIGA), which provides guarantees against non-commercial risks; the International Center for the Settlement of Investment Disputes (ICSID); and the African Trade Insurance Agency (ATI), for which Rwanda is the founding member.

1.5.3 International Aid

The Rwandan economy is heavily dependent on foreign aid, which has led to large current account deficits. External aid currently finances approximately half of Rwanda's total

[20] African Development Bank, "African Economic Outlook: Rwanda", 2008
[21] International Monetary Fund, "Rwanda: Poverty Reduction Strategy Paper", March 2008
[22] The Economist Intelligent Unit, "Country Profile: Rwanda", 2006
[23] ibid

government budget. There were substantial aid flows throughout the period immediately following the civil war, peaking at US$ 700 million per year between 1994 and 1996. Since then, foreign aid has averaged US$ 340 million annually[24].

The current account deficit fell in 2007 to 5.3% of GDP from 7.7% of GDP in 2006, due primarily to a large increase in official transfers. Deficits for 2008 and 2009 are projected to increase to 7.1% and 7.2% of GDP respectively[25]. This increase in deficit is not as high as was originally forecasted, which is primarily due to the higher than expected mineral exports and private transfers that more than offset a decrease in agricultural exports, as well as the growth in imports.

1.6 Projected Project Impacts

The amount of financing required for the Nyaborongo and Rukarara hydropower projects is large in relation to the Rwandan economy. To estimate the economic impact of project implementation, the Delphos team developed a macroeconomic model forecasting various macroeconomic indicators for the period 2008 through 2012. This macroeconomic model is directly linked to the project financial model found in **Appendix A, Task 2: Financial Model**.

The baseline forecast[26] - i.e., without implementation of the Nyaborongo and Rukarara projects – is summarized below in Table 10. GDP growth increases from 8.2% to 9.32% in the later years due largely to an increase in FDI. Government balances nearly double over the timeframe as growth in revenues outpace growth in expense. Government debt increases in the middle years, but decreases with the influx of FDI in 2012 and so remains on the whole stable. Gross and public external debt also remained relatively stable over the timeframe[27].

Table 10. Baseline Forecast.

[24] The Economist Intelligent Unit, "Country Profile: Rwanda", 2006
[25] International Monetary Fund, "Rwanda: Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding", May 2008
[26] Sensitivity analysis is applied to each scenario by evaluating results relative to base, low and high cases for the overall evolution of the Rwandan economy
[27] Please note: the data cannot be compared year to year. The comparison can only occur on a case–to-case basis.

(million USD or %) - real terms	BASELINE 2007	2008	2009	2010	2011	2012	AVG
Currency							
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72	
Domestic Economy and Finance							
GDP - current USD	2551.15	2761.28	2988.73	3234.91	3501.37	3789.78	
Current GDP (Growth rate %)	8.24%	8.24%	8.24%	8.24%	8.24%	8.24%	
CPI	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	
Public Finances							
General Government Expense	690.06	747.65	810.05	877.66	950.92	1030.29	
General Government Revenue	713.99	778.96	849.86	927.20	1011.59	1103.65	
General Government Balance	23.93	31.32	39.81	49.54	60.67	73.36	
Interest payments	8.66	9.53	10.48	11.53	12.68	13.95	
General Government Balance (% of GDP)	0.94%	1.13%	1.33%	1.53%	1.73%	1.94%	1.43%
General Government Debt (% of GDP)	25.00%	25.41%	25.82%	26.24%	26.67%	27.10%	26.04%
General Government Debt / Revenue (%)	89.33%	90.07%	90.81%	91.56%	92.31%	93.07%	91.19%
Interest Payments / Revenue (%)	1.21%	1.22%	1.23%	1.24%	1.25%	1.26%	1.24%
Balance of Payments							
Current Account Balance	-175.78	-188.40	-201.93	-216.44	-231.98	-248.64	
Net FDI	27.87	33.34	39.88	47.71	57.07	68.27	
Current Account Balance plus Net FDI	-147.91	-155.06	-162.05	-168.73	-174.91	-180.38	
Current External Receipts CXR	672.03	720.29	772.03	827.47	886.90	950.59	
Current External Payments CXP	847.81	908.70	973.96	1043.91	1118.88	1199.24	
Exports	311.90	334.30	358.31	384.04	411.62	441.19	
Current Account Balance (% of GDP)	-6.89%	-6.82%	-6.76%	-6.69%	-6.63%	-6.56%	-6.72%
Current Account Balance plus NetFDI (% of GDP)	-5.80%	-5.62%	-5.42%	-5.22%	-5.00%	-4.76%	-5.30%
External Assets and Liabilities							
General Government Debt	637.80	701.58	771.74	848.92	933.81	1027.19	
Gross External Debt	561.07	617.17	678.89	746.78	821.46	903.60	
Public External Debt	549.90	604.90	665.38	731.92	805.12	885.63	
NPV of Public External Debt	192.66	202.30	212.41	223.03	234.18	245.89	
Gross External Deb t (% of GDP)	21.99%	22.35%	22.71%	23.08%	23.46%	23.84%	22.91%
Gross External Debt (% of CXR)	83.49%	85.68%	87.94%	90.25%	92.62%	95.06%	89.17%
NPV of Public External Debt (% of exports)	61.77%	60.51%	59.28%	58.07%	56.89%	55.73%	58.71%
Public External Debt (% of GDP)	21.56%	21.91%	22.26%	22.63%	22.99%	23.37%	22.45%

Table 10 below summarizes the forecast for the Rwandan macroeconomic environment assuming that the Nyaborongo and Rukarara hydropower projects are implemented.

Table 11. Project Implementation Forecast.

(million USD or %) - real terms	BASELINE 2008	2009	2010	2011	2012	AVG
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	
Domestic Economy and Finance						
GDP - current USD	2761.28	2988.73	3234.91	3501.37	3827.56	
Current GDP (Growth rate %)	8.24%	8.24%	8.24%	9.32%	9.32%	
CPI	7.7%	7.7%	7.7%	7.7%	7.7%	
Public Finances						
General Government Expense	743.83	807.58	874.27	948.89	1044.34	
General Government Revenue	778.96	849.86	927.20	1011.59	1103.65	
General Government Balance	35.13	42.28	52.93	62.70	59.31	
Interest payments	9.53	10.48	11.53	12.68	12.25	
General Government Balance (% of GDP)	1.27%	1.41%	1.64%	1.79%	1.55%	**1.53%**
General Government Debt (% of GDP)	26.55%	26.51%	27.11%	27.15%	26.76%	**26.82%**
General Government Debt / Revenue (%)	94.13%	93.22%	94.59%	93.98%	92.80%	**93.74%**
Interest Payments / Revenue (%)	1.22%	1.23%	1.24%	1.25%	1.11%	**1.21%**
Balance of Payments						
Current Account Balance	-188.40	-201.93	-216.44	-231.98	-248.64	
Net FDI	33.34	39.88	47.71	57.07	68.61	
Current Account Balance plus Net FDI	-155.06	-162.05	-168.73	-174.91	-180.03	
Current External Receipts CXR	720.29	772.03	827.47	886.90	950.59	
Current External Payments CXP	908.70	973.96	1043.91	1118.88	1199.24	
Exports	334.30	358.31	384.04	411.62	441.19	
Current Account Balance (% of GDP)	-6.82%	-6.76%	-6.69%	-6.63%	-6.50%	**-6.68%**
Current Account Balance plus NetFDI (% of GDP)	-5.62%	-5.42%	-5.22%	-5.00%	-4.18%	**-5.09%**
External Assets and Liabilities						
General Government Debt	733.23	792.23	877.00	950.65	1024.20	
Gross External Debt	648.82	699.37	774.86	838.30	900.62	
Public External Debt	636.54	685.87	760.00	821.96	882.64	
NPV of Public External Debt	202.30	212.41	223.03	234.18	245.89	
Gross External Deb t (% of GDP)	23.50%	23.40%	23.95%	23.94%	23.53%	**23.66%**
Gross External Debt (% of CXR)	90.08%	90.59%	93.64%	94.52%	94.74%	**92.71%**
NPV of Public External Debt (% of exports)	60.51%	59.28%	58.07%	56.89%	55.73%	**58.10%**
Public External Debt (% of GDP)	23.05%	22.95%	23.49%	23.48%	23.06%	**23.21%**

As compared with baseline forecast, General Government Balance, as a percentage of GDP, has, on average, a slightly higher growth rate over the five-year forecast horizon. The General Government Debt slightly increases over the years as a percentage of GDP, but drops below the baseline forecast for 2012. The Current Account Balance is substantially increased, as a percentage of GDP, relative to the baseline.

2. Electricity Sector overview

The Government began a process of liberalizing the electricity market in 1999 by promulgating law no. 18/99. This law removed the right of Electrogaz, the vertically integrated utility, to monopolize the production and distribution of electricity. The company is currently being restructured to allow for increased private sector participation within the industry.

A regulatory authority, the Rwanda Utilities Regulatory Agency (RURA), was established as part of the liberalization process. The Agency is generally perceived as relatively inexperienced and not fully independent of the Ministry of Infrastructure.

Currently, approximately 70,000 households have access to electricity, and 50% of the institutions providing social and administrative services have electricity coverage[28]. In 2006, daily peak demand averaged 50 MW, a bit more than 5MW more than total domestic and imported available capacity[29]. Electricity demand is increasing rapidly, and was estimated at 255 GWh/year in 2006. The Ministry of Infrastructure predicts that the peak demand in Rwanda will grow by 25% per year for the next several years[30].

Prior to 2004, most of Rwanda's electricity was provided by hydroelectric generation. However, after a significant reduction in rainfall and subsequent low lake levels, many of the hydroelectric plants no longer produced at their capacity. This reduction in power generation caused debilitating power-cuts from 2003 through 2005.

Electrogaz rented diesel-based generators from a Dubai-based company, thereby considerably reducing the capacity deficit and associated service disruptions. These generators now supply approximately a quarter of the country's electricity.

Installed capacity, as of 2006, was 72.05 MW. Two plants, Rusizi 1 and 2, are located in the Democratic Republic of Congo, and so the national installed capacity is approximately 56.45 MW. However, due to the low lake levels, as well as a lack of rehabilitation of certain plants, the available capacity is significantly lower, at 44.10 MW, as illustrated below in Table 12.

Table 12. Installed and Available Capacity.

[28] IMF, *Rwanda: Poverty Reduction Strategy Paper*, Washington: USA, March 2008
[29] Ministry of Infrastructure. *Investment Opportunities in the Energy Sector*. Kigali, Rwanda: January 2007.
[30] *ibid*

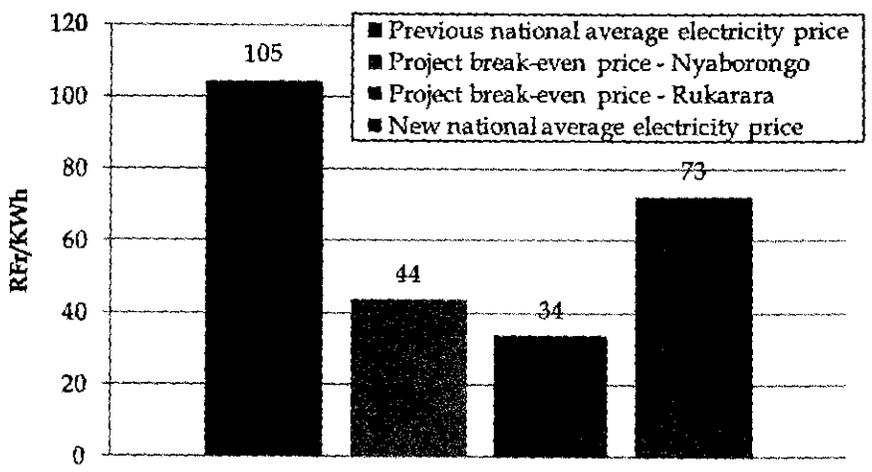
Station	Installed Capacity (MW)	Available Capacity, 2006 (MW)
Mukungwa	12.75	3
Ntaruka	11.5	1
Gihira	1.8	0.5
Gisenyi	1.2	0.6
Thermal Station Gatsata 1	1.8	0
Thermal Station Jabana	7.8	7.8
Thermal Station Gatsata 4	4.7	4.7
Aggreko 1	10	10
Aggreko 2	5	5
Rusizi 1 (imports)	3.5	3.5
Rusizi 2 (imports)	12	8
Total	72.05	44.1

Source: Rwanda Ministry of Infrastructure, "Investment Opportunities in the Energy Sector", January 2007

Because the government requires the electricity sector to be largely self-financing, the high installation and fuel costs of the diesel generators have been passed through to customers in the form of increased tariffs. A structured tariff has recently been introduced to provide protections for the poor. It is expected that tariffs will be modified over time as cheaper power sources become available.

Table 13 below presents estimates of the impact on national average electricity prices of construction of the Nyaborongo and Rukarara hydropower projects. The average tariff price post-construction is estimated to be 73 RFr/KWh, a significant reduction from prevailing prices.

Table 13. Impact on Electricity Prices.



Looking to the future, there is hope that the 55 billion cubic meters of methane gas reserves estimated to be contained within Lake Kivu will help mitigate ongoing shortages of electricity supply. While the gas pilot project was expected to come online in 2008, delays are expected due to legal disputes with shareholders. Additionally, more than 30 micro-dam projects are currently in the works, and the government is focusing on increasing access through the design of long distance transmission and local distribution networks[31].

[31] African Development Bank, *African Economic Outlook: Rwanda*, 2008

Chapter 4 - Task 4: Regulatory Analysis

1. INTRODUCTION

This Task 4 Report ("*Report*") is the deliverable pursuant to Task 4 of the TOR of the Grant Agreement between the GoR, acting through the MINIFRA and the USTDA, pursuant to the terms of the Grant Agreement, agreed to provide funding for MININFRA to obtain technical assistance regarding the development and implementation of the Projects. MININFRA selected a consortium of consultants, TDI, as the transaction advisor for the Projects. Task 4 of the TOR requires TDI to recommend changes that need to be made to the relevant energy sector regulations and ordinances as a pre-requisite to private financing of the Projects.

This Report summarizes TDI's conclusions regarding the adequacy of the current and emerging energy sector regulatory structure in the Country for the development of the Projects. TDI, with the assistance of local counsel Mr. Faroh Ndahiro, reviewed current and draft laws, rules, and policies of GoR to determine the legislation relevant to private investors and lenders when assessing the feasibility of, and potential legal risks associated with, investing in the Projects.[32] TDI's review focused on identifying those revisions to the regulatory structure required to facilitate private investment in hydropower generation projects. This Report does not include an analysis of the adequacy of the regulatory structure in regards to facilitating private investment in other segments of the electricity industry (e.g., transmission, distribution), or upon the unbundling and/or privatization of Electrogaz. The analysis is outside the scope of the TOR.

The principles of transparency, impartiality, and predictability guided our review of, and recommendations for revisions to, the Rwanda energy sector regulatory framework and investment infrastructure. In our experience, private investors are more likely to invest in an independent power project when the host country's regulatory framework is based on laws that are transparent, non-discriminatory, and predictable, and when such laws are implemented by impartial and objective institutions. Transparent laws are unambiguous. Non-discriminatory laws allow for a competitive environment and (among other things) equal treatment of domestic and foreign investors in matters such as access to the transmission grid and ownership of assets. Predictable laws allow investors to anticipate the results of actions because predictable laws lead to similar outcomes when given similar facts. A country that consistently applies transparent and non-discriminatory laws establishes a predictable legal framework, which reduces investor uncertainty and investment risk, and promotes private sector investment.

[32]**Appendix C, Task 4: List of Laws and Draft Legislation TDI Reviewed** to this Report lists the laws reviewed by TDI. We obtained copies of these laws from the following sources: (i) MININFRA; (ii) the website for the Ministry of Justice (http://www.amategeko.net/?Parent_ID=15&Langue_ID=An); and (iii) the website for the Office of the Prime Minister (http://www.primature.gov.rw/journal.htm). **Appendix D, Task 4: List of Laws and Draft Legislation Not Available to** sets forth a list of additional laws, or draft laws, that we understand might exist and could affect GoR's ability to obtain private financing for the Projects. We have not reviewed the laws listed in Appendix II. If we are provided with copies of the laws set forth in Appendix II then we will include an analysis of those laws in the Final Report.

2. ENERGY SECTOR REGULARY STRUCTURE

2.1 Background

Electrogaz, the vertically integrated public utility, wholly owned by GoR, owns the electricity network in Rwanda. Electrogaz has power generating facilities with a total installed capacity of approximately 57 MW, which includes 15 MW of capacity from two Aggreko rental generators.[33] The available capacity for Electrogaz in January 2007 was about 33 MW due in large part to low rainfall hindering hydropower output.[34] Electrogaz imports an additional 11 to 12 MW of power from Rusizi I and II, the two hydropower stations on the Rusizi River. The peak demand for energy capacity in Rwanda in 2006 was approximately 50MW, which was 5 MW, or more, in excess of the total domestic and imported available capacity. MININFRA predicts that Rwanda's peak demand will grow by 25% per year for the foreseeable future.[35]

Rwanda's demand for power, at times, exceeds its supply. New investment in generation is urgently needed to overcome the electricity shortfall. In October 2004 MININFRA set forth the Energy Policy for Rwanda ("*Energy Policy*") to outline GoR's policy principles for the development of the energy sector and provide guidelines for the reform. One of GoR's primary goals for energy sector reform is to establish an adequate institutional framework in Rwanda that facilitates private investment in generation and produces reliable and affordable energy supplies countrywide. Another GoR objective, expressed in the Energy Policy, is to ensure that new legislation provides a clear division of roles and responsibilities between GoR, the ministry in charge of energy, and the Rwanda Utilities Regulatory Agency ("*RURA*") for the oversight and management of the energy sector in line with global trends regarding market liberalization and accountability.

The Energy Policy demonstrates to investors GoR's commitment to: (i) redesigning the electricity industry to permit and encourage private sector investment, and (ii) developing an investment infrastructure that promotes stability and economic growth. GoR further demonstrated its commitment to developing the private sector in 2005 by establishing the Business Law Reform Commission ("*Reform Commission*"). We understand that the Reform Commission was formed by the Cabinet with the mandate to review all of Rwanda's business laws, and recommend new or revised laws, as necessary, to remove barriers to private investment and incorporate international best practices. **Appendix E, Task 4: Business Law Reform Commission**
to this Report sets for a list of the draft laws that have been developed under the direction of the Reform Commission and provides the legislative status of these proposed laws as of December 31, 2007.

Good governance and a proven investment infrastructure are required for a country to sustain private sector investment and economic growth. GoR's full implementation of the legislative

[33] Ministry of Infrastructure. *Investment Opportunities in the Energy Sector*. Kigali, Rwanda: January 2007.
[34] Id. at p. 3.
[35] Id. at p. 4.

reforms proposed by the Reform Commission will boost investor confidence in the legal system by establishing transparent laws governing contract, property, and other business matters, and by providing for a commercial court system to adjudicate business disputes and enforce contract rights. We do not believe GoR's completion of its legislative overhaul is a pre-requisite to attracting private financing for the Projects. In the context of a single-buyer type of market, private investors have been willing to invest in power generation projects despite gaps in the host country's regulatory and legislative frameworks so long as well-structured contracts (e.g., power purchase agreements, lease agreements, concession agreements) exist that establish the legislative framework for the project and provide for recourse to an international tribunal.

In the remaining parts of this Section 2 we identify the laws, including draft laws, we reviewed and summarize the primary purpose and key requirements of each law. We also provide comments on those provisions of each law that we believe could discourage private investors from investing in the Projects.

2.2 ELECTRICITY LAWS

TDI reviewed the following laws on the regulation of the electricity sector in Rwanda:

- Law Establishing an Agency for the Regulation of Certain Public Utilities (N° 39/2001, 13 Sept. 2001).
- Draft Law on Electricity (15 Nov. 2007).
- Law Modifying the Law Setting Up the Public Enterprise for Production, Transportation and Distribution of Electricity, Water and Gas ("Electrogaz") (N° 18/99 of 30 Aug. 1999).

2.2.1 RURA Law

The Law Establishing an Agency for the Regulation of Certain Public Utilities ("*RURA Law*") created RURA, the multi-sector regulatory body responsible for the oversight and regulation of the telecommunications, electricity, natural gas, water, waste (solid and wastewater), and transportation industries. RURA is an autonomous agency responsible for: (i) ensuring certain public utilities supply services throughout the country to meet the reasonable demands of individuals and businesses, (ii) ensuring compliance by the public utilities with the relevant utility laws, and (iii) promoting private sector investment in public utilities.

RURA is governed by a seven member Regulatory Board appointed for a period of three years by a decree of the Prime Minister. The three year term is renewable once. The Regulatory Board is responsible for monitoring the management of RURA and determining the responsibilities of RURA employees. The Regulatory Board is also required to carry out any regulatory duties specified in the utility laws. Article 13 of the RURA Law requires the Regulatory Board to act in an "independent, open, transparent and objective manner" and prohibits RURA from showing any form of discrimination in carrying out its activities.

Article 22 of the RURA Law authorizes the Regulatory Board to make proposals to a Minister for new legislation to govern any public utility sector. We are not aware of any provisions of the RURA Law that grant independent rulemaking authority to RURA.

> *Comment: Private investors in the electricity industry typically prefer regulatory structures that empower the independent regulator to create rules and make decisions that ensure the electricity industry is operated in an open, transparent, and equitable manner. RURA's authority to make rules applicable to all market participants that facilitate effective competition, non-discriminatory network access, and a level playing field will lead to greater private sector participation and maximum consumer benefits. As a practical matter, RURA's lack of independent rulemaking authority will not preclude private financing of the Projects, but the investors in the Projects will require GoR to provide contract rights that minimize the risk of future regulations adversely affecting the Projects.*
>
> *Investors will expect GoR to enter into an "implementation agreement" with the investors that defines GoR's responsibilities for managing certain legal, regulatory, and political risks during the terms of the Projects in order to establish a predictable legal framework and provide protections for "change in law" events during the project term.*

Article 41 of the RURA Law deems as anticompetitive any agreement with a public utility that directly or indirectly fixes tariffs, or fixes purchasing or selling prices, which agreement has as its object or effect the prevention, or restriction of competition. Such an agreement is considered void.

> *Comment: A private investor in an independent power project will require the offtaking entity to enter into a long-term PPA that establishes the methodology for calculating the offtaker's purchase price for the duration of the contract. This type of long-term PPA is essential to facilitate private investment in power generation in emerging markets. A private investor will not agree to make a substantial capital investment in the generation sector of an emerging electricity market without reasonable assurance from the utility that the investor will recover a sufficient amount of money to repay its debt and earn a return on equity. This type of long-term PPA is not anticompetitive because it does not prohibit other generators from entering the market, although it might hinder Electrogaz's ability to purchase electricity that is made available in the future at a lower market price until the term of the agreement expires. Investors in the Projects might seek reassurance from GoR that Article 41 of the RURA Law will not permit Electrogaz to void the PPAs for the Projects in the future, if at some later point the market price for electricity in Rwanda falls below the prices established in the agreements, under the assertion that the agreements are anticompetitive.*

2.2.2 Draft Electricity Law

We understand that there is no comprehensive electricity law establishing the electricity sector structure or governing the operation of the electricity industry in Rwanda. We also understand that the World Bank and GoR engaged Pierce Atwood ("*PA*"), pursuant to the Urgent Electricity Rehabilitation Program, to draft a comprehensive electricity law that addresses each aspect of electricity sector development and regulation. PA has advised us that the current electricity sector regulations are set forth in the Electrogaz charter laws. PA further advised that GoR amended the Electrogaz charter laws in 1999 to eliminate Electrogaz's monopoly on the generation, transmission, and distribution of electricity and to prepare for private sector participation in the industry.

We have reviewed the PA Draft Law on Electricity ("*Draft Electricity Law*") and believe, except as noted herein, that it sets forth an institutional and legal framework conducive to private sector investment in, and liberalization of, the electricity sector. GoR will need to enact a comprehensive, transparent, and non-discriminatory electricity law, such as the Draft Electricity Law, as a pre-requisite to private financing of the Projects.

The Draft Electricity Law, if enacted, would promote economic development by liberalizing the electricity industry and establishing an industry structure that permits and encourages private sector participation. Article 9 would facilitate the creation of a National Energy Agency to work in cooperation with the Rwanda Investment and Export Promotion Agency (discussed in Section 2.3.1 below) to assist potential investors with obtaining the information needed to determine whether to pursue infrastructure development opportunities in Rwanda.

Article 10 of the Draft Electricity Law, if enacted, would empower RURA with the rulemaking authority required to regulate the entire electricity sector, which authority would include the right to issue licenses, establish tariffs and tariff methodologies, resolve disputes among electricity sector participants, approve the grid code, commercial code, and other system operating or technical rules and procedures, and ensure compliance by electricity sector participants with the relevant laws and regulations. The Draft Electricity Law would also require RURA to establish objective criteria for the issuance of licenses and would limit RURA's grounds for denial of licenses to the five objective and non-discriminatory grounds set forth in Article 26.

If enacted, the Draft Electricity Law would delineate the proposed roles and responsibilities of each electricity sector participant and segregate the functions of electricity producer, transmission system operator, distributor, and supplier. Article 25 would make it unlawful to perform any regulated function without first obtaining a license issued by RURA, except in certain cases of rural electrification. Article 26 would give RURA the authority to determine the duration of licenses. The license terms would range from five to 25 years with the opportunity for renewal. Article 18 would establish a single electricity market based upon "equal access" to the transmission and distribution networks for all electricity sector participants. Article 20 would require RURA to promulgate rules applying to all aspects of access to the networks and approve cost-based, published tariffs for network access charges. The Draft Electricity Law would also enable RURA to issue rules determining the scope, terms, conditions, and timeline for market opening, after consultation with the Ministry responsible for energy.

Article 43 of the Draft Electricity Law, if enacted, would establish four distinct processes for the resolution of disputes involving electricity sector participants. The applicable dispute resolution process would depend upon the parties to the dispute. For example, the Draft Electricity Law would permit the parties to concession and development agreements to resolve their disputes in accordance with the dispute resolution provisions of the subject agreement. On the other hand, if a dispute arises between electricity license holders, then the Draft Electricity Law, if enacted, would allow RURA to choose to serve as mediator or arbitrator for the resolution of the dispute, or choose to resolve the dispute through the use of international experts. The Draft Electricity Law would not allow electricity license holders to independently agree upon a dispute resolution mechanism unless the dispute related to a concession or development agreement.

> *Comments: Private investors are often financed by international institutions that require as a loan condition that disputes are resolved pursuant to international arbitration rules by an international panel of arbitrators, often in a neutral, off-shore location. If a private power producer and offtaking utility are unable to resolve their disputes through negotiation then the private power producer will insist on the right to submit the dispute to international arbitration. The Draft Electricity Law should be modified to permit private power producers to settle disputes through international arbitration or as agreed to in the PPA.*

2.3 INVESTMENT LAWS

TDI reviewed the following laws on the regulation of private investment in Rwanda:

- Law Establishing the Rwanda Investment Promotion Agency (N° 14/98, 18 Dec. 1998).
- Law Determining the Responsibilities, Organisation and Functioning of Rwanda Investment and Export Promotion Agency (RIEPA) (N° 45/2006, 10 May 2006).
- Law Relating to Investment and Export Promotion and Facilitation (N°26/2005, 17 Dec. 2005).
- Draft Law Governing Privately Financed Infrastructure Projects (PFIP) (2006).

2.3.2 RIPA/RIEPA Law

The Law Establishing the Rwanda Investment Promotion Agency ("*RIPA Law*") created the Rwanda Investment Promotion Agency in 1998. The RIPA Law also contains two chapters explaining the requirements for establishing a registered investment project in Rwanda and describing the investment incentives available to Rwandan registered investment project companies. In 2006, GoR enacted the Law Determining the Responsibilities, Organisation and Functioning of Rwanda Investment and Export Promotion Agency ("*RIEPA Law*"), which sets forth the responsibilities for the promotion of investments and exports by the national agency "referred to as [the] 'Rwanda Investment and Export Promotion Agency'" ("*RIEPA*").

> *Comment: The RIPA Law is available online for review by potential investors at the website for the Ministry of Justice via the webpage titled "Codes and Law of Rwanda"*

but the RIEPA Law is not available on that website. The RIEPA Law can be found online by reviewing the copies of the Official Gazette posted on the website for the Office of the Prime Minister. Article 22 of the RIEPA Law abrogates all previous legal provisions contrary to the RIEPA Law but does not specifically repeal the RIPA Law. As a result, it is not clear if those provisions of the RIPA Law that are not contrary to the RIEPA Law are still valid and enforceable. There is also no guidance provided in the RIEPA Law on how to determine when a provision of the RIPA Law, or any other law, will be considered "contrary" to the RIEPA Law and therefore abrogated.

Private investors, including potential investors in the Projects, seek transparent and unambiguous legislative frameworks. GoR should consider modifying its legal drafting procedures to require any new law to either specifically repeal earlier inconsistent legislation, or address and clarify the inconsistency to avoid ambiguity. GoR could further enhance the transparency of its laws by ensuring the website for the Ministry of Justice provides access to copies of all of the current laws and proposed legislation but does not offer access to outdated laws.

RIEPA's primary responsibilities, as set forth in Article 3 of the RIEPA Law, include the following:

- participate in activities and programs designed to attract investment in Rwanda;
- research, consolidate, and publish information that markets Rwanda investment opportunities;
- advise potential investors on the legal, financial, and other regulatory requirements for investing in Rwanda;
- assist investors with securing certificates, permits, and authorizations required by law to implement their projects; and
- advise GoR on the national investment policies and export services.

RIEPA is governed by a seven member Board of Directors composed of a diverse group of representatives from both the public and private sectors. The Board is under the supervision of the Ministry in charge of industry, commerce, and investment. A Director appointed by the Prime Minister is responsible for the daily management of RIEPA and is answerable to the Board of Directors.

2.3.1 Investment Law

In early 2006 GoR promulgated the Law Relating to Investment and Export Promotion and Facilitation ("*Investment Law*"). The Investment Law aims to stimulate foreign and domestic investment in Rwanda by providing investment incentives and establishing certain protections over foreign investments. The Investment Law also governs RIEPA's interaction with registered business enterprises. Article 36 of the Investment Law provides that all previous legal provisions contrary to the Investment Law are abrogated.

> *Comment: Most of the incentives provided by the Investment Law were first provided under the RIPA Law and appear in the body of the RIPA Law. This overlap in legal provisions is confusing despite the abrogation in Article 36 of the Investment Law of any prior inconsistent law. (See also our Comment in Section 2.3.1 above).*

The Investment Law sets forth the application procedures for investment project registration. Article 33 permits international arbitration for resolution of disputes between the investor and GoR so long as the dispute resolution mechanism is provided for in the certificate of registration for the investment enterprise.

Annex II to the Investment Law permits registered investors in the energy sector that invest thirty million or more Rwandan francs to take a depreciation expense deduction from income of 50% of the amount invested in new or used assets during the first tax period. Other investment incentives offered under the Investment Law include exemption from VAT on imports of goods and services, and an automatic right to work permits and visas for three expatriate workers. Article 19 permits the Cabinet to authorize additional incentives depending on the nature of the project and the importance of the project to the nation. No further information is provided regarding the type and extent of additional incentives that the Cabinet is authorized to grant to registered investors.

> *Comment: The Investment Law demonstrates GoR's commitment to establishing an economic framework attractive to foreign investors. The investment incentives offered (e.g., work permits for expatriates and tax concessions) are of the type typically sought by investors, but the nature of the additional incentives the Cabinet is authorized to grant, and the extent to which the additional concessions are available, is not clear. Investors might question whether the broad authority given to the Cabinet pursuant to Article 19 is too broad to be effective.*
>
> *If GoR wants to maximize the number of private investors that bid on the Projects, then GoR should set forth in the Investment Law the details of the additional incentives that the Cabinet may grant, and provide objective criteria for the Cabinet to consider when reviewing a request for additional incentives. Potential investors will want to know whether the incentives they seek are available under the laws. They will also want to be able to determine, based upon a review of the laws, whether they will qualify for a particular incentive.*

2.3.3 Draft PFIP Law

The Draft Law Governing Privately Financed Infrastructure Projects ("*Draft PFIP Law*")[36] proposes legislation to govern GoR's selection of concessionaires for the implementation of projects for the design, construction, and operation of facilities and systems that directly or indirectly provide services to the general public. Article 4 of the Draft PFIP Law, if enacted, would provide that infrastructure projects are to be considered as "investments" according to the Investment Law.

[36] The copy of the Draft PFIP Law TDI reviewed is missing the English translations for Article 2 and Article 3.

> *Comment: Article 4 of the Draft PFIP Law creates potential ambiguity in the Rwanda investment laws because the Investment Law does not use the word "investment" as a defined term. The word "investment" is defined in the potentially superseded RIPA Law, while the words "investment enterprise" and "investment activity" are defined terms under the Investment Law. The reference to the term "investment" in Article 4 of the Draft PFIP Law should be clarified prior to promulgation of the law to avoid any legal ambiguity.*

The Draft PFIP Law proposes objective criteria for the selection of a concessionaire and the award of concession contracts. The law, if enacted, would set forth review mechanisms whereby any actual or potential bidder may challenge any conduct relating to the concession proceedings that the bidder believes violated the law. Article 31 lists topics the concessionaire and contracting authority should consider addressing in the concession contract (i.e., nature and scope of the work, remuneration of the concessionaire, performance guarantees, insurance requirements, remedies upon default, duration of the concession contract, method of calculating compensation upon contract termination, concessionaire's reporting obligations, contracting authority's support obligations, etc.) and leaves the resolution of such issues open for negotiation between the contracting parties. Article 35 would require GoR to assist the concessionaire to obtain rights to the project site, as necessary, for the implementation of the project.

Subparagraph 3, of Article 38, of the Draft PFIP Law would prohibit the concessionaire from granting a security interest "over public property or other property, assets or rights needed for the provision of a public service, where the creation of such security [interest] is prohibited by the law of Rwanda."

> *Comment: If the Draft PFIP Law is enacted as written then subparagraph 3 of Article 38 will impede GoR's ability to obtain private financing for the Projects. Most potential private investors for the Projects will rely on international lenders to finance the majority of the acquisition price of the Projects. If the lenders cannot secure their loans with a lien on the power station assets, then the lenders may refuse to lend the substantial amount of money required for the private investors to purchase the power station.*

2.4 COMPANY LAWS

TDI reviewed the following draft law regarding business enterprises in Rwanda:

- Draft Law Establishing the National Registration Services Agency (2006).

We understand that the Draft Law Establishing the National Registration Services Agency ("*Draft NRSA Law*") has now been promulgated by the President and will take effect upon publication in the Official Gazette. We do not know if any revisions were made to the Draft NRSA Law prior to its enactment. The Draft NRSA Law, if enacted, would establish the NRSA for the purpose of administering and overseeing the proper implementation of the laws on

Business Associations, Secured Transactions, Cooperatives, and Trade Licensing, all of which laws we understand are in draft form and undergoing legislative review.

> *Comments: GoR is moving quickly to modernize its business laws with the objective of establishing a legislative framework conducive to economic growth and foreign investment. In the short-term, the new legislative framework will not independently facilitate private investment because the new infrastructure will lack the precedents that provide system credibility and reduce investor risk. Until the commercial laws and investment infrastructure in Rwanda are better established, private investors, such as prospective investors in the Projects, will request that GoR guarantee the legal and political security of an investment in Rwanda through separate contractual arrangements. As stated in the comment to Article 22 of the RURA Law in Section 2.2.1 above, investors will require GoR to enter into an implementation agreement with the investors that sets forth, among other terms, GoR's responsibilities regarding specified "government" risks. The terms of an implementation agreement frequently require the host country government to bear the risk of, and pay costs associated with, or arising from, political events. Political events would include the project company's inability to obtain operating licenses and permits from governmental authorities where the project company has complied with all application procedures, and for changes in law that create material capital or operating expenses that were not in effect at the time of the transaction. These terms reduce the "regulatory risk" for the project company, thereby lowering the required equity return (or making the project financeable), and lead to lower tariffs for the utility off-taker and its customers.*

2.5 PROCUREMENT LAWS

TDI reviewed the following procurement laws:

- Law on Public Procurement (N° 12/2007, 27 Mar. 2007).
- Draft Law on Public Procurement (9 Jan. 2006).
- Presidential Order Establishing Public Procurement Procedures (N° 28/01, 19 Jul. 2004).

2.5.1 Procurement Law

The Law on Public Procurement ("*Procurement Law*") expands the rules, regulations, and procedures applicable to public procurement to promote greater transparency, efficiency, and accountability in the public procurement process. The Procurement Law applies broadly to the procurement of all works, goods, consulting services or other services by any central or local GoR authority, parastatal, public institution, commission, agency, GoR project or specialized institution. Article 3 excludes from the scope of the Procurement Law procurements pursuant to an agreement with GoR that requires the use of other procurement rules to the extent those rules are inconsistent with the Procurement Law. Article 5 requires the Minister in charge of public procurement to establish standard bidding documents and procurement regulations by Ministerial Order.

> *Comment: It will be important for the Minister to promulgate transparent, non-discriminatory procurement regulations to demonstrate to bidders the fairness of the procurement procedures, and stimulate investment and competition.*

The Procurement Law sets forth different procurement methods (e.g., open competitive bidding, two stage tendering) and conditions for the use of each method. Article 20 calls for the establishment of the Rwanda Public Procurement Authority by a specific law that will determine the organization, powers, and responsibilities of the Authority. Article 22 requires each procuring entity to establish a "Procurement Unit" to facilitate procurement for the entity. All tenders will require bid security in an amount up to 2% of the tender price and the successful bidder will be required to provide performance security in an amount between 5% and 10% of the contract price (see Articles 31, 43, and 75). The Procurement Law permits foreign investors to bid in open domestic tenders and permits procuring entities to issue international tenders.

Articles 75-80 establish the laws pertaining to performance security, and Article 79 permits the procuring entity to deduct from the performance security "any amount owed to it because of the successful bidder's failure to perform." Articles 81-90 establish the contract pricing mechanisms, and Articles 91-100 establish certain rights and obligations of the contracting parties. Articles 102-106 detail force majeure rules and procedures, Article 107 governs the impact of changes in the law on the contract terms, and many other articles set forth additional contract rules depending on the type of item procured (i.e., works, goods, or services).

> *Comment: The Procurement Law will apply to the purchase of electricity by Electrogaz and as a result the investors in the Projects will need to conform their tender documentation and draft agreements to the requirements of the Procurement Law. It is unclear if a procuring entity has the authority to negotiate, or further define, any of the contract requirements described in Articles 75 through 175 of the Procurement Law. Private investors might be deterred from investing in the Projects if the Procurement Law prohibits the investors from issuing tender documents with proposed contract terms that differ materially from the contract terms set forth in the Procurement Law, unless GoR provides indemnification for adverse consequences of the inconsistencies in the implementation agreement.*

2.5.2 Procurement Order

The Presidential Order Establishing Public Procurement Procedures ("*Procurement Order*") entrusts the management of public procurements to the National Tender Board ("*NTB*"). The Board of Governors for NTB approves proposals for the award of tenders and regulates the general policies of NTB. The procuring entity is responsible for the preparation of the tender documents. The Procurement Order sets forth detailed procedures for optional public procurement processes and permits single source procurement via direct agreements in certain limited circumstances.

> *Comment: The Procurement Order appears to have been superseded by the Procurement Law. The Procurement Order is available for viewing online through the webpage for the Ministry of Justice, whereas the Procurement Law is not available*

through the Ministry of Justice webpage but is available online through the webpage for the Office of the Prime Minister. Private investors who are unaware of Rwanda's newer laws, could be discouraged from investing in Rwanda if they review the outdated laws posted to the webpage for the Ministry of Justice that do not establish an investment infrastructure that complies with international best practices. (See also our Comment in Section 2.3.1).

2.6 LAND AND WATER RESOURCE LAWS

TDI reviewed the following laws regarding the use of land and water resources in Rwanda:

- Law Determining the Use and Management of Land in Rwanda (N° 08/2005, 14 Jul. 2005).
- Presidential Order Determining the Exact Number of Years of Land Lease (N° 30/01, 29 Jun. 2007).
- Law Relating to Expropriation in the Public Interest (N° 18/2007, 19 Apr. 2007).
- Draft Bill of Fixing Rules of Use, Conservation, Protection and Management of Water Resources (Aug. 2006).

2.6.1 Land Law

The Law Determining the Use and Management of Land in Rwanda ("*Land Law*") reserves all: (i) land, (ii) lake, river, and underground waters, and (iii) minerals and "other wealth underground" as public domain (Articles 3, 13, and 55). The Land Law specifies that GoR has supreme power to manage all land, with the exception of rights given to people, and prohibits the change of course of the waters without permission from the competent authorities. Article 24 of the Land Law permits GoR to lease public land to others for a period of time between three and 99 years as determined by a Presidential Order. The land lease must be registered with the land registrar, then the registrar will issue a certificate to the lessee certifying that the land has been allocated or leased. The definition section of the Land Law defines a "Lease of state land hosting public infrastructure" as "a contract between the government and an individual on condition of rent payment, to personally hold or to exploit the public land with public infrastructure."

<u>Comment</u>: A key factor for many private investors when considering an investment opportunity is whether the land laws clearly provide for the investor's ability to obtain an unencumbered right to use and enjoy those parcels of land required for project development and implementation for the duration of the project. There are a few ambiguities in the Land Law that GoR could resolve by amending the Land Law to provide clarity for investors. First, the Land Law appears to allow a "Lease of state land hosting public infrastructure," which would permit private investors to lease the land associated with the Projects, but this defined phrase is not otherwise used in the text of the Land Law. Potential investors in the Projects will pay particular attention to this definition because it directly impacts development of the Projects. If GoR intends to establish specific

land laws regarding leases of state land holding public infrastructure, then GoR should delineate the rules in the Land Law to enhance transparency for investors.

Second, it is not clear whether individuals and businesses have the right to own land in perpetuity or if all private land ownership is limited to the duration of a long term lease with GoR. Articles 7 and 11 of the Land Law reference an individual's right to own land "inherited . . . from their parents," "acquired through custom," "purchased" or by a number of other means delineated in those Articles. At the same time, Article 5 provides that "[a]ny person or association . . . that owns land . . . are [sic] allowed to own it on long term lease in conformity with the provisions of this organic law."

Third, Article 19 provides for the creation of an authoritative "efficient land structural exploitational chart" to facilitate national land management, but other provisions of the Land Law refer to the chart as an "organizational" instead of "exploitational" chart (e.g., Articles 20 and 21), then later provisions refer to a "national general land organisation and utilisation plan" (Article 66). This inconsistent or ambiguous use of terminology will make it difficult for investors to determine whether multiple charts and plans exist that regulate land use and require investor compliance. Clarification by GoR of the ambiguities that we have highlighted in this Comment will bolster investor confidence in the Land Law by enhancing predictability and delineating private ownership rights.

Article 6 of the Land Law grants any person or business that invests in Rwanda "full rights of ownership of land" and states that the Minister of Lands will determine the "procedure to obtain authentic documents of such personal property."

<u>Comment</u>: To facilitate private investment in the Projects it will be important for the Minister to promulgate transparent, equitable, administrative procedures for investors to follow to obtain the necessary land titles or other documents evidencing land ownership. Investors will also want to know if a minimum dollar amount of investment is required to qualify for land ownership pursuant to Article 6 and what, if any, other restrictions apply when obtaining land rights pursuant to an investment in Rwanda.

Article 3 of the Land Law gives GoR the right to expropriate land due to "public interest, settlement and general land management" through procedures provided by law "prior to" the payment of compensation.

<u>Comment</u>: The Land Law, in Article 3 and in the definition of "expropriation," states that GoR can expropriate land <u>prior to</u> the payment of adequate compensation. The Expropriation Law, discussed in Section 2.6.3 below, requires the prior payment of just compensation prior to expropriation. GoR should clarify this ambiguity to facilitate private investment. GoR's right to expropriate land <u>prior to</u> the payment of just compensation will have a chilling effect on

private investment because lenders will not make loans subject to this substantial risk of loss.

2.6.2 Presidential Order on Lease Terms

The Presidential Order Determining the Exact Number of Years of Land Lease ("*Lease Term Order*") establishes the term for leases of land based on: (i) the category of land and (ii) the use of the land. The three categories of land covered by the Lease Term Order are private state land, private city/district land, and individual land. The categories of land are defined by reference to the Land Law. "Private State owned land" is defined in Article 14 of the Land Law and "consists [of] all land that is not included in state land reserved for public activities infrastructures and that . . . does not belong to district, City of Kigali, towns and municipalities or individuals." Private city/district land consists of private state land donated to the city/district, or land donated from individuals or purchased by the city/district and designated as private land. Article 11 of the Land Law defines individual land as "land acquired through custom, written law . . . acquired from competent authorities, purchased land, gift, exchange, and sharing."

Article 5 of the Lease Term Order lists twelve designated uses of land. Article 6 establishes a 99 year lease term for individual land, and Article 7 establishes lease terms between 15 and 49 years for private state, Kigali City, or district lands depending on the use of the land. Article 7 stipulates that anyone who owns land designated for certain specified activities, including industrial and commercial, is "entitled to full ownership title upon request and . . . land registration, without waiting elapse of the lease period."

<u>Comment</u>: Trying to understand the Lease Term Order and the interplay between the Lease Term Order with the Land Law is challenging. To facilitate private sector investment, GoR should consider revising the Land Law to incorporate the requirements of the Lease Term Order, and clarify any ambiguities.

It is not clear from review of the Land Law and the Lease Term Order whether individuals have the right to own land outright or if their ownership rights are limited to leasehold rights with a 99 year lease term. The Lease Term Order does not specify whether the terms fixed by the Order are maximum lease durations or mandatory durations, nor does it specify whether leasehold rights are transferable. The Lease Term Order infers that leases for certain uses of land will provide for the transfer of ownership rights from the lessor to the lessee at the end of the lease term. As stated in our comments on the Land Law, GoR will need to further develop its land laws and clarify the rights to private land use and ownership to facilitate private investment in Rwanda.

2.6.3 Expropriation Law

The Law Relating to Expropriation in the Public Interest ("*Expropriation Law*") sets forth the procedures GoR must follow when expropriating private land in the public interest. Article 5 delineates 23 acts that are considered "in the public interest" and justify expropriation, including the establishment of water dams and electric lines. The Expropriation Law allows for due process prior to the taking of land and provides appeal rights, first to the Land Commission and last to a competent court, for expropriated parties to challenge the permissibility of the

expropriation and the amount of compensation. Article 22 states that compensation shall be calculated considering the prevailing market prices for the value of the land and the activities conducted on the land. Article 23 provides that "just compensation shall be awarded to the expropriated person before" relocation, however, if an expropriated party appeals the amount of the compensation award to the courts then Article 26 permits GoR to pay the expropriated party the amount approved by the Land Commission and continue with the taking of the land prior to final resolution by the courts of the appropriate compensation amount.

> *Comment: Private investors, which are often backed by international lenders, typically require the host country government to enter into a contract that specifies the formula for calculating expropriation compensation in the event the government directly or indirectly expropriates or adversely affects the project, such as through a change in law event, or if the government elects to assume control of the project following a project company default. The investors and lenders will want to ensure that in the event of expropriation the compensation will be sufficient to cover at least the outstanding debt and a return of equity. To facilitate private investment in the Projects, GoR should consider revising Articles 22 and 26 of the Expropriation Law, in the case of expropriation of an infrastructure project, to permit: (i) GoR to agree by contract to the method of calculating "just compensation," (ii) final appeal to an international arbitral tribunal, and (iii) injunction of further expropriation measures until completion of all dispute resolution proceedings.*

2.6.4 Draft Water Bill

The Draft Bill of Fixing Rules of Use, Conservation, Protection and Management of Water Resources ("*Draft Water Bill*"), if enacted, would regulate the use of water in GoR. Pursuant to the Draft Water Bill, GoR's priorities when allocating water resources, if enacted, would be first to supply water to the population and second to provide water for: (i) animals, and (ii) hydroelectric energy production.

> *Comment: The English version of the Draft Water Bill is either a poor translation or poorly written, and as a result the bill is difficult to understand. If the English version of the Draft Water Bill is not rewritten or retranslated prior to becoming law, then the difficulty understanding the law will lead to inconsistent legal application.*

The Draft Water Bill, if enacted, would reserve to GoR the ownership rights over waters in the public domain but permit the grant of temporary use rights. Article 32 of the Draft Water Bill would require that private water operations for the benefit of the general public or for a public utility shall be granted through a concession regime. The Draft Water Bill would also require the Ministry in charge of water and the Ministry in charge of energy to jointly decide, after public investigation, whether to issue a water concession. Article 41 of the Draft Water Bill would compel the concession holder to pay GoR royalties based upon the quantity of water used to produce hydroelectricity.

> *Comment: An investor in the Projects will expect GoR to negotiate the amount of royalties payable for the use of water as part of the overall commercial terms for the Projects. If the Draft Water Bill is enacted, then to facilitate private investment, it will be important for the Minister to provide implementing regulations that establish transparent and predictable rules for the grant or denial of water concessions and the calculation of water royalties.*

2.7 ENVIRONMENTAL LAWS

TDI reviewed the following laws regarding environmental protection in Rwanda:

- Law Determining the Organisation, Functioning, and Responsibilities of Rwanda Environment Management Authority (N° 16/2006, 3 Apr. 2006).
- Law Determining the Modalities of Protection, Conservation, and Promotion of Environment in Rwanda (N° 4/2005, 8 Apr. 2005).

2.7.1 REMA Law

The Law Determining the Organisation, Functioning, and Responsibilities of the Rwanda Environment Management Authority ("*REMA Law*") established REMA to implement GoR environmental policy and supervise environmental management in Rwanda. REMA is required to examine and approve all environmental impact assessment reports at any level of socio-economic activity undertaken by a person or entity.

Article 4 of the REMA Law gives REMA the right to suspend activities that do not comply with the Law Determining the Modalities of Protection, Conservation, and Promotion of Environment in Rwanda ("*Law on Environment*").

2.7.2 Law on Environment

The Law on Environment determines the modalities of protecting, conserving, and promoting the environment in Rwanda. Article 17 of the Law provides that any actions affecting the use of water resources shall always be subject to a prior environmental impact assessment, and Article 30 specifically states that the construction of dams is subject to environmental impact assessment. Article 40 creates an affirmative duty for all public entities, private organizations, and individuals to conserve the environment. Article 50 requires GoR to establish regulations governing water dams.

> *Comment: The requirement in Article 40 of the Law on Environment to "conserve the environment" might be construed by investors as overly broad and could discourage private investment in the Projects because of the perceived potential for unlimited environmental conservation obligations. Also, it is unclear whether an investor's compliance with its Environmental Impact Assessment, as approved by REMA, limits the scope of the investor's environmental obligations.*
>
> *REMA's right to suspend activities that do not comply with the Law on Environment might also discourage private investors from investing in the Projects unless specific rules are established setting forth transparent procedures*

for REMA to follow prior to suspending an investor's activities (e.g., REMA must provide notice of the violation and an opportunity for the investor to cure any violation) that ensure due process is accorded the investor before any deprivation of rights.

2.8 LABOR AND EMPLOYMENT LAWS

TDI reviewed the following laws on the regulation of labor and employment in Rwanda:

- Ministerial Order on Procedure to Recruit Foreign Workers (N° 13/19, 14 Mar. 2003).
- Law on Immigration and Emigration (N° 17/99, 16 Aug. 1999).
- Law Establishing the Labor Code (N° 51/2001, 30 Dec. 2001).

2.8.1 Immigration Order and Immigration Law

The Ministerial Order on Procedure to Recruit Foreign Workers ("*Immigration Order*") restricts an employer's rights to recruit and hire foreign workers, other than in certain limited cases such as recruiting foreign workers born in Rwanda, to situations where there are no qualified workers in the Rwanda market <u>and</u> the foreign worker possesses a university degree plus related professional experience. Prior to recruiting any such foreign workers, the Director of Labor must approve the employer's application for recruitment authorization. A foreign worker hired pursuant to a recruitment authorization is provided with a one year work permit, which is renewable a maximum of three times for non-managerial workers, at a cost to the employer of 200,000 Rwandan francs.

The Law on Immigration and Emigration ("*Immigration Law*") sets forth the requirements for a foreigner's entry into and residence in Rwanda. Visitors are not authorized to stay in Rwanda for more than three months unless they are approved for residence permits or a living visa, which is only issued to foreigners that are living in Rwanda for the purpose of assisting Rwanda.

<u>Comments</u>: The Immigration Order may discourage investment by foreign investors in the Projects because it could impede an investor's ability to hire a sufficient number of skilled workers required to build and operate the Projects. Private investors often condition their investment on the government's assurance that it will allow certain nonresident personnel that possess skills and expertise essential to the successful implementation of the project to enter and work in the country for the investor for an extended period of time, and in some cases for the duration of the project. To encourage private investment in the Projects, the Immigration Order and Immigration Law should provide the Director of Labor, or the Investment Law should provide RIEPA, with the authority to offer a foreign investor the ability to receive work and residency permits for certain groups of skilled workers necessary for the implementation of the Projects.

2.8.2 Labor Code

The Law Establishing the Labor Code ("*Labor Code*") controls the rights and obligations of employers and employees in the work environment (e.g., vacation and holiday time, sick and maternity pay, employment of minors). Article 7 of the Labor Code requires all employment agreements for a period in excess of 90 days to be in writing. The Labor Code prohibits discrimination in hiring and employment. The Labor Code prohibits employers from requiring employees to work more than 40 hours per week unless overtime is paid for those hours worked in excess of 40 hours. Article 13 of the Labor Code prohibits employers from restricting an employee's ability to work upon termination of the employment arrangement (i.e., employers cannot enforce non-compete agreements with employees).

2.9 TAX LAWS

TDI reviewed the following laws on the imposition of income taxes in Rwanda:

- Law on Direct Taxes on Income (N° 16/2005, 18 Aug. 2005).
- Law on the Code of Direct Taxes on Different Profits and Professional Incomes (N° 8/97, 26 Jun. 1997).

The Law on Direct Taxes on Income ("*Tax Law*") establishes the rules for determining personal and corporate taxable income and sets the tax rates on taxable income. Article 56 abrogates all previous legal provisions contrary to the Tax Law.

> *Comment: The 1997 Law on the Code of Direct Taxes ("Tax Code") is still published and accessible on the website for the Ministry of Justice. The Tax Code, like the Tax Law, also establishes rules for determining personal and corporate taxable profit and the amount of income tax payable. It appears that the Tax Code supersedes the Tax Law but it is not clear. To reduce the potential for investor confusion, GoR should ensure that it specifically repeals earlier legislation when the legislation is later superseded.*

The Tax Law provides for the taxation of taxable business profit at a tax rate of thirty percent (30%). However, registered investment entities that operate in a Free Trade Zone pursuant to the Investment Law, and certain foreign companies headquartered in Rwanda are exempt from corporate income tax and entitled to tax free repatriation of profits.

> *Comment: GoR may need the legislative right to offer additional tax concessions to investors in the Projects as part of a package of total benefits offered to an investor in exchange for the benefits GoR will receive as a result of the private investor's financial investment in the Projects. It is not clear whether the general grant of power to the Cabinet pursuant to the Investment Law is sufficient to permit the Cabinet to offer additional tax concessions that are not specified in the Tax Law.*

2.10 DISPUTE RESOLUTION LAWS

TDI reviewed the following laws on the settlement of disputes in Rwanda:

- Draft Law Concerning the Establishment, Organisation, Functioning and Jurisdiction of the Commercial Courts (2006).
- Draft Law on Arbitration and Conciliation in Commercial Matters (2006).

The Draft Law Concerning the Establishment, Organisation, Functioning and Jurisdiction of the Commercial Courts ("*Draft Commercial Courts Law*"), if enacted, would provide for the establishment of commercial courts in Rwanda for the hearing of disputes related to commercial, financial, and fiscal matters. The Draft Commercial Courts Law would promulgate the establishment of three regional Commercial Courts, with jurisdiction over commercial disputes with a value of up to twenty million Rwandan francs, and the establishment of one Commercial High Court with unlimited original jurisdiction and appellate jurisdiction.

The Draft Law on Arbitration and Conciliation in Commercial Matters ("*Draft Arbitration Law*"), if enacted, would provide arbitration rules and procedures applicable to international and domestic arbitration and conciliation proceedings conducted in Rwanda. The Draft Arbitration Law would permit parties to a contract to agree, in writing, to settle disputes pursuant to the procedures set forth in the Draft Arbitration Law. The Draft Law would also establish default rules governing the composition and authority of the arbitral tribunal, and would provide for local enforcement of arbitral awards rendered by foreign arbitral tribunals.

> *Comment: Both of these draft laws, if enacted, will facilitate a legislative framework for dispute resolution that fosters transparency and neutrality in decision making. Until Rwanda has proven the effectiveness of its domestic mechanisms for dispute resolution, private investors will require, as a condition to investing in Rwanda, a contractual right to international third party arbitration.*

2.11 CONSTITUTION

TDI reviewed the following:

- Constitution of the Republic of Rwanda (4 Jun. 2003, as amended 2 Dec. 2003 and 8 Dec. 2005).

The Constitution of the Republic of Rwanda ("*Constitution*") establishes a parliamentary democracy form of government in Rwanda and sets forth certain fundamental rights of the citizens that are protected by the Constitution.

Article 81 of the Constitution prohibits the exemption from or reduction of tax unless authorized by law. Article 201 provides that unwritten customary law remains applicable as long as it has not been replaced by written laws or is not inconsistent with the laws.

> *Comment: To facilitate private investment in the Projects, GoR should ensure that the Cabinet and/or another GoR entity has the legal right to offer tax concessions to potential investors in the Projects. (See also our comments in*

Sections 2.3 and 2.9). It is not clear whether the Investment Law or Tax Law authorize GoR to negotiate tax concessions on a project by project basis.

Article 201 of the Constitution, by preserving unwritten customs, might impede the development of a transparent legislative framework, which is essential to GoR's development of the investment climate in Rwanda.

2.12 SUMMARY OF REVIEW OF LAWS AND REGULATORY STRUCTURE

The above paragraphs describe the regulatory gaps in the current and emerging energy sector laws, regulations, and policies in Rwanda relevant to potential private investors in the Projects. The primary issues identified include:

- RURA's lack of independent rulemaking authority;
- the absence of an institutional framework law for the regulation of the electricity sector;
- ambiguities in the laws, in large part, as a result of inadequate repeals of superseded laws;
- the lack of an established legal framework for businesses and resulting lack of protection of commercial rights; and
- the restrictions on hiring foreign workers.

3. CONCLUSIONS

GoR is in the process of reforming the laws and regulatory framework in Rwanda to facilitate privatization, encourage private investment, and stimulate economic growth. Over the past couple of years GoR has promulgated new legislation to establish commercial courts, consolidate land laws, develop land records, provide investment incentives and protections to foreign investors, and enhance transparency in public procurement, among other reforms. We understand that GoR is currently considering legislation to modernize the company and contract laws, and to create additional business and investment laws in conformity with international best practices. GoR's demonstrated commitment to legislative reforms that establish an investment infrastructure conducive to competition and foreign investment will increase the likelihood of GoR attracting private investors for the Projects. GoR will need to further develop the electricity sector infrastructure by enacting a comprehensive, transparent, and non-discriminatory electricity law, such as the Draft Electricity Law, as a pre-requisite to obtaining private financing of the Projects.

In our experience, for a host country to facilitate immediate private investment in an industry formerly operated as a public monopoly, the government has had to enter into concession or implementation agreements,[37] as required by the private investors, that contractually set forth the regulatory framework for the duration of the projects. For GoR to facilitate private investment in the Projects, potential investors will most likely require GoR to provide a government guarantee

[37] Note: the actual name of the contract (i.e. "implementation agreement," "concession agreement," etc.) can vary between deals and countries and is not important. The principles addressed by the contract are the key points.

and enter into a concession or implementation agreement to contractually reduce some of the perceived risks associated with the evolving regulatory structure in Rwanda (as set forth in our comments within this Report). After a couple of projects are successfully financed, and the credibility of the investment and electricity sector regulatory framework becomes better established, then GoR's ability to attract private investors without the backing of a government guarantee or concession agreement will increase.

If private investors require GoR to enter into a concession agreement as a condition to financing the Projects, then the pertinent question regarding Rwanda's electricity regulatory structure becomes whether the laws permit GoR to contractually provide concessions on issues that will be important to an investor in the Projects (i.e., licensing arrangements, electricity price control, title to land and land use, expatriation of profits, use of international arbitration, etc.). The answer to this question is not clear. The Investment Law appears to grant the Cabinet broad discretion to authorize concessions depending on the importance to Rwanda of obtaining private financing for the Projects, but the nature and extent of the permissible concessions that the Cabinet is authorized to award is not specified. Successful private financing of the Projects will depend in large part on GoR's ability to negotiate contract documents that establish a regulatory structure for the duration of the Projects that investors believe offsets the investment risks associated with any perceived deficiencies in the emerging energy sector regulatory structure in Rwanda.

It is important, prior to executing the contractual agreements for the Projects, that GoR closely scrutinize the cost of the entire package of incentives offered to the investors in exchange for the private investment in the Projects. GoR will want to ensure that the sum of the costs of and benefits from the Projects results in a net benefit to Rwanda.

We welcome the opportunity to meet with MININFRA and discuss any of the topics addressed within this Report.

Chapter 5 – Task 5: Analyze Project Structure

Per the TOR, TDI analyzed many opportunities of financing, building and operating the plants, and provided recommendations as to the preferred modes for ownership, financing, and management. Per the Grantee's request, the information was prepared as a PowerPoint presentation instead of a memorandum, as initially stated in the TOR. Please refer to **Appendix F, Task 5: Project Structure PowerPoint** for a detailed presentation outlining the TDI's recommendations on project ownership, management, and financing structures.

Based on the key findings in Task 5, TDI presents the following recommendations:

Based upon feedback from MININFRA, TDI recommends that GoR own, manage, and finance the Projects, leveraging concessional debt, during the construction phase of the Projects and then enter into a post-construction partnership with a private investor (the "Investor"). Upon commissioning of the power stations, GoR will sell the powerhouses at Nyabarongo and Rukarara, and the related switchyard facilities (the "Power Stations") to a project company established by the Investor to manage the Projects, but retain ownership of the dams and related civil works (the "Dams"). Simultaneously, GoR will lease the rights to the land upon which the Power Stations are situated, and issue a license to operate the civil works.

The recommended financing structure for the Projects strikes a balance between the interests of GoR in minimizing the consumer tariff and the interests of the Investor in minimizing investment risks. The recommended financing structure requires a smaller equity investment by the Investor than if the Investor purchased both the Power Stations and the Dams. The smaller amount invested in the Projects by the Investor should also correlate into a lower tariff for consumers because TDI have estimated that GoR's cost of capital for financing the construction of the Dams will be less than the average rate of return Investors typically require on similar investments

Until commissioning, interim agreements should be put in place, the most immediate of which is the establishment of special purpose vehicles ("SPVs") as legal entities to hold Nyabarongo HPP and Rukarara HPP assets (2 companies for Nyabarongo HPP – one for Power Stations and one for Dams; 1 company for Rukarara HPP).

Other interim steps include keeping separate accounting books, Rukarara employing a core management team (2-3 individuals and support staff) capable of running the plant more efficiently and at lower cost than an outsourced O&M contract, and Rukarara being run at cost during initial operation period.

Given new project structure, greater attention and next steps should be focused on credit enhancement structures and tender documentation, among other items.

Chapter 6 – Task 6: Advise on Underlying Agreements

1. Introduction

Per the TOR, Task 6 asks TDI to prepare the key business terms for the underlying commercial agreements for each of the Projects. Below, please find the Term Sheets for the EPC Contract, PPA, Implementation Agreement, Operations Maintenance ("O&M") Contract, and Concession Agreement.

These Task 6 Term Sheets are the deliverable pursuant to Task 6 of the TOR of the Grant Agreement between the GoR, acting through the MININFRA, and the USTDA. USTDA, pursuant to the terms of the Grant Agreement, agreed to provide funding for MININFRA to obtain technical assistance regarding the development and implementation of the Projects. MININFRA selected TDI, led by Delphos, as the transaction advisor for the Projects.

Task 6 of the Grant Agreement requires TDI to prepare the key business terms for the underlying commercial agreements, including the (i) EPC Contract, (ii) PPA, and (iii) the O&M Agreement, for each of the Projects (the "*Project Agreements*"). The key business terms and Project risks identified in these Term Sheets are based upon the financing structure for the Projects recommended by Delphos pursuant to Task 5 of the Grant Agreement. Task 5 required Delphos to analyze alternative financing scenarios for the construction, ownership, and management of the Projects and provide recommendations to the GoR as to the preferred modes of ownership, financing, and management of the Projects, in the context of the GoR's energy policy that aims to stimulate private sector participation.

Delphos Task 5 analysis resulted in its recommendation that the GoR own, manage, and finance the Projects, leveraging concessional debt, during the construction phase of the Projects and then enter into a post-construction partnership with a private Investor. Upon commissioning of the power stations, the GoR will sell the powerhouses at Nyabarongo and Rukarara, and the related switchyard facilities, or the Power Stations, to the Company established by the Investor to manage the Projects, but retain ownership of the Dams. Simultaneously, the GoR will lease the rights to the land upon which the Power Stations are situated, and issue a license to operate the Dams, to the Company. The Company, in return, will operate and maintain the Power Stations and Dams, and sell all of the capacity and energy with respect to the Power Stations to the public utility Electrogaz.

The recommended financing structure for the Projects strikes a balance between the interests of the GoR in minimizing the consumer tariff and the interests of the Investor in minimizing investment risks. The recommended financing structure requires a smaller equity investment by the Investor than if the Investor purchased both the Power Stations and the Dams. Investment risk is reduced because less Investor capital is at-risk. The smaller amount invested in the Projects by the Investor should also correlate into a lower tariff for consumers because Delphos has estimated that the GoR's cost of capital for financing the construction of the Dams will be less than the average rate of return Investors typically require on similar investments.

2. Term Sheets

These Term Sheets are not meant to substitute for comprehensive agreements but are intended to form the framework for future negotiations between the appropriate parties that will result in a definitive set of Project Agreements. Each Term Sheet contains three columns. The first column identifies the title of the issue that the GoR should address in the Project Agreement. The second column explains the significance of the issue. The third column provides sample language, or comments on methods, commonly used to address the issue in a manner that balances the interests of the parties.

The Project Agreements will collectively define the rights and obligations of the Company as well as other Project participants (such as the offtaker). One fundamental purpose of the Project Agreements is to allocate the potential Project risks between the parties. All power projects are subject to potential commercial (market), construction, technological, operational, environmental, legal, and political risks (among others). The party that is most capable of mitigating or absorbing a specific risk should bear primary responsibility for that risk. The Project Agreements will interrelate and each agreement must be carefully drafted in light of the other agreements to ensure that all Project risks are addressed and that the Project rights and obligations are appropriately allocated amongst the parties for the duration of the Project.

2.1 Engineering, Procurement, and Construction Contract

EPC Contracts typically require the EPC contractor to deliver a fully operational power station that meets detailed specifications and performance criteria by an agreed upon date for a fixed price. The EPC contractor will have complete responsibility for designing, engineering, and constructing the power station, which includes procuring all necessary materials, equipment, machinery, and parts required for project development. The EPC contractor is also responsible for starting the power station and demonstrating, through completion of specified performance tests, that the power station performs in accordance with the target performance criteria.

The legal provisions of an EPC Contract are short in comparison to the technical provisions and attachments to the EPC Contract, which contain a detailed scope of work and specify the full design, engineering, and mechanical criteria for the power station. We understand that the Rukarara Power Station is currently under construction pursuant to an existing EPC Contract and that GoR is negotiating the terms of an EPC Contract for the Nyabarongo Power Station. In the table below we set forth key legal issues that GoR should address in the EPC Contract for the Nyabarongo Power Station.

Under the financing structure contemplated for the Projects, where GoR is seeking an Investor in the Power Stations while construction of the Power Stations and Dams is underway, GoR must monitor the work of the EPC contractors. GoR should ensure that the EPC contractors comply with the performance guarantees for plant output, efficiency, and reliability, or that the EPC contractors pay GoR damages for any missed performance targets before GoR's final acceptance of the Projects. Once the EPC contractors hand over the Power Stations to GoR, the EPC contractors are no longer liable to GoR for the performance guarantees.

EPC TERMS

Table 14. EPC Terms

Issue	Significance	Sample Language/Comments
Parties	The EPC Contract is typically between the project company (often referred to as owner) that will own and manage the power station and the EPC contractor. For the Projects, GoR will own and manage the Power Stations until they are sold to the Investor but GoR will maintain ownership of the Dams. GoR and Electrogaz could both be parties to the EPC Contract depending upon how GoR decides to structure its ownership of the Power Stations and Dams.	The parties to the EPC Contract could include GoR, Electrogaz, and the Contractor.
Term	The contractor should guarantee completion of the project by a fixed date. The contractor is in a better position than the owner to control the construction schedule and should bear the risks associated with meeting the project deadline. The contractor should be allowed an extension of time to complete the work, equivalent to the length of the delay, if there are any delays resulting from force majeure or the owner's actions or inaction.	An example EPC Contract provision follows: Subject to any extension specifically provided for in this EPC Contract, the Contractor shall achieve Substantial Completion of all of the Work within [forty-five (45) months] from the date the Contractor receives Notice to Proceed from Electrogaz.
Cost of the Work	The contract price should be fixed. A fixed price contract allows the owner to avoid the risk of cost overruns and price fluctuations. Only in limited circumstances (e.g., the owner delays the work or requests variations to the work) will the contractor have the right to charge the owner for amounts in excess of the cost of work.	An example EPC Contract provision follows: As full and complete compensation for the Work, Electrogaz shall pay the Contractor a fixed price amount equal to $_____ (as adjusted pursuant to Section _____).
Terms of Payment	Payment terms should be very specific. Payment terms might correlate to the contractor's completion of certain project milestones, or the contractor might invoice the owner periodically for completed work. The owner should have the right to	Example EPC Contract provisions follow: 1. Payment to the Contractor shall be made as follows: a. Electrogaz shall pay the Contractor

Issue	Significance	Sample Language/Comments
	withhold payment for material breaches of the contract by the contractor.	on the Notice to Proceed Date an amount equal to [ten percent (10%)] of the Contract Price. b. With respect to payments after the Notice to Proceed Date, the Contractor shall submit a Contractor's Invoice to Electrogaz on or before the fifth (5th) day of each month with respect to events achieved/Work executed in the preceding month. The Contractor shall include with each invoice documentary evidence sufficient for Electrogaz to verify the portion of the Work that has been executed. c. Electrogaz shall retain and withhold from each payment to the Contractor of the Contract Price, [ten percent (10%)] of the payment amount as Retainage. d. Upon Substantial Completion of the Project, the Contractor shall submit an invoice to Electrogaz for any remaining amounts due to the Contractor, which may include [ninety percent (90%)] of the Retainage, less an amount equal to [one hundred fifty percent (150%)] of the value of the items remaining on the punchlist. 2. Payment to the Contractor shall be made as follows: a. Electrogaz shall pay the Contractor on the Notice to Proceed Date an amount equal to [twenty percent (20%)] of the Contract Price; b. With respect to payments after the Notice to Proceed Date, Electrogaz shall pay the Contractor an amount equal to [twenty percent (20%)] of the Contract Price upon the Contractor's fulfillment of each of

Issue	Significance	Sample Language/Comments
		the following Project milestones: i. Mechanical Completion; ii. Performance Testing; iii. Substantial Completion; and iv. Final Acceptance. c. Electrogaz shall retain and withhold from each payment to the Contractor of the Contract Price, [ten percent (10%)] of the payment amount as Retainage.
Taxes and Duties	Tax concessions are a common inducement offered by a host government to an EPC contractor or project company to entice the company to bring its business to, or perform its services in, the host country. The type and extent of tax concessions will be negotiated between the parties taking into consideration the overall terms of the project. The host government also grants tax concessions to lower the tariffs payable by the offtaker and its retail customers.	An example EPC Contract provision follows: The Contract Price includes payment for (i) all costs of equipment, materials (but excluding spare parts), labor, and services relating to Contractor's performance of its obligations under this Contract and the Work provided by Contractor or its Subcontractors or vendors, (ii) all Rwandan national, regional, and local taxes effective as of the date of the EPC Contract, and (iii) all other taxes, duties, levies, imposts, fees, or charges of any kind effective or enacted on or before the date of the EPC Contract. Notwithstanding anything to the contrary, the Contract Price shall be exclusive of any and all value-added taxes, customs and import taxes that may be levied by customs and other authorities of Rwanda on any machinery, equipment, materials, spare parts, tools and other items necessary, directly related to, and appropriate, for the complete construction, testing, and commissioning of the Project.
Split EPC Contracts	Some EPC Contracts are split into an onshore EPC Contract and an offshore EPC	Before agreeing to permit the Contractor to split the EPC Contract,

Issue	Significance	Sample Language/Comments
	Contract. Depending upon local tax laws, split EPC Contracts may reduce the overall tax liability of the contractor. In some countries, sales tax and value-added tax might not apply to project equipment imported from outside of the host country under a separate agreement. As a result, if the EPC Contract is separated into an onshore EPC Contract and an offshore EPC Contract, the total amount of the onshore EPC Contract that is subject to VAT and local sales tax is reduced by the amount of the project equipment and other items purchased pursuant to the offshore EPC Contract.	GoR should weigh the benefits it receives from providing this concession (e.g., a reduction in the Contract Price) against the added costs associated with preparing, negotiating, and managing multiple EPC Contracts, and the lost tax revenue. In addition, GoR must ensure that the Coordination Agreement, which ties the onshore and offshore contracts together, eliminates the potential for the Contractor to evade any of its obligations because of a gap in coverage between the terms of the onshore and offshore EPC Contracts (e.g., with respect to the scope of work, timing, warranty obligations, or other terms).
Performance Security	The owner should require the contractor to provide performance security to protect the owner against the risk that the contractor does not perform in accordance with the terms of the contract. A contractor will often be required to provide a bank guarantee for a portion of the contract price. The amount of the bank guarantee will vary depending on the amount of the owner's retainage and other security provided under the contract. The total amount of the owner's performance security under the contract typically ranges between 5-15% of the contract price.	An example EPC Contract provision follows: No later than the Notice to Proceed Date, the Contractor shall provide a Performance Bond in the form attached as Annex _____ hereto, in an amount of no less than [five percent (5%)] of the Contract Price.
Commencement and Prosecution of the Work	Commencement of work by the contractor is typically triggered by the owner's issuance of a notice to proceed. The contractor must perform the work in accordance with the scope of work. The scope of work should specify in detail full design, engineering, and technical criteria. The contractor will time its performance in accordance with the project schedule and	An example EPC Contract provision follows: The date on which Electrogaz provides the Contractor with a Notice to Proceed shall be the Notice to Proceed Date, provided that Electrogaz has furnished satisfactory evidence to the Contractor of its ability to pay over time.

Issue	Significance	Sample Language/Comments
	provide the owner with periodic updates of the project schedule.	The Contractor shall prosecute the Work in accordance with the Project Schedule set forth in Annex ___.
Subcontractors	The owner should have the right to approve all subcontractors. The performance, or lack of performance, of any work by a subcontractor should not relieve the contractor of any of its obligations under the contract.	An example EPC Contract provision follows: The approval by Electrogaz of any Subcontractor shall not (i) constitute any approval of the Work undertaken by any Subcontractor, (ii) cause Electrogaz to have any responsibility for the actions, the Work, or payment of any Subcontractor, or (iii) in any way relieve the Contractor of its responsibilities and obligations under this EPC Contract.
Labor Relations	The contractor must ensure compliance with all labor laws (e.g., wage rates, work hours, work site conditions) and should immediately notify the owner of any potential labor disputes that could delay the project schedule or affect the quality of the work.	An example EPC Contract provision follows: The Contractor shall endeavor to give preference to the employment of Rwandan nationals as far as they are technically competent and possess the necessary skills to perform the work required by the Contractor. The Contractor shall use all reasonable efforts to minimize the risk of labor related delays. The Contractor shall promptly take any and all reasonable steps that may be available in connection with the resolution of violations of collective bargaining agreements and labor disputes. The Contractor shall advise Electorgaz promptly in writing of any actual or threatened labor dispute of which the Contractor has knowledge that might materially affect the performance of the Work by the Contractor or its Subcontractors.
Changes in the	The owner should have the right to require the contractor to change the work for an	An example EPC Contract provision

Issue	Significance	Sample Language/Comments
Work	increase in the contract price.	follows: Electrogaz may make Changes in the Work, within the general scope of this EPC Contract, whether the changes are modifications, additions, or deletions, in accordance with this Article _____. Each change shall be made promptly without delay and shall be considered for all purposes of this EPC Contract as part of the Work. Upon the occurrence of a Change in the Work that impacts the cost of the Work or the critical path of the Project schedule, and except to the extent provided otherwise with respect to events of Force Majeure, the Contractor shall be entitled to an equitable adjustment in the Contract price, and an extension of the Guaranteed Substantial Completion Date, as appropriate.
Inspection	The owner should negotiate the right to access the project site to inspect the work. When inspecting the work, the owner must not interfere with or attempt to control the contractor's execution of the work. Owner interference could give the contractor a defense to claims for project delay or deficiency.	An example EPC Contract provision follows: Electrogaz shall have the right to inspect any item of equipment, material, design, service, or workmanship to be provided hereunder, and the Contractor shall submit for review by Electrogaz all system descriptions, plans, drawings, calculations, technical specifications, quality assurance reports, and other documents relating to the Work. The Contractor understands that Electrogaz, its lenders, and their respective representatives have the right to observe and inspect the Work, any item of equipment acquired, material, design, service, or workmanship to be provided hereunder and to observe all tests of

Issue	Significance	Sample Language/Comments
		the Work and the Project.
Interconnection Construction and Grid Access	The contractor must have access to the grid for commissioning and reliability testing. The EPC Contract should specify which party is responsible for construction of the interconnection from the power station to the grid.	An example EPC Contract provision follows: The Contractor shall construct the interconnection from the Project to [___] substation. Electrogaz shall be responsible for upgrading the system to support the Project, except as set forth in Annex ___. Electrogaz shall ensure the Contractor has the grid access needed to run the performance acceptance tests when required.
Performance Guarantees	In a project-financed project, the owner's ability to repay its debt and equity holders is dependent upon the power station performing as specified in the EPC Contract. As a result, it is critical to the owner that the contractor, who is in the best position to control the quality of construction and selection of major and minor components of the power station, guarantee the output, efficiency, and reliability of the power station.	An example EPC Contract provision follows: The Contractor guarantees that the Project will meet the performance guarantees as set forth in Annex _____.
Performance Tests	The most common types of performance acceptance tests are functional tests, emissions tests, and guarantee tests. Functional tests are used to check the operability of components of the power station but they do not test the overall performance of the power station. A component undergoing a functional test must perform adequately for the contractor to move on to the next step in the development process. Emissions tests check for compliance with environmental requirements. Like functional tests, compliance with emissions tests are absolute obligations of the contractor, meaning the power station cannot operate if the contractor fails these tests. Guarantee	An example EPC Contract provision follows: The Contractor will conduct certain performance acceptance tests to demonstrate achievement of the performance guarantees and other testing requirements. A detailed description of the tests are found in Annex _____. If the Contractor fails any performance acceptance test then the Contractor will make any necessary adjustments, modifications, and repairs and repeat the applicaple performance acceptance tests until passed, subject to the liquidated damages provision of this EPC Contract.

Issue	Significance	Sample Language/Comments
	tests are the mechanisms used to ensure the contractor meets the performance criteria (e.g., capacity, efficiency) specified in the EPC Contract. The EPC Contract should include detailed technical specifications for how the performance acceptance tests should be conducted or reference standard industry test procedures. The EPC Contract performance acceptance tests should be at least as stringent as the performance acceptance tests in the PPA. For example, an owner might contract for a 105 MW plant pursuant to the EPC Contract to ensure the owner can guarantee capacity of 100 MW pursuant the PPA.	
Mechanical Completion	Mechanical completion occurs when the contractor has completed the design, engineering, construction, and installation of the project, and has tested all equipment and components of the power station.	An example EPC Contract provision follows: The Contractor shall achieve Mechanical Completion pursuant to Annex _____.
Substantial Completion	Substantial completion of the project is primarily dependent upon the contractor and owner agreeing that the contractor has constructed the project in accordance with the technical and mechanical requirements of the contract, that all performance acceptance tests have been successfully completed, that all relevant operating permits and warranties have been transferred from the contractor to the owner, and that the project is ready for commercial operations subject to the contractor completing the items on the punchlist. Upon substantial completion the care, custody, and control of the power station is transferred from the contractor to the owner, which triggers the start of the warranty period(s).	An example EPC Contract provision follows: Substantial Completion will occur when, in compliance with applicable permits and laws, Mechanical Completion has been achieved, the performance acceptance tests have been successfully completed at or above the level of the performance guarantees, the Work has been completed in accordance with this EPC Contract, the Contractor has demonstrated that the Power Station is operational, the Contractor has paid all liquidated damages owed to Electrogaz, the Contractor has provided Electrogaz with final "as-built" drawings and substantially complete drafts of the operation and maintenance manuals, and has completed all required training for the Power Station, and the

Issue	Significance	Sample Language/Comments
		completion and acceptance of the Work, subject to the punchlist, has been accepted in writing by Electrogaz and its lenders.
Final Acceptance	The contractor must finish any work on the owner's punchlist and demonstrate that the power station is capable of generating electricity at the output level equivalent to the guaranteed capacity to reach final acceptance. If the contractor is required to provide the as-built project designs, drawings, plans, and specifications to the owner upon completion of the project then this requirement should be specified in the EPC Contract.	An example EPC Contract provision follows: The Project as a whole will be deemed to have achieved Final Acceptance once all punchlist items have been completed and accepted by Electrogaz, the Contractor has provided Electrogaz with all lien releases, drawings, materials, and permits required by Annex _____, the Contractor has removed all of its supplies, equipment, waste, and temporary facilities from the Site, and Electrogaz has paid the Contractor all amounts due under this EPC Contract.
Training, and Operation and Maintenance	The contractor should provide extensive training to the owner's employees that will operate the power station. The contractor should also be required to prepare a manual detailing the operation and maintenance procedures that the owner's personnel will need to follow to operate and maintain the power station.	An example EPC Contract provision follows: Training of Electrogaz's personnel (or other employees or agents of Electrogaz or its transferee) shall be given by the Contractor prior to Substantial Completion as more fully described in Annex _____. The Contractor shall at all times keep a copy of the most recent version of the Contractor's Drawings and Manuals at the Contractor's office on the Site to be made available to Electrogaz for review. Within [sixty (60) days] of Substantial Completion the Contractor shall provide Electrogaz with both hard and electronic copies of the Contractor's final Drawings and Manuals.
Liabilities and Damages	The contractor should be required to pay the owner liquidated damages to	An example EPC Contract provision follows:

Issue	Significance	Sample Language/Comments
	compensate the owner as a result of the contractor's failure to meet the guaranteed substantial completion date or performance guarantees. Delay damages are typically expressed as a specified dollar amount of damages owed to the owner by the contractor for each day of unexcused delay. Delay damages represent an estimate of the extra costs incurred by the owner because of the contractor's delay of the project schedule. Liquidated damages for the contractor's failure to meet performance guarantees represent an estimate of the pro-rata reduction in the value of the power station below the guaranteed amount because of the reduced performance of the power station. In a turn key EPC Contract the contractor bears the majority of the design, engineering, construction, and commissioning risks. To shield itself against unlimited liability the contractor will require the owner to agree to a cap on the contractor's contractual liabilities. Total contractor liabilities are typically subject to an overall cap that is sometimes expressed as a percentage of the contract price.	The Contractor's maximum aggregate liability will not be limited in the case of liability for third party injury and property damage caused by acts or omissions of the Contractor or its agents or claims against patent infringement. Subject to the foregoing, the Contractor's overall liability to Electrogaz will be limited to [twenty percent (20%)] of the Contract Price.
Warranties Concerning the Work	The contractor should be required to repair any defects in the work. The contractor's repair obligations extend for a period of time after the completion of the project as negotiated by the parties. Longer warranty periods will be offset by higher contract prices. The contractor should also transfer any vendor warranties on equipment and materials to the owner. In addition, the contractor should warrant that it has the rights to any intellectual property used in the works and agree to indemnify the owner	An example EPC Contract provision follows: The Contractor will assign all vendor warranties to Electrogaz upon Substantial Completion but the Contractor will still be fully responsible for enforcing all warranties for the applicable warranty periods under this EPC Contract. The Contractor's general warranties, for the benefit of Electrogaz and its lenders, will include the following

Issue	Significance	Sample Language/Comments
	for any damages resulting from a third party's claim to the intellectual property.	warranties: a. all equipment, materials, supplies, and other goods will be new and of good quality, and the Work will be free from inherent or latent defects, whether in design, engineering, workmanship, materials, or otherwise; b. the Contractor shall perform all engineering and design services using its best skill and in accordance with sound engineering practices; c. the Work will be performed in a good and workmanlike manner in accordance with good construction practices of generally recognized engineering and construction services; d. the Work when complete will be such that all performance guarantees and the other guarantees will be met; e. the Work when complete will comply with the Technical and Mechanical Specifications; f. when completed, the Project will operate in accordance with all applicable laws and permits; g. no infringement of any patents, trademarks, registered designs, copyrights, design rights, or other registerable or proprietary intellectual property rights of any kind will result from the performance of this EPC Contract or the operation or ownership of the Project; and h. good title to the Work will vest in Electrogaz free from any charge, lien, encumbrance, or security interest of any kind.
Early	The contractor's right to early termination,	An example EPC Contract provision

Issue	Significance	Sample Language/Comments
Termination	if any, is generally limited to the right to terminate for non-payment, prolonged suspension of the project by the owner, or prolonged force majeure. The owner's right to early termination typically includes the right to terminate for certain contractor breaches or for the contractor's failure to adequately cure breaches. In some cases, the owner contracts for a unilateral right to terminate the contract upon payment of a termination payment to the contractor.	follows: After giving Notice to Proceed, Electrogaz may, upon receiving approval of its lenders, terminate the Work with or without cause at any time by giving Notice of Termination to the Contractor. If the Work is terminated by Electrogaz without cause then the Contractor shall receive as compensation a Termination Payment calculated in accordance with Annex _____.
Suspension	The owner should consider negotiating the right to suspend the work if potential regulatory or environmental obstacles could stall the progress of the project.	An example EPC Contract provision follows: Electrogaz may at any time and from time to time, and for any reason, suspend performance of the Work or any portion thereof by giving a Suspension Notice to the Contractor. Such suspension shall continue for the period specified in the notice. The Contractor shall be entitled to terminate this EPC Contract in the event that any suspension shall exceed [one hundred and eighty (180) days]. Electrogaz shall compensate the Contractor only for those costs (i) attributable solely to a suspension of items of the Work and (ii) that are documented by the Contractor to the reasonable satisfaction of Electrogaz.
Insurance	The owner will require the contractor to provide proof of insurance, indicating the types of insurance coverage, policy limits, and deductibles, as evidence that the contractor is in compliance with the insurance requirements of the contract. The contractor's insurance policies should name	An example EPC Contract provision follows: The Contractor shall arrange and pay for insurance as specified in Annex _____.

Issue	Significance	Sample Language/Comments
	the owner and/or the owner's lenders as additional insureds under the policies.	
Treatment of Proprietary Information	The contractor must keep all of the owner's proprietary information confidential.	An example EPC Contract provision follows: Any information disclosed by one Party (the "transferor") to the other Party, and/or its agents, employees, or affiliates (the "transferee") incident to the performance of the Work pursuant to this EPC Contract that is designated in writing as proprietary is confidential, and the transferee shall restrict its use of such information solely to uses related to the Project or performance of this EPC Contract.
Assignment by Owner	The owner should be allowed to assign the contract to its lenders, upon notice, without receiving the contractor's consent.	An example EPC Contract provision follows: Without the prior consent of the Contractor, Electrogaz may, upon written notice, assign all or part of its right, title, and interest in this EPC Contract to its lenders.
Assignment by EPC Contractor	The contractor should have the right to assign the contract only upon the prior written consent of the owner.	An example EPC Contract provision follows: The Contractor shall have no right, power, or authority to assign the EPC Contract or any portion thereof, either voluntarily or involuntarily, or by operation of law, without first obtaining the prior written consent of Electrogaz.
Representations and Warranties	The representations and warranties are statements of fact that one party to the contract makes to the other party as of a particular point in time. The representations require the parties to disclose certain facts that may be relevant to the transaction that the parties might not otherwise disclose. If	Some facts Electrogaz would want to know are true about the Contractor include confirmation that: (a) the Contractor has obtained all permits required to construct the Power Stations and Dams;

Issue	Significance	Sample Language/Comments
	a false representation is made then the other party will have remedies under the contract.	(b) the Contractor is a valid legal entity, in good standing, and authorized to do business in Rwanda and its country of organization; (c) the Contractor has the necessary corporate power to enter into the transaction; (d) the Contractor will not breach any of the Contractor's other obligations by entering into this EPC Contract; (e) the Contractor is currently not in breach of any of its obligations under any other agreement that would have a material adverse affect on the Contractor's ability to perform under this EPC Contract; and (f) the Contractor is in compliance with all applicable laws and governmental regulations. Electrogaz and/or GoR would has have to make similar representations to the Contractor.
Force Majeure	Force majeure events refer to those events that are beyond the control of the parties to the agreement (e.g., acts of war, epidemic or plague, tsunami, typhoon). The parties typically agree that neither party will be in default under the EPC Contract to the extent a party is unable to perform its contractual obligations as the result of an event of force majeure. In addition, the EPC Contract should provide for an extension of time for the contractor to complete the work that corresponds to the delay caused by the force majeure event.	An example EPC Contract provision follows: Neither party shall be considered to be in default or breach of its obligations under this EPC Contract to the extent that performance of its obligations is prevented by an event of Force Majeure arising after the date of this EPC Contract. To the extent that the Work or a portion of the Work is affected by an event of Force Majeure, Electorgaz shall: (a) cause the Contractor to complete the Work in accordance with the Project Schedule as adjusted for the amount of time required by the event of Force Majeure; or

Issue	Significance	Sample Language/Comments
		(b) suspend the Work or any portion of the Work in accordance with Article _____; or (c) terminate this EPC Contract in accordance with Article _____.
Indemnification	Indemnification allocates the costs associated with a party's actions to the party most capable of controlling such actions. Indemnification clauses help promote diligence by the parties.	An example EPC Contract provision follows: Each party agrees to indemnify and defend the other and each of the other party's affiliates from and against any and all damages, directly or indirectly related to this EPC Contract, to the extent, and only to the extent, caused or contributed to by the fault, intentional act, negligence, or strict liability of the indemnifying party or its affiliates.
Dispute Resolution	The EPC Contract should require the parties to comply with an informal dispute resolution process prior to engaging in any formal dispute resolution proceedings to minimize the expense of dispute resolution. When the parties cannot resolve a dispute themselves, expert resolution and then international arbitration in a neutral forum are the preferred forms of dispute resolution.	An example EPC Contract provision follows: In the event that any dispute, controversy, or claim between Electrogaz and the Contractor arising out of or relating to this EPC Contract or the breach, termination, or validity of this EPC Contract, the party wishing to declare the dispute shall deliver to the other party a written notice identifying the disputed issue. Within [thirty (30) days] of delivery of a notice of dispute, the parties shall attempt in good faith to settle such dispute by discussions among representatives for each party. If the parties are unable to settle the dispute then the dispute shall be finally settled under the Rules of Arbitration of the [International Chamber of Commerce] by [three] arbitrators appointed in accordance

Issue	Significance	Sample Language/Comments
		with the Arbitration Rules. Unless otherwise agreed in writing, the Contractor shall diligently carry on the Work during the pendency of any disputes or proceedings so long as all undisputed amounts payable to the Contractor under this EPC Contract have been paid. *(Note: The full dispute resolution provision in an EPC Contract would be much longer than this sample provision and would provide additional details on the informal dispute resolution process, the expert resolution process, and the procedures regarding international arbitration.)*
Miscellaneous Provisions	The EPC Contract will also include standard miscellaneous provisions, including provisions dealing with amendments to the EPC Contract, rights of third parties, severability, counterparts, and notices to the parties.	

2.2 Power Purchase Agreements

The PPA is typically the most scrutinized agreement in a power production project because it determines the revenue stream the investor/project company will receive throughout the life of the project. A long-term PPA with a creditworthy offtaker is a prerequisite to lenders providing financing for a power project such as the Projects.

PPA TERMS

Table 15. PPA Terms

Issue	Significance	Sample Language/Comments
Parties	In a small hydropower project the offtaking utility is often the source of 100% of the project revenues. As a result, the creditworthiness of the utility is a critical determinant of project viability and financability. To bolster the creditworthiness of the utility the investor and/or its lenders often require the utility to provide support for its payment obligations. If the utility is a public utility, then the host government is often required to guarantee the payment obligations of the utility. (See discussion of "Payment Support" below and "GoR Guarantee" in Section C).	Electrogaz and the Company.
Definitions	Due to the technical complexity of hydropower project documents it is customary to have defined terms that are used within the PPA, and to the extent appropriate the defined terms should be used consistently across all of the Project Agreements.	While there are likely to be many defined terms in a PPA, examples of defined terms include the following: "Available Capacity" means in any hour of a day, the amount of capacity declared by the Company to be available from the Power Station in accordance with the Grid Code. *(Note: The National Control Center's (NCC) knowledge of the Available Capacity will be important for dispatch scheduling by NCC. In addition, the amount of Available Capacity during any given hour is also used to calculate payment obligations.)* "Project Agreements" means,

Issue	Significance	Sample Language/Comments
		collectively, the Engineering, Procurement, and Construction Contract, the PPA, the Implementation Agreement, the Concession Agreement, and the Operation and Maintenance Agreement. "Capacity Payment" means the amount to be paid by Electrogaz to the Company, for any month, for the purchase of the Available Capacity and Net Electrical Output. "Capacity Price" means the price per kWh of Available Capacity. "Commissioning Test" means one or more tests designed to determine, among other things, whether a Unit is able to operate at its Unit Contracted Capacity as set forth in Annex [__]. "Energy Price" means the price per kWh of Net Electrical Output. "Net Electrical Output" means the net electrical energy expressed in kWh dispatched by Electrogaz and delivered by the Company at the interconnection point. "Prudent Utility Practices" means those standard practices, methods, and procedures conforming to safety and legal requirements which are attained by exercising that degree of skill, diligence, prudence, and foresight which would reasonably and ordinarily be expected from a skilled and experienced international operator of a hydropower facility

Issue	Significance	Sample Language/Comments
		engaged in the same type of undertaking under the same or similar circumstances to those pertaining in Rwanda.
Term	The term of the PPA must be long enough to ensure complete debt recovery by the lenders and payment to the investor of a reasonable return on equity but must not exceed the useful life of the facility. A long-term PPA will allow the capital cost of the project to be recovered over a longer period of time and thus reduce the lender coverage ratio requirements and the per unit tariff. Due to the extensive capital investment required to construct a hydropower project, it is not unusual for the term of a hydropower PPA to be 20 to 30 years.	An example PPA provision follows: [Twenty (20) years] from the date of commissioning of the Power Station. Upon the expiration of the Term the Power Station shall revert to GoR. *(Note: If possible, GoR should tie the start of the term of the PPA to the commissioning of the Power Station per the EPC Contract to ensure there is no delay in adding the capacity to the network.)*
Interconnection Facilities	The cost of developing the interconnection facilities to connect the power station to the grid code are often shared between the project company and the utility. For this Project, if the Power Stations are not sold until after commercial operations, then GoR will initially bear the full costs of designing, constructing, installing, and commissioning the interconnection facilities, but may recover at least some of those costs in the purchase price it receives upon the sale of the Power Stations. Ongoing maintenance obligations of the interconnection facilities should be shared between the utility and project company.	An example PPA provision follows: As between Electrogaz and the Company, the Company shall be responsible at its sole expense for the insurance, operation, and maintenance of all auxiliary and interconnecting equipment on the Company's side of the boundary (as determined by Electrogaz and the Company).
Commissioning and Testing	The PPA typically includes specific testing obligations for the power plant. As stated above, GoR should, if possible, tie the start of the PPA to the fulfillment of the commissioning tests by the EPC Contractor. In the future, after handover of the Power Stations to the Company, the Company will bear the burden of satisfying performance obligations.	An example PPA provision follows: The Power Station will consist of [__] turbines (each a "Unit"). The Units of the Power Station will be commissioned in accordance with agreed test procedures and parameters set

Issue	Significance	Sample Language/Comments
	Scheduled capacity tests are used to determine whether the power plant can technically meet the contracted capacity requirements. The failure of the project company to satisfy the tests could result in a reduction in the utility's payment obligation.	forth in an annex to the PPA. The Commissioning Tests shall include reliability and capacity tests. The Power Station will be subject to annual testing to establish the "Tested Capacity" in accordance with the provisions of the PPA.
Hydrology Risks	Private investors are reluctant to accept hydrology risks, particularly where the host government or utility mandates the size of the facility, or privatizes an existing facility. Even the most reliable water sources are prone to periods of adverse hydrology. The risk that an extended dry period will materially and adversely impact the capacity of the power station for a long period must be allocated. The investor will also want protection against the risk of the host government diverting or permitting the diversion of the upstream water flow.	To insulate the investor from hydrology risks, the investor will want the capacity payments to be based on capacity tests performed when there is adequate water.
Guaranteed Availability	To ensure maximum capacity is available to Electrogaz during the rainy season, Electrogaz should consider including a provision in the PPA that requires the Company to guarantee availability as high as 98% of contracted capacity during that time. If the guaranteed availability is high during peak periods, then the Company will require a lower guaranteed availability during non-peak periods to allow for non-scheduled outages and other sources of minor-variations in availability.	An example PPA provision follows: The Company shall meet the following "Guaranteed Availability" requirements: June through September: [__%] availability. October through May: [__%] availability.
Capacity and Energy Payments	The Capacity Payment is the sum of (a) the Capacity Price x Available Capacity, plus (b) the Energy Price x Net Electrical Output. (See "Definitions" above). The Capacity Price is usually fixed at the time of signing the PPA, but some adjustment to the tariff or to the tariff components is often allowed at the time of financial closing (e.g., foreign exchange hedging, spare parts contracts,	An example PPA provision follows: Electrogaz shall make Capacity Payments to the Company monthly in arrears and within [forty-five (45) days] following the delivery of an invoice for such amounts by the Company to Electrogaz. Capacity

Issue	Significance	Sample Language/Comments
	swapped-out interest rate). The capacity component should be designed to recover all of the project company's fixed costs for the project, including fixed financing, operation, and maintenance costs. The energy payment should be designed to cover the project company's variable costs. Capacity Payments are typically paid in the currency of the host country. To mitigate the exchange risk to foreign investors and international lenders, the project company and lenders will require all or a large portion of the capacity component of the Capacity Payment to be indexed to a foreign currency (or payable in a foreign currency) and some portion indexed to some measure of inflation, usually the amount to compensate for operation and maintenance expenses.	Payments shall be determined and adjusted in accordance with Annex [__]. *(Note: The adjustment to the Capacity Price for the Projects will be minimal compared to a project constructed by the Company.)*
Purchase and Sale of Capacity and Energy	The amount of electric generation capacity the project company agrees to make available to the utility by an agreed date for an agreed period of time is referred to as the "Contracted Capacity." The example PPA provision provided in the next column benefits the utility by reserving for the utility 100% of the Power Station's capacity and energy while prohibiting the Company from charging the utility for additional capacity in excess of the lesser of the Contracted Capacity or Tested Capacity.	An example PPA provision follows: The Company will deliver and Electrogaz will purchase the Available Capacity and the Net Electrical Output. The Available Capacity shall not in any event exceed the lesser of (a) ____ MW (the "Contracted Capacity") or (b) the then-prevailing Tested Capacity, as determined by annual capacity testing in accordance with the PPA. In no event shall the Company be permitted to sell or transfer or make available to any person other than Electrogaz the capacity or electric energy of the Power Station or any facilities without the express written approval of Electrogaz.
Tariff	Different components of the tariff set at a given time may not be appropriate for the entire term of the PPA. Adjustments to these tariff	The tariff calculation is typically set forth as an attachment to the PPA. If GoR tenders the

Issue	Significance	Sample Language/Comments
	components against appropriate indices or factors are essential to protect the parties. If all of the indexing risks are passed on to the Company then all of the Project expenses will be included in calculating the tariff, such as the: 1. purchase price for the Power Stations; 2. labor and insurance costs; 3. the fees and expenses of the legal, technical, and financial advisors incurred in connection with the purchase of the Power Stations; 4. letter of credit fees, permit and licensing fees, guarantee fees; 5. land lease and license fees and expenses, including payments made pursuant to a CA; 6. operation and maintenance expenses, including payments made pursuant to an O&M Agreement; and 7. cost of debt and equity.	Projects based on electricity price and awards the Projects to the bidder that bids the lowest price then GoR must retain some of the indexing risks, which will be negotiated between the parties. Two financial proposal structures we can see are: 1) GoR sets tariff and bidders bid price of shares in project company. 2) GoR sets entry price for investors (i.e. price of shares) and bidders bid tariff.
Payment Support	The ability of the utility to meet its payment obligations under the PPA is critical to the success of the project. As a result, the investor and the lenders will require the utility to provide the investor access to an alternative source of funds to cover the utility's invoice in the event the utility is unable to meet a payment obligation.	A utility's payment obligations can be guaranteed by pledges of revenue streams, maintenance of liquidity facilities, pre-payment, off-shore letters of credit, or in the case of a government utility, by a government guarantee. A payment support provision in a PPA with a public utility as offtaker might read as follows: The obligations of Electrogaz under the PPA will be guaranteed by GoR pursuant to the Implementation Agreement.
Investor Security	The inability of the investor to provide the energy promised to the utility could financially harm the business of the utility and its customers. As a result, the utility will require the investor to set aside, or guarantee the utility's access to, certain funds reserved by the investor for payment to the utility for damages incurred by	An example PPA provision follows: The Company will provide a surety bond in a form acceptable to Electrogaz as security for the performance of its obligations under the PPA in an amount

Issue	Significance	Sample Language/Comments
	the investor's inability to deliver the energy as scheduled.	equal to US$[__ million].
Events of Default	The events of default provision typically describes those actions, or inactions, by a party that result in a material breach by that party of its obligations under the PPA. The occurrence of an event of default, if not cured within the specified cure period, if applicable, triggers the non-breaching party's right to the PPA remedies.	An example PPA provision follows: <u>Company Events of Default</u>. Each of the following shall be an Event of Default by the Company: (a) the abandonment of the Power Station; (b) the assignment or transfer, without consent, of the Company's rights or obligations in the PPA (except to the Company's lenders); (c) the transfer, conveyance, loss, or relinquishment to any person of the Company's right to own and/or operate the Power Station without the prior approval of Electrogaz; (d) the occurrence of any of the following events: (i) the passing of a resolution by the shareholders of the Company for the winding up of the Company except in the case of a solvent restructuring; (ii) the voluntary filing by the Company of a petition in bankruptcy; (iii) the appointment of a liquidator in a proceeding for the winding up of the Company; or (iv) the making by a court with jurisdiction over the Company of an order winding up the Company; (e) the Company's persistent failure to operate, maintain, or repair the Power Station in accordance with Prudent Utility

Issue	Significance	Sample Language/Comments
		Practices; (f) any material breach by the Company of the PPA that is not remedied within [sixty (60) days]; (g) termination by GoR of the Concession Agreement or Implementation Agreement as a consequence of a Company Event of Default under either agreement; or (h) termination by RURA of the Company's Generation License. <u>Electrogaz Events of Default</u>. Each of the following shall be an Event of Default by Electrogaz: (a) the dissolution of Electrogaz or the assignment of Electrogaz's rights under the PPA, other than pursuant to the privatization of Electrogaz as provided for in the Implementation Agreement; (b) any default by Electrogaz in the making of the Capacity Payment to be made by it within [forty-five (45) days] of the due date therefor; (c) any material breach by Electrogaz of the PPA that is not remedied within [sixty (60) days]; or (d) the termination by the Company of the Implementation Agreement as a consequence of a GoR Event of Default under that agreement.
Representations and Warranties	The representations and warranties are statements of fact that one party to the contract makes to the other party as of a particular point	Some facts Electrogaz would want to know are true about the Company include confirmation

Issue	Significance	Sample Language/Comments
	in time. The representations require the parties to disclose certain facts that may be relevant to the transaction that the parties might not otherwise disclose. If a false representation is made then the other party will have remedies under the contract.	that: (a) the Company has obtained all permits required to operate the Power Stations and Dams; (b) the Company is a valid legal entity, in good standing, and authorized to do business in Rwanda; (c) the Company has the necessary corporate power to enter into the transaction; (d) the entering into the transaction by the Company will not breach any of the Company's other obligations; (e) the Company is currently not in breach of any of its obligations under any other agreement that would have a material adverse affect on the Company's ability to perform under the PPA; and (f) the Company is in compliance with all applicable laws and governmental regulations. Electrogaz would make similar representations to the Company.
Covenants	Covenants are ongoing promises by each party to the other party to either take certain actions or refrain from taking certain actions. A breach of a covenant triggers remedies under the PPA.	An example PPA provision follows: <u>Company Covenants</u>. The PPA will include covenants of the Company that are standard in transactions of this kind, including covenants: a) to comply with all applicable laws of Rwanda; b) to own, operate and maintain the Power Station in accordance

Issue	Significance	Sample Language/Comments
		with Prudent Utility Practices so as to provide a useful life not less than the Term of the PPA, and to keep the Power Station free and clear of all liens and encumbrances other than "Permitted Liens" and free of all environmental liabilities; c) to maintain complete, accurate records and accounts and to make such books and accounts available to Electrogaz for its inspection; and d) to maintain its corporate existence and not to sell or transfer capacity or energy from the Power Station to any party other than Electrogaz. <u>Electrogaz Covenants</u>. The PPA will include covenants of Electrogaz that are standard in transactions of this kind, including covenants: a) to pay the Capacity Payments; and b) to operate the grid in accordance with Prudent Utility Practices.
Force Majeure	Force majeure events refer to those events that are beyond the control of the parties to the agreement (e.g., acts of war, epidemic or plague, tsunami, typhoon). If a party is prohibited from performing its contractual obligations under the PPA as the result of an event of force majeure then so long as the party complies with its obligations under the force majeure provision in the PPA, which generally require the party to take all reasonable steps to mitigate the damage of the force majeure event, the party will not be considered in breach of the PPA for failing to	A standard PPA force majeure provision will typically require the parties to perform as described in the provision below. A party whose performance is affected by an event of Force Majeure shall (i) notify the other party as soon as reasonably practicable, (ii) provide an estimate of the expected duration of the party's inability to perform, (iii) keep the other

Issue	Significance	Sample Language/Comments
	perform its other contractual obligations.	party informed of any changes in the estimate, (iv) give the other party written notice promptly after the party is able to resume its obligations under the PPA, and (v) as soon as possible after the event of Force Majeure, resume performance of all obligations under the PPA.
Insurance	Insurance provides the lenders and the investor with a means for recovering the funds invested in the project in the event of a major casualty. The lenders will typically set the minimum insurance requirements depending on the specific project risks. The required insurance coverages generally include casualty, business interruption, employer's liability, environmental liability, transit, automobile, and political risk insurance.	An example PPA provision follows: The Company, at its sole cost and expense, but with reimbursement by Electrogaz as set forth in Annex [__][38], shall obtain and maintain, or cause to be obtained and maintained (i) during the term of its commercial financing agreements, the policies of insurance required by the financing agreements in the amounts set forth therein and during the periods mentioned therein, and (ii) after the repayment of all indebtedness under the financing agreements, such insurance as is required by Prudent Utility Practices and is customary for hydroelectric dams that are similar to the Power Station and Dam.
Indemnification	Indemnification allocates the costs associated with a party's actions to the party most capable of controlling such actions. Indemnification clauses help promote diligence by the parties.	An example PPA provision follows: Each party agrees to indemnify and defend the other and each of the other party's affiliates from and against any and all damages, directly or indirectly related to the PPA, to the extent, and only

[38] The Investor's cost of insurance will be included in the tariff calculation and recovered by the Investor through its receipt of the Capacity Payments.

Issue	Significance	Sample Language/Comments
		to the extent, caused or contributed to by the fault, intentional act, negligence or strict liability of the indemnifying party or its affiliates.
Dispute Resolution	All project documents should provide a clear, unambiguous dispute resolution process to ensure the efficient resolution of disputes and minimize potential delays in project operations. When the parties cannot resolve a dispute themselves, expert resolution and then international arbitration in a neutral forum are the preferred forms of dispute resolution.	An example PPA provision follows: In the event that any dispute, controversy, or claim between Electrogaz and the Company arising out of or relating to the PPA or the breach, termination or validity thereof, the party wishing to declare the dispute shall deliver to the other party a written notice identifying the disputed issue. Within [thirty (30) days] of delivery of a notice of dispute, the parties shall attempt in good faith to settle such dispute by discussions among representatives by each party.[39]
Termination Rights	Termination is the most extreme remedy available to the non-breaching party when all other efforts to cure the problems fail.	An example PPA provision follows: Upon the expiration or early termination of the PPA the obligations of Electrogaz and the Company will cease, except for those obligations expressly provided to survive (e.g., confidentiality, indemnification, dispute resolution).

[39] If the parties are unable to resolve the dispute then the Company will require the ability to submit the dispute to international arbitration. Private investors are often financed by international institutions that require as a condition to the loan that disputes are resolved pursuant to international arbitration rules by an international panel of arbitrators, often in a neutral, off-shore location. The 15 November 2007 Draft Electricity Law allows for disputes regarding concession or development agreements to "be resolved in accordance with the mechanisms included in their terms" but requires disputes between license holders, such as a dispute regarding the PPA, to be resolved pursuant to the dispute resolution procedures promulgated by the relevant regulatory authority.

Issue	Significance	Sample Language/Comments
		If the PPA is terminated due to an Company Event of Default, Electrogaz will have the right to acquire the Power Station for [eighty percent (80%)] of the then-depreciated book value of the Power Station, depreciated on a straight-line basis over the Term of the PPA. If the PPA is terminated due to an Electrogaz Event of Default, the Company will have the right to require Electrogaz to acquire the Power Station and pay as compensation an amount equal to [one hundred percent (100%)] of the then-depreciated book value of the Power Station. At the end of the Term of the PPA, the Power Station will revert to GoR.
Governing Law	PPAs are commonly governed by the law of the host country to allow for the development of a body of local case law that will facilitate the predictability of the law and further international economic development.	An example PPA provision follows: The PPA will be governed and construed in accordance with the laws of the Republic of Rwanda.
Advisors' Fees	Advisors' fees in international power transactions can total hundreds of thousands to millions of dollars. One way for the host country or offtaking utility to cut down on out-of-pocket expenses is to provide for the investor to pay for the offtaker's advisors' fees.	An example PPA provision follows: Following the execution of the PPA, the fees and expenses of Electrogaz's legal advisors and other consultants in connection with the negotiation and finalization of the annexes to the PPA and the resolution of any conditions precedent to effectiveness, and the negotiation and finalization of other related documents and instruments, including any agreements required by the

Issue	Significance	Sample Language/Comments
		Company's lenders, and any opinion of counsel requested by the lenders, shall be the liability of the Company, and shall be payable monthly within [thirty (30) days] of delivery of an invoice of the fees approved by Electrogaz; provided that if such fees and expenses exceed US$[__], any excess shall give rise to an adjustment in the Capacity Payment. The Company shall agree that any amount not paid when due may be withdrawn from any security provided by the Company to Electrogaz.
Miscellaneous Provisions	The PPA will include standard miscellaneous provisions, including provisions dealing with confidential information, waiver by a party of performance, amendments to the PPA, rights of third parties, severability, counterparts, and notices to the parties.	

2.3 Implementation Agreement

When the host country lacks an established foreign investment market, the project investors or lenders will often require the host country government to enter into an agreement with the investor that defines the host country's obligations to support the project. The Implementation Agreement will define GoR's role in the Project and its responsibility for managing certain political, legal, regulatory, and financial risks that if left unaddressed might discourage private investment in the Projects or impede the Company's ability to attract a viable financing package.

IA TERMS

Table 16. IA Terms

Issue	Significance	Sample Language/Comments
Parties	The host country and the project company.	GoR and the Company.
Term	The term of the IA, and GoR's obligation to support the Projects, should be at least as long as the term of the PPA, under which the Company will be responsible for the ownership, maintenance, and operation of the Power Stations, and the operation and maintenance of the Dams.	An example IA provision follows: The IA shall be executed simultaneously with the execution of the PPA and shall have a Term equal to the term of the PPA.
GoR Guarantee	When the offtaker of the PPA is a government entity (e.g., public utility), the lenders will require the investor to obtain a commitment from the government that it will pay the obligations of the government entity in the event the government entity defaults on its payment obligations.	An example IA provision follows: GoR will provide a payment guarantee to guarantee the payment by Electrogaz of the Capacity Payments due under the PPA. The form of GoR Guarantee will be set forth in an annex to the IA.
Existence of Electrogaz	When the offtaker of the PPA is a government entity, the investor will require the government to guarantee the long term viability of the entity to minimize the risk that future government leaders will allow the entity to liquidate and avoid its PPA obligations.	An example IA provision follows: GoR will cause Electrogaz to remain in existence for the term of the IA, provided, however, that GoR may privatize any or all of the functions of Electrogaz if such privatization does not have a material and adverse effect on the ability of Electrogaz or any successor to Electrogaz under the PPA; and [(ii) does not materially and adversely affect the

Issue	Significance	Sample Language/Comments
		validity or enforceability of the GoR Guarantee].[40]
Support for the Company's Obligation to Obtain Permits and Consents	The project company will need to obtain and maintain many permits from various government entities (e.g., environmental permits, electricity generation permit, business license, water use license) to allow operation of the power plant. The government's commitment to assist the investor with obtaining and maintaining the required permits protects the investor against the risk that a local government authority will act unfairly and withhold permit renewals or other legal rights necessary for the operation of the power plant.	An example IA provision follows: Upon reasonable request by the Company, GoR will use its offices to provide support for and expedite the consideration and the granting by the relevant authority of applications by the Company, which are made in accordance with its obligations, for the issuance or renewal of consents.
Expropriation of Assets	The investor will seek protection against the government taking the project assets. Investor concerns over the risk of asset expropriation are heightened when investing in a country that has little history of private investment in domestic assets. The investor will expect the government to agree to not expropriate the project assets. In addition, the investor will require that the IA set forth a calculation that will provide the investor with adequate compensation to pay off the project debt and provide a return to the equity investors as a remedy in case the government does expropriate the project assets.	An example IA provision follows: The Company and GoR will agree upon the definition of the term "expropriation," which will include expropriation as a result of the loss of permits through no fault of the Company, or as a result of a change in law. GoR will be required to compensate the Company for any expropriation of Project assets that is prohibited by the terms of the IA.

[40] If Electrogaz is privatized then it is not clear whether the GoR Guarantee should continue. Some issues to consider include whether the privatized entity should have the obligation to provide additional credit support instead of GoR (e.g., the GoR Guarantee expires subject to Electrogaz maintaining a certain level of creditworthiness over a predetermined time period), and whether the GoR Guarantee should continue, regardless of the creditworthiness of Electrogaz, to protect the Company against the risk of loss from political force majeure. Alternatively, if Electrogaz is unbundled and only partially privatized (e.g., distribution privatized), the Transmission Company could succeed to the IA and maintain the GoR Guarantee. This issue will require careful attention if Electrogaz privatization is planned.

Issue	Significance	Sample Language/Comments
Change of Law	Investors make significant financial commitments to the host country's government based upon the legislation that exists at the time the investor enters into the project agreements with the government. In return, the investor will require that the host government insulate the project from any changes in law that will negatively affect the project.	The IA may protect the Company against changes in law by providing that any change of law subsequent to the date of the IA that adversely affects the Project is not applicable to the Project. Alternatively, GoR could require the Company to comply with the change of law but agree to pay the Company for the cost of such compliance. Neither of these mechanisms for addressing changes in law will prohibit GoR from changing its laws subsequent to entering into the Project Agreements, but GoR will need to consider the cost of subsequent changes in the law compared to the anticipated benefits before enacting the new laws.
Employment of Rwandans	One of the host government's project goals is to increase the employment of local workers and facilitate the training of local workers in new skills and technologies. A government's requirement for the employment of local workers must be balanced with the investor's responsibility for minimizing Project costs.	An example IA provision follows: The Company shall, and shall endeavor to cause its contractors to, give preference to the employment of Rwandan service contractors as far as they are financially and technically competent, possess the necessary skills to perform the work required by the Company, and such contractors are available on a timely basis and on competitive terms.
Immigration	The host country often lacks a sufficient number of highly skilled personnel required by the investor for the successful operation of the hydropower project. As a result, the investor will seek assurances from the host country that it will permit the investor to hire certain highly skilled, foreign workers and that the host country will streamline the work permit and visa application procedures to facilitate the timely hiring of the essential personnel.	An example IA provision follows: Subject to the applicable laws of Rwanda relating to immigration, and provided the Company submits timely applications in appropriate form and with appropriate fees, GoR will expeditiously grant applications of the Company for work permits, employment passes, visas and other permits, as necessary, for technically qualified individuals involved in the performance of the Company's

Issue	Significance	Sample Language/Comments
		obligations under the Project Agreements.
Political Force Majeure	In emerging markets, investors commonly seek protection from financial loss arising from a political force majeure event. Investors will require the host government to take the risk of force majeure pursuant to all of the project agreements, including the PPA. Political risk insurance can also be purchased to help mitigate political risks.	Political force majeure events typically include acts of war, riot, insurrection, and sabotage against the power station (among others).

2.4 Operation and Maintenance Agreement

It is common for the project investor to hire a third party company with experience in operating and maintaining facilities similar to the project (e.g., for a hydropower project the operator would have expertise running the powerhouse and switchyard facilities, as well as operating the dam and related civil works). Project lenders often encourage the investor to hire a separate operator to reduce the investor's overall project risk by sharing the risk of an operational failure with another party.

If GoR decides to operate either of the Power Stations prior to sale to the Company then GoR should hire a recognized, reputable O&M Contractor to perform this task. Potential investors in the Projects will have more confidence that the Power Stations have been run in accordance with industry best practices if operated by a reputable O&M Contractor that is a neutral third party than if the Power Stations are operated by Electrogaz. If GoR hires an O&M Contractor then it must ensure the term of O&M Agreement is short (i.e., one year with the option to renew) or terminable without penalty in the event the Company does not want to use an O&M Contractor or prefers a different O&M Contractor.

O&M AGREEMENT TERMS

Table 17. O&M Agreement Terms.

Issue	Significance	Sample Language/Comments
Parties	The O&M Contractor must be a party with related experience and have a good reputation in the industry. GoR must ensure that once it sells the Power Stations, the PPA between the Company and Electrogaz does not relieve the Company of the ultimate responsibility and liability for any of the services the Company subcontracts to the O&M Contractor.	The operative PPA language could state: The Company may contract with an O&M Contractor to operate and maintain the Power Station with the prior approval of Electrogaz. The appointment of an O&M Contractor by the Company shall not relieve the Company of its obligations or potential liability regarding the insurance, operation, or maintenance of the Power Station.
Term	The Company should hire an O&M Contractor that will operate the Power Stations, at the option of the Company, for the duration of the PPA.	An example O&M provision follows: The O&M Agreement shall commence on the Effective Date and, unless extended, shall

Issue	Significance	Sample Language/Comments
		terminate on the [fifth anniversary] of the Effective Date unless earlier terminated in accordance with the termination provisions of this O&M Agreement. The Company may request an extension of this O&M Agreement for up to [three (3)] additional periods of [five (5) years] each upon the giving of notice not more than [two (2) years] nor less than [one (1) year] prior to the expiration of the current term.
Services	The description of the scope of work is key to the O&M Agreement. The O&M Contractor's scope of work should be broadly defined and encompass all of the services the power station owner is obligated to provide pursuant to the PPA. The O&M Contractor's services generally include operation, maintenance, and repair obligations, and obligations to hire and train personnel, monitor warranties, maintain permits, comply with reporting responsibilities, and maintain inventory.	Sample PPA Language regarding the O&M Contractor services could state: All operations and maintenance services necessary for the Power Station, including support services, are the responsibility of the Company and, if applicable, the O&M Contractor. The O&M Agreement typically sets out the O&M Contractor's "Services" in an Annex to the O&M Agreement because of the length of the description and the detail with which the Services must be described.
Excluded Services	By broadly defining the O&M Contractor's work the power station owner shifts the operational risk to the O&M Contractor as much as possible. For any services that must be performed by the owner, the parties can then agree to a limited number of specified services that are carved out of the O&M Contractor's scope of work.	The "Excluded Services" are generally set forth in an Annex to the O&M Agreement to enable the parties to describe the Excluded Services (i.e., the owner's responsibilities) in sufficient detail. The more detail that is used to describe the Services and Excluded Services the less potential for future disputes between the parties over their responsibilities.

Issue	Significance	Sample Language/Comments
Performance Standards	The O&M Contractor will be required to operate the Power Stations and Dams in compliance with the performance standards established in the PPA, prudent utility practices, and equipment warranties. The O&M Contractor must also operate the Power Stations and Dams in accordance with applicable laws and permits.	An example O&M provision follows: The objectives that appear in the column labeled "Objective" in Annex _____ to this O&M Agreement set forth the performance levels that the O&M Contractor must achieve with respect to the performance of the Services.
Bonuses	The O&M Contractor might qualify for bonuses if his performance exceeds the negotiated performance standards.	An example O&M provision follows: The performance enhancements that appear in the column labeled "Performance Enhancements" in Annex ____ to this O&M Agreement set forth the performance levels that the O&M Contractor will aspire to achieve with respect to the performance of the Services. The performance incentives and monetary remedies will accrue to the benefit of the O&M Contractor and the Company, respectively, based on the O&M Contractor's performance as measured in accordance with the provisions of this Annex.
Liquidated Damages	The O&M Contractor must have an obligation to pay liquidated damages for failure to meet the contractually established performance standards. The liquidated damages amount is generally capped at a percentage of the total amount of fees payable to the O&M Contractor under the O&M Agreement.	See "Bonuses" language above.
Payment	The calculation of the tariff in the PPA must include payments under the O&M Agreement. It is also critical to ensure that the O&M payments do not exceed receipts under PPA. The payment terms under an O&M Agreement	Once the parties agree to the method of calculating the payments due under the O&M Agreement, then the terms of the payment provision might also

Issue	Significance	Sample Language/Comments
	are heavily negotiated and typically structured either as a fixed fee plus certain out of pocket costs or	provide for a fixed annual escalation of the charges upon which the payment amount is based.

2.5 Concession Agreement

A Concession Agreement is a blend of authority given to a private company by a governmental body that includes the contribution of assets (e.g., leasehold rights for the property on which the Dams and Power Stations are located) and a license (e.g., the right to operate the Dams and use the water to produce power) that is done by contract in exchange for a specified benefit (e.g., monetary payments, right to purchase the power produced by the power station).

Table 18. CA Terms.

Issue	Significance	Sample Language/Comments
Parties	The government is the grantor of the concession and the investor/project company is the grantee.	GoR and the Company.
Term	The term of the CA must begin prior to or simultaneously with the term of the PPA and extend for at least as long as the term of the PPA.	An example CA provision follows: The CA shall begin on the Effective Date and shall have a Term equal to the term of the PPA.
Land Rights	The investor must have the unencumbered right to use and access the land where the power station will be located and other lands, such as rights of way, required to operate the project.	The government's obligation to convey the necessary land rights is often included as a provision in the IA, such as the following: GoR shall convey to the Company all land and land rights necessary for the operation and maintenance of the Power Stations and Dams pursuant to a Concession Agreement in the form attached hereto as Annex [__].
Royalties	The project company pays the host government royalties for use of government assets, including water resources. These royalties can be set based upon the quantity of water used to produce hydroelectricity, or upon annual revenue, or kWh produced, a flat fee, or a combination of factors.	

3. Conclusions

GoR should identify those Project requirements that are non-negotiable then include a draft of the Project Agreements in the bid packages for the Projects. By including the draft Project Agreements as part of the bid package, GoR signals to the potential bidders those items that are non-negotiable, and increases the likelihood that the final documents will include provisions that adequately address all of GoR's concerns thorough a cohesive set of agreements. The draft Project Agreements should also be fundamentally bankable as tendered to minimize the exceptions taken to the agreements by the bidders.

Chapter 7 – Task 7: Investment Memorandum

Per the TOR, TDI prepared an IM, suitable for presentation to the investment community and for the purpose of structuring and obtaining financing for the implementation of the Projects, based on the findings of Tasks 1-6. The Investment Memorandum was prepared as stated in the TOR and was presented by Team Leader Todd Morath in Kigali, Rwanda in November 2009.

The IM outlines Tasks 1-6. TDI prepared the IM for the purposes of presenting the Projects to the investment community. In addition, TDI prepared the IM in order to structure and obtain financing for implementation of the Projects. The following paragraphs outline the key findings of each chapter:

The IM first presents the economic, or "Rwandan Macroeconomic Overview" chapter, which determined that Rwanda's economy has demonstrated strong growth until it was slowed by the current economic downturn. Moreover, the Country has exhibited strong trends in increasing international trade and the GoR has demonstrated its commitment to creating legislation to encourage further FDI inflows.

The "Electricity Sector Overview" chapter determined that with respect to connectivity and Rwanda's distribution grid, there is a large, on-going electricity roll-out program that will allow the country to improve access to electricity and reach 16% connectivity by 2012. Currently, Rwanda's access to electricity is at 6%.

The "Legal and Regulatory Analysis" chapter determined that Rwanda's demonstrated commitment to increase investment infrastructure will increase the likelihood to attract private investors. Moreover, for Rwanda to further attract investors, the GoR must develop the electricity sector infrastructure as well as provide government guarantees and implementation agreements to potential investors in order to decrease involved risks.

Chapters 4- 7 determined that the implementation of the Rukarara and the Nyabarongo HPPs will contribute to the accelerated social and economic improvement of the population by reducing electricity prices. The section concluded that lower prices will result in improvement in national health conditions and growth in agriculture, SMEs, and employment levels. These chapters also discussed the timing and location of the projects, construction costs, and identified the EPC contractors.

The "Privatization Opportunities" chapter determined that GoR can limit its financial exposure through privatization of the Projects; however, such cases require higher tariff and the negotiation of project contracts (PPA, CA, FA, etc.) Moreover, the scenarios with private ownership have the highest break-even tariffs, but also generate the most significant FDI inflows into the country and support the GoR's stated goal of increasing private sector involvement in the energy sector.

Chapters 9-10 identify the PPA and O&M contractors and determined that risk would be reduced by sharing the risk of an operational failure with another party.

The "Financials" chapter determines that there is an inherent trade-off between the tariff and GoR's exposure. In particular, GoR-owned cases are at a lower tariff but require more GoR funding and/or direct exposure to indebtedness. For example, the scenario with the lowest break-even tariffs (a 100% GoR owned scenario), also has the highest debt exposure (as measured by the Net Present Value ("NPV") of debt service to exports).

The "Risk Analysis" section focuses on the two main sources of risk, demand risk and hydrology risk. The IM concludes that demand risk, which assesses whether or not consumers will be both able and willing to pay for the produced energy, is relatively low in the short- to medium-term, but information is unavailable to make a long-term assessment. Hydrology risk, which refers to the availability of water to enable electricity generation, requires further technical analysis, as the quantity and quality of hydrology data currently available is insufficient.

Please refer to **Appendix G, Task 7: Investment Memorandum** for the complete document.

Chapter 8 – Task 8: Marketing of the Transaction

Per the TOR, TDI developed a summary Power Point presentation of the proposed transaction for the Projects based on the Investment Memorandum prepared in Task 7.

Please refer to **Appendix K, Task 8: Marketing Presentation** for the PowerPoint presentation.

Given the new nature of the scope and timeline of the Project, the tone of the Marketing Presentation focuses on opportunities for credit enhancement structures, post-construction private investments, and tendered documents.

Chapter 9 – Task 9: Ongoing Transaction Support

Per the TOR, TDI shall support the GoR, both remotely and in Kigali, to progress the transaction forward. TDI shall provide the GoR with a detailed schedule of activities necessary to reach financial closure based on TDI's experience with similar transactions, which is available within this section.

Moreover, per the TOR, TDI shall assist the GoR with the next steps of obtaining financing and shall travel up to four times to Kigali to provide this assistance to the GoR. TDI is not, however, be expected to travel to other destinations for this task. The maximum level of effort expected for this activity is forty-five (45) person-days.

Based on the fact that MININFRA does not wish to pursue privatization at this point in time, TDI is providing a timeline for privatization, assuming MININFRA wishes to proceed upon the commissioning of the Nyabarongo HPP. In order to facilitate an effective privatization process, TDI makes the following recommendations:

- Corporatize the projects as limited liability entities, fulfilling the conditions to register the company, manage the company, obtain a permit, and retain an auditor.
- Finalize the PPA, CA, and any third-party O&M arrangements necessary to facilitate the successful operation of the company.

The full description of TDI's recommendation is included in **Appendix L, Task 9: Corporatization and Training Support to MININFRA and Other GoR Stakeholders**.

Rwanda Hydropower Plants																	
Task 9																	
	2009	2010				2011				2012				2013			
Task	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
	Call	Call	Call	Call	Call	Call	Call	Call	Call	Call	Call	Call	Call	Call	Call	Call	Call
USTDA Technical Assistance																	
Task 7 Presentation and Site Visit to Rwanda																	
Final Report Submission																	
Rukarara HPP																	
Contruction																	
Commissioning																	
Nyabarongo HPP																	
Construction																	
Commisioning																	
Corporatization Process																	
Privatization Process																	
Preliminary Discussions with Potential Investors and IFIs																	
Discussion with Investors and Others about Credit Enhancements																	
Site Visits																	
Deal Documentation																	
Tender Documents																	
Term Sheets																	
Loan Agreements																	
Credit Enhancements																	
Waivers (if applicable)																	

Chapter 10 – Task 10: Development Impacts

1. Constraints Imposed by the Current State of the Electricity Sector

During the 2003 electricity crisis, total electricity production declined by approximately 60%, forcing several unplanned power outages and load shedding. The electricity deficit resulted from a combination of: (i) a large increase in demand due to a significant boost in development; and (ii) a significant decrease in supply due to overexploitation of lake storage basins and an unusually low rainfall rate that was insufficient to refill the water storage basins of the hydroelectric dams.

Attempts to address the shortages were hampered by historic inattention to pressing rehabilitation and revitalization projects. While total installed capacity in Rwanda is currently 72.05 MW, capacity available for operations is only 44.1 MW.

1.1 Supply/Demand Balance

At the peak of the energy crisis, approximately 50 percent of electricity demand went unmet. Current annual electricity demand is estimated to be 255 GWh/year,[41] and this is expected to increase at an annual rate of 25 percent.[42] The need for capacity in 2010 is forecast to be between 84 and 87 MW, if supply constraints remain in place, and 115 MW in an entirely unconstrained environment.[43] Increased demand for electricity is forecast to come primarily from: continued industrial growth; increased private construction; continued demographic growth; and migration from the countryside to the cities.

Electrogaz responded to the crisis by renting diesel generators from a Dubai-based company, Aggreko. These plants currently comprise a quarter of Rwanda's electricity capacity (12.8MW)[44] While the leasing and installation of these generators has significantly reduced what would otherwise be a larger power deficit, their high costs have led to increases in both electricity prices and the country's budget deficit.

Electrogaz has also increased the amount of electricity imported from the Ruzizi I (Congo) and Ruzizi II (Congo, Burundi, Democratic Republic of Congo) power plants.

1.2 Pricing

[41] The Economist Intelligence Unit, *Rwanda – Country Profile* , 2006

[42] Ministry of Infrastructure, January 2007

[43] International Fund for Agricultural Development, Investment Opportunities in the Rwandan Energy Sector, 2004

[44] The Economist Intelligence Unit, Rwanda – Country Profile , 2006

As the supply deficit has increased, electricity prices have also increased. Rwanda has the highest average electricity prices in all of East Africa.[45] High tariffs are the result of many factors, including the high costs of core infrastructure (transmission, distribution and transportation) and diesel fuel.

Figure 19 summarizes Rwandan electricity tariffs over the past seven years. In January 2004, the Rwandan government doubled the tariff from 42 RWF/kWh to 82 RWF/kWh to enable Electrogaz to generate revenues sufficient to cover operating costs and allow for much-needed capital rehabilitation and revitalization. Tariffs were increased significantly again the following year.

Table 19. Electricity Prices.

Electricity (RWF/kWh)	2000	2001	2002	2003	2004	2005	2006	2007
Industry	42	42	42	42	82	112	112	105
Household	42	42	42	42	82	112	112	112
Public service	42	42	42	42	82	112	112	112

Source: Provided by client.

This electricity prices relative to neighboring countries makes it difficult for local businesses to compete regionally. The deleterious impacts of high average prices – in general and, in particular, on the ability of companies to compete regionally - are exacerbated by the fact that Rwanda employs a very rudimentary approach to allocating industry costs across customer classes. Indeed, only recently have distinctions been established between industrial, commercial and residential consumers.

1.3 Reliability

As indicated in Table 20, technical and non-technical losses of power along transmission lines have contributed significantly to the existing electricity deficit. Some of the major causes of the losses were technical failures; a lack of or defective electricity meters; meter fraud; illegal connections; and errors in invoices. While some of the existing technical are attributable to damage incurred during the civil war, many of the problems have resulted from inadequate maintenance. The introduction of new generating capacity electricity will increase pressure on an already underperforming transmission and distribution system.

Table 20. Transmission losses, 2001 through 2006

	2001	2003	2004	2005	2006
Losses (million kWh)	45	65	59	63	57
Losses as a % of available	22%	27%	27%	22%	19%

Source: "Rwanda: Diagnostic Trade Integration Study", Republic of Rwanda, 2007

[45] In 2005, for example, the electricity tariff in Rwanda was USD $0.16, compared to USD$0.04 in Uganda. See Ministry of Finance and Economic Planning, Impact of Energy Crisis on Economic Growth in Rwanda, November 2005.

Ongoing inability to maintain reliable production and delivery of electricity significantly impacts the ability of the broader business community to function effectively. Unexpected losses of power during manufacturing production processes not only decrease productivity, but often lead to damages of machinery and other physical capital. Most firms depend on electricity to support the basic services of lighting, heating and cooling.

Table 21 outlines the impacts of unreliable electricity provision on businesses within both Rwanda and the neighboring region. It is worth noting that, relative to its neighbors, Rwanda experiences slightly fewer averages and slightly more lost sales sue to these outages. The implication is that Rwandan businesses are relatively more reliant on electricity for day-to-day activities. This highlights the importance of a stable national electricity supply within Rwanda.

Table 21. Reliability of Access to Electricity.

	Macro			Micro						
	Rwanda	Region	Income	Small Firm	Medium Firm	Large Firm	Exporter	Nonexporter	Domestic	Foreign
Delay in obtaining an electrical connection (days)	16.93	28.9	34.92	16.09	-	N/A	N/A	16.93	18.04	--
Number of electrical outages (days)	9.01	13.02	17.15	7.59	11.64	11.56	12.72	8.71	8.39	12.06
Sales lost due to electrical outages (percent)	8.66	7.57	9.12	8.63	7.69	11.5	6.76	8.82	9.19	6.85

Source: *Investment Climate Profile,* "Rwanda: 2006 Investment Climate Profile"

1.4 Commitment to Change

In 2004, in response to the prior year's electricity crisis, the Rwandan government made a commitment to focus its energy policy on the revitalization and rehabilitation of the country's electricity infrastructure. The Government identified three main projects aimed at increasing electricity capacity to 130 MW by 2012: (i) extracting methane gas from Lake Kivu (providing an additional 25 MW of capacity); (ii) rehabilitating mini hydro plants; and (iii) constructing a total of 50 MW of new hydro capacity, of which Rukarara and Nyabarongo represent 37.3 MW.

The addition of Rukarara and Nyabarongo, by nearly doubling total Rwandan electricity capacity and reducing reliance on expensive diesel generators, will almost certainly make the provision of electricity more reliable and less expensive. This will have important impacts on the country's business environment, at both the macro and micro level. These impacts are discussed in the following sections of this report.

2. Economic/Commercial Impacts of Hydropower Projects

2.1 Industrial and Entrepreneurial Development

Agriculture and small to medium enterprises (SMEs) comprise the majority of Rwanda's economy. Creating local business opportunities is a key aspect of economic growth and poverty alleviation. Increasing the supply of electricity from the Rukarara and Nyabarongo power projects will support the growth of SMEs by reducing costs and increasing productivity. Access to reliable electricity will allow SMEs to extend income generating activities beyond daylight hours, allow for the use of electric pumps in agriculture and food processing, and allow for the refrigeration of foods and other products for use in retail sales, street vending, restaurants and related enterprises. Access to electricity will also allow for the spread of computers and telephones, increasing communication and the flow of information. Additionally, electricity - safer and cleaner than traditional fuels - will improve working conditions. Several case studies conducted to relate modern energy services, such as the provision of electricity, to business development have found that access to electricity can substantially improve the profitability of commercial enterprises as well as the quality and quantity of goods produced and traded.[46]

Access to reliable electricity will also spark increased levels of innovation and allow for the establishment of new types of businesses. Electricity enables electronic commerce (e-commerce) and information and communication technologies (ICT), which are becoming ever more critical tools for economic growth. E-commerce and ICT allow local businesses to access both domestic and international markets, and provide multinational companies mediums through which they can participate more effectively in Rwandan markets.

2.2 Employment Impacts

2.2.1 Jobs Creation

We were unable to determine employment estimates for the Nyabarongo hydro plant. We do, however, have estimates for employment at the Rukarara plant, as provided by Eco Power Global (EPG). We have used these estimates as the basis for estimating employment impacts associated with planned projects at each of the two plants.

According to EPG, approximately 400 day laborers were employed for two months of the construction phase to clear and cut roads, and approximately 50 day laborers were to be employed for three to six months for road maintenance. Wages for day laborers were $1 a day, which EPG characterized as approximately 20 percent above the average daily wage. In addition, 10 supervisors were hired to manage the road cutting gangs (their wages were not specified).

[46] UNDP, Energizing the Millennium Development Goals, August 2005

In addition to local employees hired directly by EPG, it is assumed that contractors will hire local labor for the majority of their work. While EPG was unable to provide exact figures on how many laborers would be hired, they provided estimates, based on past experience, that between 200 and 300 workers would be required. According to the Rwandan Integrated Household Living Conditions Survey (EICV), conducted between October 1999 and July 2001, the average daily wage for a construction worker throughout that timeframe was approximately $2.50.[47]

EPG estimated that daily maintenance of Rukarara after completion will require a staff of three supervisors, three operators, six laborers and one Plant Manager (thirteen employees in total). The Plant Manager would almost certainly be an experienced engineer, so would likely be brought in from abroad. (Because EPG did not separate the Plant Manager's estimated salary from the salaries of other employees, for the purposes of the analysis presented below we have treated the Project Manager as a local employee.) EPG has estimated that salaries, fringe benefits, and statutory payments to the thirteen required employees would amount to $100,000 per year.[48]

We've estimated employment requirements for the Nyabarongo plant based on the figures above and the relative size of the two construction efforts.[49] Nyabarongo consists of two hydro plants, and the overall cost of construction is estimated to be approximately five times that of Rukarara. However, it is unlikely that this fivefold increase in capacity would result in an equivalent fivefold increase in staff, because labor requirements associated with such efforts generally don scale proportionately. Accounting for the expected scale economies associated with different types of work effort, we have assumed that Nyabarongo will require twice the road clearing staff of Rukarara, three times the construction staff, and twice the maintenance staff.

Staffing estimates for both Rukarara and Nyabarongo are outlined in Table 22.

Table 22. Staffing requirements for Rukarara and Nyabarongo.

	Rukarara	Nyabarongo
Road Clearing	400 (2 months) 50 (3 to 6 months)	800 (2 months) 100 (3 to 6 months)
Construction	200 to 300 (24 months)	600 to 900 (45 months)
Maintenance	13	26

Source: Questions from Delphos to Ecopower Global, LEI Assumptions

[47] A second report (EICV2) was conducted over the 2005-2006 period. However, only the preliminary results have been released, 'and these results do not include wage data. We therefore rely on the first EICV report.

[48] Feasibility Study and Designs for Rukarara Small Hydro Plant, Final Report, prepared for the Ministry of Infrastructure, Government of Rwanda, by Eco Power Global.

[49] Some of these assumptions, such as the length of construction of the Nyabarongo facilities, are based on contract documents drawn up between the Government of Rwanda and the construction firm to be employed, Bharat Heavy Electrical Limited (BHEL).

In addition to the jobs associated directly with the power plants, construction of the Rukarara and Nyabarongo hydro plants can indirectly increase employment in two ways: (i) through the creation of secondary jobs aimed at supporting the construction efforts themselves; and (ii) through increased economic activity after construction of the power plants is complete.

The first effect –accounting for jobs such as food preparation, clothes mending and other services provided to support construction workers - is much smaller than the second. The number of secondary jobs supporting construction efforts will be relatively small compared to the number of jobs created after the plants come online, and, importantly these positions will only be temporary.

Once construction is complete, however, increased access to reliable electricity will lead to increased industrial growth and the creation of new SMEs. In addition, the provision of electricity to households will allow families to extend activities that would normally be confined to daylight hours into the night, allowing them more time to devote to income generating activities during the day.

2.2.2 Impact on Gross Domestic Product

Both macroeconomic theory and real-world evidence suggest that the economic impact associated with consumption and investment, including the payment of salaries, goes beyond the amounts of money directly transferred. Spending has a "ripple" effect whereby the economic impact of every dollar spent is transmitted through the entire economy with, over time, diminishing intensity. Part of each sum spent – on, for example, a salary - is then spent again by the person who received and by the government, which obtains a portion through tax revenue. This dynamics is referred to by economists as the multiplier effect.

Multipliers can be calculated in a fairly straightforward manner. Applying standard formulations – which are outlined in **Appendix C, Task 4: List of Laws and Draft Legislation TDI Reviewed**- estimate that the appropriate multiplier for Rwanda is 2.42. This implies that, for every dollar spent, overall Gross Domestic Product (GDP) will increase by $2.42.

As outlined above, estimated employment during the construction phases will be approximately 1200 road clearers paid $1 per day for two months; 150 road clearers paid $1 per day for three to six months; between 200 and 300 construction workers employed for 24 months at a day rate of $2.50 for the Rukarara plant; and between 600 to 900 construction workers employed for 45 months at the same day rate for the Nyabarongo plant.[50] Wages paid to local employees over the course of the construction period is therefore estimated to be between $1,976,400 and $2,941,200. Using the multiplier calculated above, this implies an overall positive impact on GDP of between $4,782,888 and $7,117,704.

[50] In all calculations we assume 24 day work months – that is, six day work weeks for four weeks a month.

Computation of the annual impact of the salaries paid to maintenance staff at each of the plants after completion is straightforward. Applying the multiplier to the estimate of 39 employees paid a total of $300,000 per year yields an estimated annual increase in GDP of $726,000.

2.3 Energy Security

As illustrated below in Table 23 and Table 24, approximately 95 percent of energy consumed in Rwanda is derived from wood, charcoal and peat, which are typically used for cooking, lighting and heating.[51] The remaining five percent is broken into oil (4 percent) and electricity, which accounts for only one percent of aggregate energy use in the country.[52]

Table 23. Energy Sources for Lighting.

	Urban	Rural	Total
Electricity from Grid	23%	1%	4%
Electricity off Grid	0%	0%	0%
Solar Generation	0%	0%	0%
Paraffin Lamp	24%	8%	10%
Paper Lantern	45%	68%	64%
Candle	3%	0%	1%
Wood	3%	23%	18%
Miscellaneous	1%	3%	3%

Table 24. Energy sources for cooking.

	Urban	Rural	Total
Electricity	1%	0%	0%
Gas	0%	0%	0%
Oil	0%	0%	0%
Firewood	53%	91%	85%
Charcoal	40%	1%	7%
Vegetable Materials	4%	8%	7%
Miscellaneous	3%	0%	1%

Source: Ministry of Finance and Economic Planning, "The Impact of Energy Crisis on the Economic Growth in Rwanda", November 2005

Use of oil as fuel for electricity generation has increased as Rwanda has relied on diesel generation as a stop-gap measure. Prior to the 2004 crisis, electricity came primarily from hydroelectric sources. As displayed in Table 25 reliance on thermal generation has increased significantly throughout the 2000 – 2006 timeframe.

[51] The Economist Intelligence Unit, Rwanda – Country Profile , 2006

[52] Ministry of Infrastructure, Investment Opportunities in the Energy Sector, January 2007

Table 25. Electricity generated by source

	2000	2001	2002	2003	2004	2005	2006
Hydro Production	110,842	89,273	98,214	117,641	84,279	65,734	37,928
Thermal Production	0	4	0	0	6,257	50,477	130,272
Net Imports (Hydro)	93,014	120,073	127,526	117,473	113,491	87,328	62,064

Source: Materials from Client

Because Rwanda is entirely dependent on imports for oil, it is extremely exposed to price fluctuations in global markets. This exposure, and concomitant impacts on national budget deficits, is exacerbated by the fact Rwanda is landlocked and the transportation of oil is expensive.[53]

Energy security refers not just, or even primarily, financial impacts, but rather the availability of electricity at all times, in sufficient quantities, at affordable prices and in a variety of forms. One component of a country's energy security is the extent to which it can rely on domestic sources of production rather than be dependent on international purchases that can, over time, be complicated by a wide range of often unforeseeable geopolitical complications.

As Rwanda has no oil deposits of its own, oil is currently trucked in from Uganda, which in turn receives it through a pipeline from Kenya. This routing introduces high transport costs and several duties and taxes. A memorandum of understanding was recently signed between Uganda, Kenya and Rwanda to create a pipeline from Kampala to Kigali to reduce some of these costs. But the basic nature of the dependence on international trading partners, rather than reliance on domestic resources, remains. It is precisely this sort of reliance that domestic production from the Rukarara and Nyabarongo hydro plants can help reduce.

[53] It should be noted that oil imports can somewhat paradoxically be a small revenue source, mainly through border taxes, a petrol tax and a VAT on electricity. While these taxes do provide support for the federal budget, they are not enough to offset financial outflows. More importantly, the burden of taxes falls disproportionately on the shoulders' of Rwanda's poorer citizens. With the completion of Rukarara and Nyabarongo, Rwanda will be able to reduce its reliance on diesel generators and, by extension, on imported oil. This will reduce the cost of electricity for users, and have a positive impact on both the federal budget and Rwanda's balance of payments.

3. Socio-Political Impacts

The expected increased reliability and availability of electricity and reductions in cost of service, resulting from operation of the Rukarara and Nyabarongo plants will likely yield significant impacts at the social and political levels. Many households currently spend significant portions of their incomes on inefficient energy services such as batteries, candles, kerosene lanterns and charcoal for heating, cooling, cooking and lighting. Their costs per unit of energy are therefore often than what is paid by richer portion of the population. Power supply shortages have worsened water supply problems in several areas, forcing conversions to expensive diesel-powered water pumps.

A reliable and reasonably-priced supply of electricity is considered by most development agencies to be a powerful way of alleviating poverty and social inequality. Table 26 below lists some of the social benefits of improved access to electricity.

Table 26. Summary of social benefits and electrification.

Electricity Benefits	Basic End-Use	Services
Lighting, heating, cooling, refrigeration, telecommunications, education	Light bulbs, furnace, fans, pumps, machinery	Refrigeration, cooking, communication, pumped water, mechanical power

Sub-Saharan Africa is the only region in the world where the total number of people without access to electricity has increased over recent years, a trend that is projected to continue into the near future. [54] In Rwanda, only between 5-7% of the population have direct access to the electrical grid, and 60% of these live in Kigali. [55] Generating plants are stationed far away from many rural areas, and the transmission and distribution infrastructure required to transport electricity is severely underdeveloped.

Grid extension has been very minimal outside of the urban areas in Rwanda. Lack of electricity harms development in rural areas, and contributes to the ongoing exodus from rural to urban areas. Lack of electricity discourages more educated members of society - such as doctors, nurses and teachers - from living in rural areas, further constraining the provision of 'basic services' services to rural populations. This problem has been recognized by the Rwandan government, which has made increasing rural electrification a priority in its energy policy.

[54] The International Bank for Reconstruction and Development/The World Bank and the UNDP, Energy Services for the Millennium Development Goals, 2005

[55] International Fund for Agricultural Development, Investment Opportunities in the Rwandan Energy Sector, 2004

Planned projects include the extension of the electricity grid, the use of mini and micro hydro, and the use of solar power.

Table 27 identifies the number of customers Electrogaz has served from 2000 to 2006. Among existing customers, consumption is extremely concentrated. Commercial users account for 1% of all consumers of electricity, yet they consume 56% of the power produced by Electrogaz.[56] Overall, 86% of all power produced in Rwanda is consumed by only 30% of total customers.

Table 27. Number of electricity customers.

2000	2001	2002	2003	2004	2005	2006
45,980	48,581	57,679	67,008	64,093	70,187	75,890

Source: Materials from client

The primary socio-political benefits expected to be realized by the addition of the Rukarara and Nyabarongo plants are described in the following sections.

3.1 Health

Increased provision of electricity has a significant positive impact on the health of a society, particularly with regard to the urban poor and rural communities. Access to electricity helps to reduce malnutrition-related mortality by increasing both the levels domestic food production and household incomes. It also reduces the number of incidents of water borne diseases by allowing for the use of pumps, water purifiers and other water treatment systems. Access to clean water can eliminate a leading cause of child mortality. Additionally, access to clean water and improved lighting helps to reduce the mortality rate of women at childbirth. A study conducted in the Philippines in 1998 found that women with access to electricity have a 17% higher probability of having a doctor assisted birth than those without access to electricity.[57]

Increased access to electricity can reduce the spread of HIV/AIDS and malaria. Electricity allows for the use radio, television and other communication tools; helps to attract and retain social and health workers by improving both work and living environments; and improves safety by allowing for increased lighting in public areas.

Improved access to electricity is expected to significantly improve the quality of health centers. Many health centers are currently unable to provide vital medical services because they do not have the electricity necessary for cooling systems and medical equipment. Increased access to electricity will enable health clinics to rely on refrigeration for vaccines; boil water to sterilize equipment; provide illumination for patient care areas and for operating theaters; and provide the electricity necessary for appliances such as microscopes, centrifuges and other medical

[56] The category of commercial users includes mainly manufacturers of cement, textiles, metal processing, beer, tea and coffee processing, and sugar. See Dr. Fromme International Consulting, Business Opportunities of Energy Sector in Rwanda, February 2007

[57] ibid

equipment. Lower-cost electricity will help hospitals reduce their utility expenditures, freeing funds for investment in core infrastructure.

3.2 Education

Literacy and education are key factors in aiding both economic and social development. It is therefore crucial that schools have access to reliable electricity to provide lighting, heating and cooling, and clean water. In Rwanda, many schools currently do not have access to enough electricity to provide adequate lighting. Improve lighting allows schools to extend service hours, and extends the time students can devote to study outside of the classroom.

Electricity can also be used for improving the tools of education, allowing for the use of audiovisual equipment such as televisions, VCRs and computers. Access to electricity also allows for the installation of televisions, radio, and computers, all of which provide students with access to greater sources of information. These same factors help to attract and retain better teachers.

3.3 Gender

Improved access to reliable electricity will reduce the burden on women in general and young girls in particular. Along with decreasing the daily burden of household chores, improved electrical services can afford women the possibilities of joining, starting and expanding small-scale enterprises, promoting economic independence and gender empowerment. In addition, young girls will have increased opportunities to access education, thereby expanding the pool of labor resources that can contribute productively to economics development.

A recent study by indicates that the introduction of power to villages in Mali led directly to improvements in the academic achievements of girls.[58] Table 28 below summarizes the benefits to women of improved access to electricity per the UNDP study in Mali.

Table 28. Potential impact on women of access to electricity.

Productivity	Uses	Strategy
Ability to increase activities after daylight	Pumped water supplies - reduces time to travel and carry	Allow for participation in other activities (education, civil society)
Refrigeration for the production of food and sales	Lighting to improve conditions	Improved incomes and health
Increased time available to participate in SMEs	Fuel for cooking - reduces time to gather wood and charcoal	Establish communication and information flow through radio, TV and internet

[58] UNDP, Energizing the Millennium Development Goals, August 2005

3.4 Politics

A 2005 USAID study reports that investments in a country's energy sector can increase stability and overall quality of not only economic, but also political life.[59]

Although corruption within the government and private sector is an often cited concern of private sector investors in Africa, Rwanda enjoys a favorable perception with respect to its relatively low levels of corruption when compared to its East African neighbors. In particular, no East African country ranks higher than Rwanda on Transparency International's Corruption Perception Index (#102, tied with Tanzania for best index in the region and globally tied with the likes of Mongolia, Dominican Republic and Lebanon, all ranking ahead of Argentina and Egypt). This reputation has been achieved through significant strides in recent years to improve the quality of governance. According to the World Bank's 2007 Worldwide Governance Indicators, Rwanda significantly improved political stability (measured as 37.0 in 2007 compared to 5.3 in 2002), control of corruption (58.5 in 2007 compared to 35.0 in 2002), rule of law (30.5 in 2007 compared to 18.6 in 2002) government effectiveness (43.6 in 2007 compared to 13.3 in 2002).[60] In addition, the 2007 Ibrahim Index of African Governance identifies Rwanda as having made very impressive gains.[61]

Reduced corruption and improved transparency have been shown to encourage foreign direct investment ("FDI"), a key driver of economic development. According to the World Business Environment Survey ("WBES"), conducted in 2000, corruption ranked highest among factors discouraging investment.[62] An effective method for demonstrating that a country is a good investment target is through the so-called "showcase" effect. Successful projects financed in whole or in part by foreign investment offer strong evidence that a country is a good potential target for future investment. Infrastructure projects such as Rukarara and Nyabarongo constitute excellent potential showcase projects, as they require active and open participation by parties within both the public and private sectors which through example should help spur future investment projects.

An effective method for demonstrating that a country is a good investment target is through the so-called "showcase" effect. Successful projects financed in whole or in part by foreign investment offer strong evidence that a country is a good potential target for investment. Infrastructure projects such as Rukarara and Nyabarongo constitute excellent potential showcase projects, as they require active and open participation by parties within both the public and private sectors.

Successful implementation of showcase projects can initiate a "herding" effect, whereby investors become significantly more likely to invest in a country when they see that other firms

[59] USAID, Energy Democracy, Governance and Conflict Management, 2005

[60] http://info.worldbank.org/governance/wgi/index.asp

[61] http://www.moibrahimfoundation.org/index/single.asp?countryid=35

[62] Emery, James J. (2003), "Governance, Transparency and Private Investment in Africa", Global Forum on International Investment, OECD

have successfully invested there.[63] There is also some evidence indicating that these effects are particular strong when the showcase projects are in the infrastructure industries.[64]

[63] Gelos, R. Gaston and S. Wei (2003), "Transparency and International Portfolio Investment in Asia, Latin America and Elsewhere", Working Paper No. 11, Latin America/Caribbean and Asia/Pacific Economics and Business Association (LAEBA)

[64] For example, South Africa has seen increased investments in its mining industry in part because of investments in infrastructure. See "Infrastructure improvement projects attract foreign investment", Engineering News, June 6, 2008, http://www.engineeringnews.co.za/article.php?a_id=133867

4. Computation of the Investment Multiplier

The size of an investment multiplier is estimated by positing a standard macroeconomic model of the Rwandan economy. We begin with a simple, open economy as described by the equations:

(1a) $Y = C + I + G + E - I$

(1b) $C = b * Y_d$

(1c) $Y_d = (1-t) * Y$

(1d) $I = m * Y$

Where:

Y = national income (GDP);

C = aggregate consumption;

I = planned investment;

G = government expenditures;

E = exports;

I = imports;

b = marginal propensity to consume;

m = the marginal propensity to import; and

t = average tax rate.

Rearranging terms yields the following formula, representing the effect of a change in investment on the overall economy:

(2) $\Delta Y = (1 / (1 - b + b*t + m)) * \Delta I$

The multiplier is therefore as follows:

(2a) multiplier = $1 / (1 - b + b*t + m)$

Estimating equation (2a) requires estimating values for the parameters b, t and m. Employing historical (2001-2006) national income data obtained from the National Bank of Rwanda, we estimated the following parameter values:

b = 0.985;

t = 0.12; and

m = 0.28.[65]

Inputting these values into equation (2a) yields the multiplier estimate:

[65] To estimate b, we estimated an ordinary least squared linear equation of consumption in the form of a + (MPC) (Y- T), where Y is GDP and T is tax revenues. We estimated t by dividing total government revenues, net of customs and privatization revenues, by GDP. Finally, the marginal propensity to import was derived by dividing imports by GDP.

(3) $2.42 = 1 / (1 - b + b*t + m) = 1 / (1 - 0.985 + 0.985 * .12 + 0.28)$

Chapter 11 – US Export Potential

Of the expected US$131.4 million in total uses of funds for the Projects, up to approximately US$69.2 million could potentially be sourced by U.S. equipment and service providers. The majority of potential U.S. export receipts for the Projects would be realized under the Engineering, Procurement and Construction contract for the Nyabarongo Hydropower Plant ("EPC-NHPP"), as the Rukarara HPP has already been completed. The US$97.7 million EPC-NHPP was awarded to Bharat Heavy Electrical Ltd ("BHEL"), an Indian engineering and manufacturing enterprise. As such, the level of realized U.S. exports will be left largely to the discretion of BHEL.

The EPC-NHPP contract contains an estimated UD$69.5 million in goods and services that could be provided by U.S. exporters. The duration of the Nyabarongo HPP EPC construction is expected to last 36 months, ending in the second quarter of 2013. The largest items within the EPC-NHPP contract among the potential goods and services that could be provided by U.S. companies include electrical equipment (up to approximately US$24.2 million), the spillway and headrace tunnel (up to approximately US$22.8 million), diversion, dam, and intake (up to approximately US$14.0 million) and the transmission station (up to approximately US$5.5 million). A complete list of EPC-NHPP cost items that could be procured from U.S. based manufacturers, as well as an estimated amount up to which the export contract could be, is included below.

Of the US$14.4 million EPC contract for the Rukarara HPP ("EPC-RHPP"), there are no US export procurement opportunities, as construction was completed in early 2010.

In summary, U.S. manufacturers may be able to compete for up to approximately US$69.2 million of goods and services for the Projects, which has a total expected uses of funds of US$131.1 million. An expected uses of funds, the contract amounts which will potentially be available for U.S. exporters, and a prospective list of potential U.S. suppliers, along with suppliers contact information, is included below.

Rwanda Hydropower Plants Project Uses of Funds

Nyabarongo Hydropower Plant Project Uses of Funds

Costs	USD 000's	*of which, potential opportunity for procurement of U.S. goods include:*	
Total EPC Costs	**116,426**		
[redacted]	[redacted]	[redacted]	*EPC Contractor: Bharat Heavy Electrical Ltd (India)
		69,246	

SUB-TOTAL: Engineering, Studies, Modelling	**300**

[redacted]	

Total Uses of Funds (NHPP)	**116,726**
Potential Opportunities for US Exports for Equipment, Design, and Other Services (NHPP)	69,246

Rukarara Hydropower Plant Project Uses of Funds

Costs	USD 000's	*of which, potential opportunity for procurement of U.S. goods include:*	
Total EPC Costs	**14,360**		
[redacted]	[redacted]	[redacted]	*EPC Contractor: EcoPower Global Ltd (Sri Lanka)
		0*	

SUB-TOTAL: Engineering, Studies, Modelling	**300**

[redacted]	

Total Uses of Funds (RHPP)	**14,660**
Potential Opportunities for US Exports for Equipment, Design, and Other Services (RHPP)	0*

*No US procurement opportunties because project has been completed

[redacted]	

Total Uses of Funds	**131,386**
Potential Opportunities for US Exports for Equipment, Design, and Other Services	69,246

DESCRIPTION	POTENTIAL SUPPLIER	ADDRESS	MAINLINE PHONE/FAX	POINT OF CONTACT
CIVIL AND ARCHITECTURAL WORKS (Diversion, Dam, Intake; Spillway and Headrace Tunnel)	**Fluor Corporation**	6700 Las Colinas Blvd. Irving, TX 75039	Phone: (704) 731-7982 Fax: (469) 398-7255	Dave Dunning
	CH2M Hill	9191 South Jamaica Street Englewood, CO 80112	Phone: (888) 242-6445 Fax:(720) 286-9250	Mike Doleac
	Bechtel	50 Beale St. San Francisco, CA 94105	Phone: (301) 228-8505 Fax: (415) 768-9038	Lee Luschvaugh
	URS	600 Montgomery St. San Francisco, CA 94111	Phone: (415) 243-3713 Fax: (415) 398-1905	Tom Sweet
ELECTRICAL EQUIPMENT (Turbine and Auxiliaries)	**GE Energy**	4200 Wildwood Pkwy Atlanta, GA 30339	Phone: (678) 844-6000 Fax: (678) 844-6690	Ginny Horgan
	Siemens Power Generation	4400 Alafaya Trail Orlando FL 32826-2399	Phone: (407) 736-2000 Fax:(407) 736-5069	Brad Youngblood
	American Hydro Corporation	135 Stonewood Road, York, PA 17402-9356	Phone: (- Fax: (717) 755-5522	William H. Colwill
	Advanced Hydro Solutions	150 North Miller Rd, Suite 450C Fairlawn, Ohio 44333	Phone: (330) 869-8451 Fax: (330) 869 8453	David C. Sinclair
(Electrical System)	**GE Energy**	4200 Wildwood Pkwy Atlanta, GA 30339	Phone: (678) 844-6000 Fax: (678) 844-6690	Ginny Horgan
	Siemens	153 E 53rd St # 56 New York, NY 10022	Phone: 800-877-7545 Fax:(212) 767-0580	Brad Youngblood
	American Hydro Corporation	135 Stonewood Road, York, PA 17402-9356	Phone: (- Fax: (717) 755-5522	William H. Colwill
(Instrument and Control System)	**GE Energy**	4200 Wildwood Pkwy Atlanta, GA 30339	Phone: (678) 844-6000 Fax: (678) 844-6690	Ginny Horgan

	Honeywell	101 Columbia Rd 07960	- Fax: (973) 455-4807	Edwin van den Maagdenberg
	North American Phoenix	8310 Technology Drive Schofield, WI 54476	Phone: (715) 359-0209 ext.11	Ron Hahn
(Auxiliaries System)	**The Babcock & Wilcox Co.**	800 Main St # 4 Lynchburg, VA 24504-1533	Phone: (330) 753-4511 Fax: (704) 334-1438	Dan Jones
	American Governor	76 Steamwhistle Drive Ivyland, PA 18974	Phone: (215) 354-1144 Fax: (215) 354-1782	Scott Ginesin
(Exterior Electrical System)	**Siemens Power Transmission and Distribution**	7000 Siemens Rd Wendell, NC 27591	Phone: (888) 597-2566 Fax: (919) 365-1121	Brad Youngblood
	Waukesha Electric Systems, Inc.	400 S. Prairie Avenue Waukesha, WI 53186	Phone: (800) 835-2732 Fax: (262) 521-0196	John Beck
OPERATIONS SITE/VILLAGE (Power Plant Substation)	**Siemens Power Generation**	4400 Alafaya Trail Orlando FL 32826-2399	Phone: (407) 736-2000 Fax:(407) 736-5069	Brad Youngblood
	GE Energy	4200 Wildwood Pkwy Atlanta, GA 30339	Phone: (678) 844-6000 Fax: (678) 844-6690	Ginny Horgan
	Steel-Fab Inc	3623 Old Down Rd. P.O. Box 19289 Charlotte, NC 28219	Phone: (704) 394-5376 Fax: (704) 393-1400	Marsh Spencer
TRANSMISSION STATION and TRANSMISSION LINES AND POSTS (11kV Switching Station)	**Siemens Power Generation**	4400 Alafaya Trail Orlando FL 32826-2399	Phone: (407) 736-2000 Fax:(407) 736-5069	Brad Youngblood
	GE Energy	4200 Wildwood Pkwy Atlanta, GA 30339	Phone: (678) 844-6000 Fax: (678) 844-6690	Ginny Horgan

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Appendix A, Task 2: Financial Model

The financial models per the terms of Task 2 were prepared by Delphos International on July 2007 with follow-on interations provided thereafter to meet the needs of the Grantee. As the development of the Projects evolved during the life of the Contract, so too did the focus of the financial modeling. Subsequently, the September 2009 models reflect the change in scope. Please refer to the attached, separate file, "Task 2 Financial Models.zip" for the complete models in Microsoft Excel format.

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July 2007 Financial Model

Scenario 1 – 100% Government Equity

Key Inputs and Outputs	Nyaborongo	Rukarara		
Scenario	1	2	Nyaborongo 18 Month Delay?	N
Completion Date	12/31/10	4/30/10		
End Debt Service Date	12/31/10	4/30/10	EIRR	23.18%
Tariff (During Debt Service)	$ 0.0849	$ 0.0543		
Tariff (Post Debt Service)	$ 0.0849	$ 0.0543	NPV, Government Debt (2007)	-
Total Project Costs	$ 82,448	$ 17,038		
Minimum DSCR	-		Reference Exchange Rate	553.7
Average DSCR	#DIV/0!	#DIV/0!		
Equity IRR	10.00%	10.00%		
FNPV	$ 3	$ 1		

Construction Period Sources and Uses (USD)

	2007	2008	2009	2010	2011	2012	2013	Post Construction Ownership	
Total Govt Financing	-	(34,801)	(34,145)	(30,540)	-	-	-		
Total Debt Drawn	-	-	-	-	-	-	-	Govt	100.00%
Total Equity Contribution	-	(34,801)	(34,145)	(30,540)	-	-	-	Private	0.00%
Debt Service: Principal	-	-	-	-	-	-	-		
Debt Service: Interest	-	-	-	-	-	-	-		
Dividend Payments	-	-	-	-	13,184	13,451	13,451		
Amount Guaranteed	-	-	-	-	-	-	-		
Private Financing (FDI)	-	-	-	-	-	-	-		
BOP Import Savings	-	(32,763)	(33,151)	(27,514)	24,520	25,256	26,013		

Summary Income Statement (USD)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Revenues	-	-	1,454	15,169	15,169	15,169	15,169	15,169	15,169	15,169
Expenses	-	-	300	1,717	1,717	1,717	1,717	1,717	1,717	1,717
EBITDA	-	-	1,154	13,451	13,451	13,451	13,451	13,451	13,451	13,451
EBIT	-	-	794	10,235	10,235	10,235	10,235	10,235	11,317	11,317
Net Income	-	-	794	10,235	10,235	10,235	9,141	6,964	7,471	7,471
Adjusted Net Income	-	-	(670)	(1,331)	10,686	10,686	9,592	7,415	7,922	7,922

Summary Balance Sheet (USD)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	-	-	3,378	3,709	3,709	3,709	3,709	3,709	3,077	3,077
Net PP&E	32,763	65,914	93,080	89,965	86,851	83,737	80,623	77,508	74,394	71,280
Net Deferred Assets	2,038	3,033	3,846	3,743	3,641	3,538	1,078	500	398	295
Total Assets	34,801	68,946	100,303	97,418	94,201	90,984	85,410	81,717	77,868	74,652
Current Liabilities	-	-	1,487	13,117	12,666	12,215	11,764	11,313	10,917	10,486
Debt	-	-	-	-	-	-	-	-	-	-
Sponsor Equity	-	34,801	68,946	99,486	99,486	99,486	99,486	99,486	99,486	99,486
Retained Earnings	-	-	(670)	(15,185)	(17,951)	(20,717)	(25,840)	(29,082)	(32,535)	(35,301)
Total Liabilities & Equity	34,801	68,946	100,303	97,418	94,201	90,984	85,410	81,717	77,868	74,652

Summary Cash Flow Statement (USD)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Income	-	-	(670)	(1,331)	10,686	10,686	9,592	7,315	7,922	7,922
Operating Cash Flow	(1,014)	(995)	171	11,433	13,451	13,451	14,715	10,556	10,743	10,687
Investing Cash Flow	(33,787)	(33,151)	(27,514)	-	-	-	-	-	-	-
Equity Investment	34,801	34,145	30,540	-	-	-	-	-	-	-
Debt Disbursement	-	-	-	-	-	-	-	-	-	-
Debt Repayment	-	-	-	-	-	-	-	-	-	-
Dividends	-	-	-	(13,184)	(13,451)	(13,451)	(14,715)	(10,556)	(11,375)	(10,687)
Financing C.F. Total	34,801	34,145	30,540	(13,184)	(13,451)	(13,451)	(14,715)	(10,556)	(11,375)	(10,687)
Beginning Cash Balance	-	-	-	3,196	1,445	1,445	1,445	1,445	1,445	813
Change	-	-	3,196	(1,751)	0	0	0	0	(632)	-
Ending Cash Balance	-	-	3,196	1,445	1,445	1,445	1,445	1,445	813	813

Scenario 2 - IPP: Full Privatization After Construction

	Nyaborongo	Rukarara		
Scenario	2	2	Nyaborongo 18 Month Delay?	N
Completion Date	12/31/10	4/30/10		
End Debt Service Date	6/30/23	10/31/22	EIRR	23.18%
Tariff (During Debt Service)	$ 0.1228	$ 0.0769		
Tariff (Post Debt Service)	$ 0.1228	$ 0.0769	NPV, Government Debt (2007)	-
Total Project Costs	$ 86,108	$ 78,639		
Minimum DSCR	(16.73)	1.34	Reference Exchange Rate	553.7
Average DSCR	258.07	346.23		
Equity IRR	18.10%	17.82%		
FNPV	$ (155)	$ (242)		

	2007	2008	2009	2010	2011	2012	2013
Total Govt Financing	-	(34,801)	(34,145)	(15,311)	104,475	-	-
Total Debt Drawn	-	-	-	-	-	-	-
Total Equity Contribution	-	(34,801)	(34,145)	(15,308)	104,472	-	-
Debt Service: Principal	-	-	-	-	-	-	-
Debt Service: Interest	-	-	-	-	-	-	-
Dividend Payments	-	-	-	-	636	8,818	8,830
Amount Guaranteed	-	-	-	-	-	-	-
Private Financing (FDI)	-	-	-	8,904	39,893	-	-
BOP Import Savings	-	(32,763)	(33,151)	(27,514)	24,520	25,256	26,013

Post Construction Ownership

Govt	0.00%
Private	100.00%

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Revenues	-	-	2,061	21,879	21,879	21,879	21,879	21,879	21,879	21,879
Expenses	-	-	304	1,757	1,760	1,760	1,760	1,758	1,760	1,760
EBITDA	-	-	1,758	20,122	20,119	20,119	20,119	20,121	20,119	20,119
EBIT	-	-	625	8,726	9,023	9,416	9,853	10,342	13,430	13,838
Net Income	-	-	625	8,726	9,023	9,416	9,766	7,229	8,950	9,236
Adjusted Net Income	-	-	(838)	(2,840)	9,474	9,867	10,217	7,680	9,401	9,687

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	-	-	7,649	17,210	17,223	17,223	17,223	17,139	17,139	17,139
Net PP&E	32,763	65,914	93,080	89,965	86,851	83,737	80,623	77,508	74,394	71,280
Net Deferred Assets	2,038	3,033	3,852	3,749	3,646	3,543	3,147	503	400	297
Total Assets	34,801	68,946	104,581	110,925	107,720	104,503	100,992	95,151	91,933	88,716
Current Liabilities	-	-	1,789	13,427	12,980	12,534	12,089	11,457	17,169	17,626
Debt	-	-	10,473	73,232	69,783	65,939	61,658	57,077	45,891	39,325
Sponsor Equity	-	34,801	68,946	93,157	28,580	28,580	28,580	26,580	28,580	28,580
Retained Earnings	-	-	(838)	(4,314)	(3,623)	(2,552)	(1,336)	(1,963)	294	3,185
Total Liabilities & Equity	34,801	68,946	104,581	110,925	107,720	104,503	100,992	95,151	91,933	88,716

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Income	-	-	(838)	(2,840)	9,474	9,867	10,217	7,431	9,401	9,687
Operating Cash Flow	(1,014)	(995)	673	17,563	20,107	20,119	20,324	19,300	18,468	18,119
Investing Cash Flow	(33,787)	(33,151)	(27,521)	-	-	-	-	-	-	-
Equity Investment	34,801	34,145	24,211	(64,577)	-	-	-	-	-	-
Debt Disbursement	-	-	10,582	64,577	-	-	-	-	-	-
Debt Repayment	-	-	-	(1,806)	(3,436)	(3,828)	(4,264)	(4,750)	(5,291)	(5,894)
Dividends	-	-	-	(636)	(8,783)	(8,795)	(9,000)	(8,059)	(7,144)	(6,795)
Financing C.F. Total	34,801	34,145	29,768	(11,845)	(20,107)	(20,119)	(20,324)	(19,383)	(18,468)	(18,119)
Beginning Cash Balance	-	-	-	2,920	8,639	8,639	8,639	8,639	8,556	8,556
Change	-	-	2,920	5,719	-	-	-	(83)	-	-
Ending Cash Balance	-	-	2,920	8,639	8,639	8,639	8,639	8,556	8,556	8,556

Scenario 2B - IPP: Private-Sector Development Pre-Construction

	Nyaborongo	Rukarara		
Scenario	2b	2b	Nyaborongo 18 Month Delay?	Y
Completion Date	6/30/12	4/30/11		
End Debt Service Date	12/31/24	10/31/22	EIRR	22.55%
Tariff (During Debt Service)	$ 0.1340	$ 0.0878		
Tariff (Post Debt Service)	$ 0.0836	$ 0.0878	NPV, Government Debt (2007)	-
Total Project Costs	$ 96,918	$ 21,014		
Minimum DSCR	1.30	1.35	Reference Exchange Rate	553.7
Average DSCR	1.59	2.07		
Equity IRR	20.15%	17.83%		
FNPV	$ 1	$ 1		

	2007	2008	2009	2010	2011	2012	2013	Post Construction Ownership	
Total Govt Financing	-	-	-	-	-	-	-		
Total Debt Drawn	-	-	-	-	-	-	-	Govt	0.00%
Total Equity Contribution	-	-	-	-	-	-	-	Private	100.00%
Debt Service: Principal	-	-	-	-	-	-	-		
Debt Service: Interest	-	-	-	-	-	-	-		
Dividend Payments	-	-	-	-	703	807	5,545		
Amount Guaranteed	-	-	-	-	-	-	-		
Private Financing (FDI)	-	2,366	9,426	8,904	7,000	4,940	-		
BOP Import Savings	-	(4,313)	(24,626)	(27,514)	(24,650)	(594)	26,013		

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Revenues	-	-	2,354	3,531	13,784	24,037	24,037	24,037	24,037	24,037
Expenses	-	-	304	457	1,108	1,766	1,766	1,764	1,766	1,766
EBITDA	-	-	2,050	3,074	12,676	22,271	22,271	22,273	22,271	22,271
EBIT	-	-	701	1,082	5,049	9,142	9,576	10,062	13,674	14,045
Net Income	-	-	701	1,082	5,049	9,142	9,576	9,859	10,428	9,380
Adjusted Net Income	-	-	(763)	401	(318)	3,963	10,027	10,310	10,879	9,831

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	826	4,157	7,417	7,920	19,607	23,481	23,481	23,389	23,389	23,389
Net PP&E	4,313	28,939	56,105	80,232	90,739	87,624	84,510	81,396	78,282	75,167
Net Deferred Assets	776	4,475	7,608	10,804	12,063	11,091	10,120	8,641	5,082	4,110
Total Assets	5,915	37,571	71,129	98,956	122,409	122,197	118,111	113,426	106,752	102,666
Current Liabilities	-	-	1,847	2,533	7,973	13,158	12,714	12,047	17,709	18,159
Debt	3,549	25,780	49,349	69,791	83,990	80,175	75,925	71,414	60,320	53,807
Sponsor Equity	-	2,366	11,792	20,696	27,696	32,635	32,635	32,635	32,635	32,635
Retained Earnings	-	-	(763)	(1,065)	(2,190)	(3,772)	(3,164)	(2,671)	(3,912)	(1,935)
Total Liabilities & Equity	5,915	37,571	71,129	98,956	122,409	122,197	118,111	113,426	106,752	102,666

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Income	-	-	(763)	401	(318)	3,963	10,027	10,194	10,879	9,831
Operating Cash Flow	(644)	(3,213)	1,325	2,228	11,601	22,668	22,271	22,460	24,971	20,705
Investing Cash Flow	(4,940)	(27,501)	(29,832)	(27,154)	(13,719)	(0)	(0)	(0)	-	-
Equity Investment	2,366	9,426	8,904	7,000	4,940	-	-	-	-	-
Debt Disbursement	3,549	22,230	23,699	20,999	14,819	-	-	-	-	-
Debt Repayment	-	-	-	(542)	(604)	(3,796)	(4,229)	(4,711)	(5,248)	(5,847)
Dividends	-	-	-	(703)	(807)	(5,545)	(9,420)	(9,701)	(12,120)	(7,654)
Financing C.F. Total	5,915	31,656	30,963	25,397	7,599	(18,397)	(22,271)	(22,552)	(24,971)	(20,705)
Beginning Cash Balance	-	330	1,273	3,730	4,201	9,682	13,953	13,953	13,861	13,861
Change	330	942	2,457	471	5,481	4,271	-	(92)	-	-
Ending Cash Balance	330	1,273	3,730	4,201	9,682	13,953	13,953	13,861	13,861	13,861

Scenario 3 - PPP: Public Majority Ownership with Concessional Debt

	Nyaborongo	Rukarara
Scenario	3	
Completion Date	12/31/10	4/30/10
End Debt Service Date	12/31/35	4/30/35
Tariff (During Debt Service)	$ 0.0688	$ 0.0484
Tariff (Post Debt Service)	$ 0.0688	$ 0.0484
Total Project Costs	$ 85,249	$ 18,059
Minimum DSCR	1.82	1.86
Average DSCR	2.52	3.24
Equity IRR	16.87%	16.87%
FNPV	$ 1	$ 0

Nyaborongo 18 Month Delay?	N
EIRR	23.18%
NPV, Government Debt (2007)	(40,231)
Reference Exchange Rate	553.7

	2007	2008	2009	2010	2011	2012	2013
Total Govt Financing	-	(35,720)	(34,752)	(30,402)	11,487	-	-
Total Debt Drawn	-	(26,790)	(26,064)	(24,626)	-	-	-
Total Equity Contribution	-	(8,930)	(8,688)	(5,775)	11,487	-	-
Debt Service: Principal	-	-	-	-	-	-	(3,122)
Debt Service: Interest	-	(188)	(589)	(672)	(1,356)	(1,356)	(1,336)
Dividend Payments	-	-	-	-	-	-	5,940
Amount Guaranteed	-	-	-	-	-	-	-
Private Financing (FDI)	-	-	-	2,433	11,487	-	-
BOP Import Savings	-	(32,763)	(33,151)	(27,514)	24,520	25,256	26,013

Post Construction Ownership

Govt	51.00%	
Private	49.00%	

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Revenues	-	-	1,296	12,472	12,472	12,472	12,472	12,472	12,472	12,472
Expenses	-	-	300	1,717	1,717	1,717	1,717	1,717	1,717	1,717
EBITDA	-	-	996	10,755	10,755	10,755	10,755	10,755	10,755	10,755
EBIT	-	-	431	5,979	5,979	5,999	6,057	6,115	7,790	7,829
Net Income	-	-	431	5,979	5,979	5,999	6,057	6,115	6,329	5,030
Adjusted Net Income	-	-	(1,032)	(5,588)	6,430	6,450	6,508	6,566	6,780	5,481

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	-	-	4,826	14,289	23,688	24,045	24,045	24,173	24,173	24,173
Net PP&E	32,763	65,914	93,080	89,965	86,851	83,737	80,623	77,508	74,394	71,280
Net Deferred Assets	2,958	4,559	5,896	5,590	5,284	4,978	4,672	4,092	1,258	859
Total Assets	35,720	70,473	103,802	109,845	115,823	112,760	109,339	105,773	99,825	96,312
Current Liabilities	-	-	1,526	13,156	12,705	12,397	11,947	11,348	14,474	14,107
Debt	26,790	52,855	77,481	77,481	77,481	74,216	70,893	67,660	60,723	57,163
Sponsor Equity	-	8,930	17,618	25,827	25,827	25,827	25,827	25,827	25,827	25,827
Retained Earnings	-	-	(1,032)	(6,620)	(190)	320	673	938	(1,199)	(785)
Total Liabilities & Equity	35,720	70,473	103,802	109,845	115,823	112,760	109,339	105,773	99,825	96,312

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Income	-	-	(1,032)	(5,588)	6,430	6,450	6,508	6,484	6,780	5,481
Operating Cash Flow	(1,040)	(1,012)	15	8,942	10,755	10,755	10,755	10,946	13,517	9,667
Investing Cash Flow	(34,680)	(33,740)	(28,068)	-	-	-	-	-	-	-
Equity Investment	8,930	8,688	8,209	-	-	-	-	-	-	-
Debt Disbursement	26,790	26,064	24,626	-	-	-	-	-	-	-
Debt Repayment	-	-	-	-	-	(3,122)	(3,320)	(3,379)	(3,438)	(3,499)
Dividends	-	-	-	-	-	(5,940)	(6,155)	(6,219)	(8,917)	(5,067)
Financing C.F. Total	35,720	34,752	30,891	(1,830)	(1,356)	(10,398)	(10,755)	(10,819)	(13,517)	(9,667)
Beginning Cash Balance	-	-	-	2,838	9,950	19,348	19,705	19,705	19,833	19,833
Change	-	-	2,838	7,111	9,399	357	-	128	-	-
Ending Cash Balance	-	-	2,838	9,950	19,348	19,705	19,705	19,833	19,833	19,833

Scenario 3B - PPP: Private Majority Ownership

	Nyaborongo	Rukarara
Scenario	3b	3b
Completion Date	12/31/10	4/30/[illegible]
End Debt Service Date	6/30/23	10/31/[illegible]
Tariff (During Debt Service)	$ 0.1185	$ 0.0776
Tariff (Post Debt Service)	$ 0.0567	$ 0.0776
Total Project Costs	$ 86,102	$ 17,637
Minimum DSCR	1.30	1.36
Average DSCR	1.60	2.05
Equity IRR	18.75%	17.6[illegible]
FNPV	$ (0)	$ (0)

Nyaborongo 18 Month Delay?	N
EIRR	23.18%
NPV, Government Debt (2007)	-
Reference Exchange Rate	553.7

	2007	2008	2009	2010	2011	2012	2013
Total Govt Financing	-	(34,801)	(34,145)	(16,944)	89,977	-	-
Total Debt Drawn	-	-	-	-	-	-	-
Total Equity Contribution	-	(34,801)	(34,145)	(16,944)	89,977	-	-
Debt Service: Principal	-	-	-	-	-	-	-
Debt Service: Interest	-	-	-	-	-	-	-
Dividend Payments	-	-	-	-	650	8,149	8,161
Amount Guaranteed	-	-	-	-	-	-	-
Private Financing (FDI)	-	-	-	7,266	25,400	-	-
BOP Import Savings	-	(32,763)	(33,151)	(27,514)	24,520	25,256	26,013

Post Construction Ownership

Govt	20.00%
Private	80.00%

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Revenues	-	-	2,079	16,890	16,890	16,890	21,245	21,245	21,245	21,245
Expenses	-	-	304	1,757	1,760	1,760	1,760	1,758	1,760	1,760
EBITDA	-	-	1,775	15,133	15,130	15,130	19,485	19,487	19,485	19,485
EBIT	-	-	643	3,737	4,034	4,426	9,219	9,708	12,796	13,204
Net Income	-	-	643	3,737	4,034	4,426	9,219	9,708	9,640	8,792
Adjusted Net Income	-	-	(821)	(7,829)	4,485	4,878	9,670	10,159	10,091	9,243

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	-	-	7,667	12,545	12,537	12,516	12,986	13,185	13,185	13,185
Net PP&E	32,763	65,914	93,080	89,965	86,851	83,737	80,623	77,508	74,394	71,280
Net Deferred Assets	2,038	3,033	3,852	3,749	3,646	3,543	3,440	2,913	400	297
Total Assets	34,801	68,946	104,599	106,260	103,034	99,796	97,049	93,606	87,979	84,761
Current Liabilities	-	-	1,789	13,427	12,980	12,534	12,089	11,457	17,169	17,626
Debt	-	-	10,473	73,232	69,783	65,939	61,658	57,077	45,891	39,325
Sponsor Equity	-	34,801	68,946	93,157	28,580	28,580	28,580	28,580	28,580	28,580
Retained Earnings	-	-	(821)	(8,980)	(8,309)	(7,258)	(5,279)	(3,508)	(3,661)	(769)
Total Liabilities & Equity	34,801	68,946	104,599	106,260	103,034	99,796	97,049	93,606	87,979	84,761

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Income	-	-	(821)	(7,829)	4,485	4,878	9,670	10,032	10,091	9,243
Operating Cash Flow	(1,014)	(995)	688	12,992	15,118	15,130	19,122	19,783	21,568	17,675
Investing Cash Flow	(33,787)	(33,151)	(27,521)	-	-	-	-	-	-	-
Equity Investment	34,801	34,145	24,211	(64,577)	-	-	-	-	-	-
Debt Disbursement	-	-	10,582	64,577	-	-	-	-	-	-
Debt Repayment	-	-	-	(1,805)	(3,436)	(3,828)	(4,264)	(4,750)	(5,291)	(5,894)
Dividends	-	-	-	(330)	(3,814)	(3,826)	(7,692)	(8,260)	(10,244)	(6,351)
Financing C.F. Total	34,801	34,145	29,768	(11,538)	(15,138)	(15,150)	(19,016)	(19,584)	(21,568)	(17,675)
Beginning Cash Balance	-	-	-	2,935	4,389	4,369	4,349	4,455	4,654	4,654
Change	-	-	2,935	1,454	(20)	(20)	107	199	-	-
Ending Cash Balance	-	-	2,935	4,389	4,369	4,349	4,455	4,654	4,654	4,654

Scenario 4 - 100% Government Ownership with Concessional Debt

	Nyaborongo	Rukarara		
Scenario	4	4	Nyaborongo 18 Month Delay?	N
Completion Date	12/31/10	4/30/10		
End Debt Service Date	12/31/35	4/30/35	EIRR	23.18%
Tariff (During Debt Service)	$ 0.0524	$ 0.0409		
Tariff (Post Debt Service)	$ 0.0524	$ 0.0090	NPV, Government Debt (2007)	(49,435)
Total Project Costs	$ 85,941	$ 18,203		
Minimum DSCR	1.09	1.30	Reference Exchange Rate	553.7
Average DSCR	1.50	2.48		
Equity IRR	16.90%	18.43%		
FNPV	$ 5,864	$ 3,490		

	2007	2008	2009	2010	2011	2012	2013	*Post Construction Ownership*	
Total Govt Financing	-	(35,927)	(34,864)	(33,354)	-	-	-		
Total Debt Drawn	-	(32,980)	(31,657)	(30,646)	-	-	-	Govt	100.00%
Total Equity Contribution	-	(2,947)	(3,207)	(2,708)	-	-	-	Private	0.00%
Debt Service: Principal	-	-	-	-	-	-	(3,851)		
Debt Service: Interest	-	(226)	(698)	(808)	(1,667)	(1,667)	(1,643)		
Dividend Payments	-	-	-	-	-	-	2,231		
Amount Guaranteed	-	-	-	-	-	-	-		
Private Financing (FDI)	-	-	-	-	-	-	-		
BOP Import Savings	-	(32,763)	(33,151)	(27,514)	24,520	25,256	26,013		

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Revenues	-	-	1,097	9,659	9,659	9,659	9,659	9,659	9,659	9,659
Expenses	-	-	300	1,717	1,717	1,717	1,717	1,717	1,717	1,717
EBITDA	-	-	797	7,942	7,942	7,942	7,942	7,942	7,942	7,942
EBIT	-	-	203	2,811	2,811	2,837	2,907	2,979	4,742	4,792
Net Income	-	-	203	2,811	2,811	2,837	2,907	2,979	4,050	2,903
Adjusted Net Income	-	-	(1,260)	(8,755)	3,262	3,288	3,358	3,430	4,501	3,354

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	-	-	5,007	11,345	17,619	17,835	17,777	17,719	17,719	17,719
Net PP&E	32,763	65,914	93,080	89,965	86,851	83,737	80,623	77,508	74,394	71,280
Net Deferred Assets	3,164	4,877	6,330	5,981	5,632	5,283	4,935	4,586	3,737	981
Total Assets	35,927	70,790	104,416	107,291	110,103	106,855	103,334	99,813	95,850	89,980
Current Liabilities	-	-	1,532	13,162	12,711	12,423	11,973	11,353	15,288	14,941
Debt	32,980	64,636	95,282	95,282	95,282	91,267	87,180	83,192	74,661	70,282
Sponsor Equity	-	2,947	6,154	8,862	8,862	8,862	8,862	8,862	8,862	8,862
Retained Earnings	-	-	(1,260)	(10,015)	(6,753)	(5,696)	(4,681)	(3,594)	(2,961)	(4,106)
Total Liabilities & Equity	35,927	70,790	104,416	107,291	110,103	106,855	103,334	99,813	95,850	89,980

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Income	-	-	(1,260)	(8,755)	3,262	3,288	3,358	3,430	4,501	3,354
Operating Cash Flow	(1,046)	(1,015)	(162)	6,338	7,942	7,942	7,942	7,942	9,524	10,156
Investing Cash Flow	(34,880)	(33,848)	(28,187)	-	-	-	-	-	-	-
Equity Investment	2,947	3,207	2,708	-	-	-	-	-	-	-
Debt Disbursement	32,980	31,657	30,646	-	-	-	-	-	-	-
Debt Repayment	-	-	-	-	-	(3,851)	(4,083)	(4,155)	(4,228)	(4,303)
Dividends	-	-	-	-	-	(2,231)	(2,343)	(2,343)	(3,867)	(4,499)
Financing C.F. Total	35,927	34,864	30,982	(2,260)	(1,667)	(7,726)	(8,000)	(8,000)	(9,524)	(10,156)
Beginning Cash Balance	-	-	-	2,633	6,712	12,986	13,202	13,143	13,085	13,085
Change	-	-	2,633	4,078	6,274	216	(58)	(58)	-	-
Ending Cash Balance	-	-	2,633	6,712	12,986	13,202	13,143	13,085	13,085	13,085

September 2009 Financial Model

Nyabarongo, Partial Privatization, Impact to Government of Rwanda

Impact to GOR *(USD Thousands)*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Lease Payment Received	-	-	-	-	-	4,235	4,235	4,235	4,235	4,235	4,235
O&M Services Fee Received	-	-	-	-	-	-	-	-	-	-	-
Nyabarongo Interest Income	-	-	-	-	-	3,042	2,890	2,687	2,484	2,281	2,078
Nyabarongo Principal Income	-	-	-	-	-	1,229	2,458	2,458	2,458	2,458	2,458
Total Equity (Contribution) Injected	-	(13,417)	(494)	(564)	(18,300)	19,575	-	-	-	-	-
Debt Service: Principal	-	-	-	-	-	(2,492)	(5,018)	(5,063)	(5,109)	(5,156)	(5,203)
Debt Service: Interest	-	-	-	-	-	(1,400)	(1,334)	(1,246)	(1,158)	(1,068)	(978)
Dividend Payments	-	-	-	-	-	-	-	-	-	-	-
GOR Cash Flow	-	(13,417)	(494)	(564)	(18,300)	24,188	3,230	3,070	2,910	2,750	2,591
Income (if no IPP)	-	-	-	-	-	-	-	-	-	-	-
Operating Cash Flow (if no IPP)	-	-	-	-	-	-	-	-	-	-	-
Total Govt Financing	-	(39,236)	(23,035)	(31,551)	(18,952)	19,575	-	-	-	-	-
Total Debt Drawn	-	(25,819)	(22,541)	(30,988)	(652)	-	-	-	-	-	-
Private Financing (FDI)	-	-	-	-	-	19,575	-	-	-	-	-
BOP Import Savings	(4,451)	(46,808)	(25,781)	(30,988)	(18,352)	26,013	26,794	27,597	28,425	29,278	30,156
Discounted GOR Cash Flow											
NPV	-	(12,198)	(408)	(423)	(12,499)	15,019	1,823	1,575	1,358	1,166	999
31											
IRR											
10.03%											

Nyabarongo, Partial Privatization, Impact to IPP/Sponsors

Impact to IPP/Sponsors *(USD '000s)*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cost of PRG Guarantee	-	-	-	-	-	(196.8)	(17.3)	(24.9)	(26.2)	(28.1)	(28.6)
Lease Payment	-	-	-	-	-	(4,235)	(4,235)	(4,235)	(4,235)	(4,235)	(4,235)
O&M Services Fee Paid	-	-	-	-	-	-	-	-	-	-	-
Income	-	-	-	-	-	(34)	254	414	509	674	840
Operating Cash Flow	-	-	-	-	-	6,499	7,840	7,762	7,755	7,602	7,523
Total Equity Contribution	-	-	-	-	-	(19,575)	-	-	-	-	-
Debt Service: Principal	-	-	-	-	-	(1,229)	(2,458)	(2,458)	(2,458)	(2,458)	(2,458)
Debt Service: Interest	-	-	-	-	-	(3,042)	(2,890)	(2,687)	(2,484)	(2,281)	(2,078)
Dividend Payments	-	-	-	-	-	1,728	2,493	2,617	2,813	2,863	2,987
Private Sponsors Net Cash Flow	-	-	-	-	-	(17,847)	2,493	2,617	2,813	2,863	2,987
IRR (w/ unlevered beta)											
17.94%											
Operating Cash Flow	-	-	-	-	-	6,499	7,840	7,762	7,755	7,602	7,523
Debt Service	-	-	-	-	-	4,271	5,347	5,145	4,942	4,739	4,536
DSCR	n/a	n/a	n/a	n/a	n/a	1.52	1.47	1.51	1.57	1.60	1.66
Min DSCR	**1.47**										
Avg DSCR	**2.05**										

Nyabarongo, Full Privatization, Impact to Government of Rwanda

Impact to GOR *(USD Thousands)*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Lease Payment Received	-	-	-	-	-	-	-	-	-	-	-
O&M Services Fee Received	-	-	-	-	-	-	-	-	-	-	-
Nyabarongo Interest Income	-	-	-	-	-	6,600	6,270	5,830	5,390	4,950	4,510
Nyabarongo Principal Income	-	-	-	-	-	2,667	5,333	5,333	5,333	5,333	5,333
Total Equity (Contribution) Injected	-	(13,417)	(494)	(564)	(18,300)	41,113	-	-	-	-	-
Debt Service: Principal	-	-	-	-	-	(2,667)	(5,333)	(5,333)	(5,333)	(5,333)	(5,333)
Debt Service: Interest	-	-	-	-	-	(1,400)	(1,330)	(1,237)	(1,143)	(1,050)	(957)
Dividend Payments	-	-	-	-	-	-	-	-	-	-	-
GOR Cash Flow	-	(13,417)	(494)	(564)	(18,300)	41,113	-	-	-	-	-
Income (if no IPP)	-	-	-	-	-	-	-	-	-	-	-
Operating Cash Flow (if no IPP)	-	-	-	-	-	-	-	-	-	-	-
Total Govt Financing	-	(39,236)	(23,035)	(31,551)	(18,952)	41,113	-	-	-	-	-
Total Debt Drawn	-	(25,819)	(22,541)	(30,988)	(652)	-	-	-	-	-	-
Private Financing (FDI)	-	-	-	-	-	41,113	-	-	-	-	-
BOP Import Savings	(4,451)	(46,808)	(25,781)	(30,988)	(18,352)	26,013	26,794	27,597	28,425	29,278	30,156
Discounted GOR Cash Flow											
NPV (1)	-	(12,198)	(408)	(423)	(12,499)	25,528	-	-	-	-	-
IRR **10.00%**											

Nyabarongo, Full Privatization, Impact to IPP/Sponsors

Impact to IPP/Sponsors *(USD '000s)*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cost of PRG Guarantee	-	-	-	-	-	(411.1)	(42.8)	(46.8)	(50.4)	(54.7)	(57.6)
Lease Payment	-	-	-	-	-	-	-	-	-	-	-
O&M Services Fee Paid	-	-	-	-	-	-	-	-	-	-	-
Income	-	-	-	-	-	5,412	6,042	6,408	6,650	7,010	7,369
Operating Cash Flow	-	-	-	-	-	14,043	16,280	16,206	16,198	16,041	15,960
Total Equity Contribution	-	-	-	-	-	(41,113)	-	-	-	-	-
Debt Service: Principal	-	-	-	-	-	(2,667)	(5,333)	(5,333)	(5,333)	(5,333)	(5,333)
Debt Service: Interest	-	-	-	-	-	(6,600)	(6,270)	(5,830)	(5,390)	(4,950)	(4,510)
Dividend Payments	-	-	-	-	-	4,277	4,677	5,042	5,474	5,758	6,117
Private Sponsors Net Cash Flow	-	-	-	-	-	(36,836)	4,677	5,042	5,474	5,758	6,117
IRR (w/ unlevered beta)											
17.93%											
Operating Cash Flow	-	-	-	-	-	14,043	16,280	16,206	16,198	16,041	15,960
Debt Service	-	-	-	-	-	9,267	11,603	11,163	10,723	10,283	9,843
DSCR	n/a	n/a	n/a	n/a	n/a	1.52	1.40	1.45	1.51	1.56	1.62
Min DSCR **1.40**											
Avg DSCR **2.07**											

Rukarara, Private Sale, Impact to Government of Rwanda

Impact to GOR *(USD Thousands)*	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Lease Payment Received	-	-	-	-	-	-	-	-	-	-	-
O&M Services Fee Received	-	-	-	-	-	-	-	-	-	-	-
Operating Cash Flow/Income	-	-	1,312	2,273	-	-	-	-	-	-	-
Rukarara Principal Income	-	-	-	-	-	283	601	650	704	762	825
Rukarara Interest Income	-	-	-	-	-	1,275	1,238	1,188	1,135	1,077	1,014
Total Equity (Contribution) Injected	(4,613)	(8,989)	(3,240)	-	-	5,326	-	-	-	-	-
Debt Service: Principal	-	-	-	-	-	-	-	-	-	-	-
Debt Service: Interest	-	-	-	-	-	-	-	-	-	-	-
Dividend Payments	-	-	1,312	2,273	-	-	-	-	-	-	-
GOR Cash Flow	(4,613)	(8,989)	(1,928)	2,273	-	6,884	1,839	1,839	1,839	1,839	1,839
IRR											
10.15%											
NPV	(4,613)	(8,172)	(1,593)	1,708	-	4,275	1,038	943	858	780	709

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Rukarara, Private Sale, Impact to IPP/Sponsors

Impact to IPP/Sponsors *(USD '000s)*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cost of PRG Guarantee	-	-	-	-	-	(53.26)	(2.49)	(4.51)	(4.49)	(4.45)	(4.30)
Lease Payment Paid	-	-	-	-	-	-	-	-	-	-	-
O&M Services Fee Paid	-	-	-	-	-	-	-	-	-	-	-
Income	-	-	-	-	1,701	372	461	508	541	598	659
Operating Cash Flow	-	-	-	-	-	2,220	2,271	2,269	2,283	2,269	2,269
Total Equity Contribution	-	-	-	-	-	(5,326)	-	-	-	-	-
Debt Service: Principal	-	-	-	-	-	(283)	(601)	(650)	(704)	(762)	(825)
Debt Service: Interest	-	-	-	-	-	(1,275)	(1,238)	(1,188)	(1,135)	(1,077)	(1,014)
Dividend Payments	-	-	-	-	-	249	451	449	445	430	430
Private Sponsors Net Cash Flow	-	-	-	-	-	(5,077)	451	449	445	430	430
NPV	-	-	-	-	-	(5,077)	451	375	312	256	218
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IRR (w/ unlevered bets)											
14.46%											
Operating Cash Flow	-	-	-	-	-	2,220	2,271	2,269	2,283	2,269	2,269
Debt Service	-	-	-	-	-	1,558	1,839	1,839	1,839	1,839	1,839
DSCR	n/a	n/a	n/a	n/a	n/a	1.42	1.24	1.23	1.24	1.23	1.23
Min DSCR	**1.23**										
Avg DSCR	**1.32**										

Appendix B, Task 3: Macroeconomic Model

The macroeconomic model was prepared by London Economics in July 2007. Please refer to the attached, separate file, "Task 3 Macroeconomic Model.zip" for the complete model in Microsoft Excel format.

SCENARIO 1 – 100% GOVERNMENT EQUITY 147

SCENARIO 2 – IPP SALE POST-CONSTRUCTION 149

SCENARIO 2A - IPP SALE PRE-CONSTRUCTION 151

SCENARIO 3 - PPP MAJORITY PUBLIC OWNERSHIP 153

SCENARIO 3B - PPP PRIVATE OWNERSHIP 155

SCENARIO 4 - 100% GOVERNMENT WITH CONCESSIONAL DEBT 157

Scenario 1 – 100% Government Equity

(million USD or %) - real terms	BASELINE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2479.35	2590.93	2707.52	2829.36	2956.68	3089.73
Current GDP (Growth rate %)	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	666.30	731.68	763.44	793.58	798.37	835.37
General Government Revenue	686.96	721.12	756.97	794.61	847.30	889.04
General Government Balance	20.67	-10.76	-6.47	1.03	48.93	53.67
Interest payments	8.66	9.53	10.48	11.53	12.68	13.95
Balance of Payments						
Current Account Balance	-170.43	-209.88	-217.22	-215.89	-177.38	-184.57
Net FDI	27.87	33.34	39.88	47.71	57.07	68.27
Current Account Balance plus Net FDI	-142.56	-176.54	-177.34	-168.19	-120.31	-116.30
Current External Receipts CXR	651.60	677.17	703.74	731.35	760.04	789.86
Current External Payments CXP	822.04	887.05	920.96	947.24	937.42	974.43
Exports	302.42	314.28	326.61	339.43	352.75	366.59
External Assets and Liabilities						
General Government Debt	637.80	701.58	771.74	848.92	933.81	1027.19
Gross External Debt	561.07	617.17	678.89	746.78	821.46	903.60
Public External Debt	549.90	604.90	665.38	731.92	805.12	885.63
NPV of Public External Debt	192.66	202.30	212.41	223.03	234.18	245.89

(million USD or %) - real terms	LOW CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2443.77	2517.08	2592.59	2670.37	2750.48	2832.99
Current GDP (Growth rate %)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	657.85	713.51	734.48	753.27	745.96	770.05
General Government Revenue	676.12	698.53	721.68	745.60	783.50	809.30
General Government Balance	18.27	-14.99	-12.79	-7.67	37.54	39.25
Interest payments	9.74	10.96	12.33	13.87	15.60	17.55
Balance of Payments						
Current Account Balance	-168.29	-205.45	-210.36	-206.44	-165.18	-169.45
Net FDI	26.35	29.79	33.69	38.10	43.08	48.72
Current Account Balance plus Net FDI	-141.94	-175.66	-176.67	-168.35	-122.10	-120.73
Current External Receipts CXR	643.40	660.23	677.50	695.22	713.41	732.07
Current External Payments CXP	811.69	865.68	887.86	901.67	876.59	901.52
Exports	298.61	306.42	314.44	322.66	331.10	339.76
External Assets and Liabilities						
General Government Debt	852.30	733.84	825.57	928.76	1044.86	1175.47
Gross External Debt	573.82	645.54	726.24	817.02	919.14	1034.04
Public External Debt	562.40	632.70	711.79	800.76	900.86	1013.47
NPV of Public External Debt	195.20	207.40	220.36	234.14	248.77	264.32

(million USD or %) - real terms	HIGH CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2586.12	2818.87	3072.57	3349.10	3650.52	3979.07
Current GDP (Growth rate %)	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	694.63	792.48	860.60	932.01	983.30	1072.57
General Government Revenue	719.50	791.05	869.71	956.19	1064.46	1169.27
General Government Balance	24.88	-1.43	9.11	24.18	81.16	96.70
Interest payments	8.38	9.01	9.68	10.41	11.19	12.03
Balance of Payments						
Current Account Balance	-176.87	-223.51	-238.87	-246.46	-217.85	-236.01
Net FDI	32.44	45.17	62.90	87.59	121.96	169.81
Current Account Balance plus Net FDI	-144.43	-178.34	-175.97	-158.87	-95.89	-66.20
Current External Receipts CXR	676.20	729.26	786.49	848.21	914.77	986.55
Current External Payments CXP	853.07	952.78	1025.36	1094.67	1132.62	1222.56
Exports	313.84	338.46	365.02	393.67	424.56	457.87
External Assets and Liabilities						
General Government Debt	623.31	670.06	720.31	774.33	832.41	894.84
Gross External Debt	548.31	589.44	633.65	681.17	732.26	787.18
Public External Debt	472.75	508.20	546.32	587.29	631.34	678.69
NPV of Public External Debt	177.00	183.63	190.52	197.66	205.08	212.77

Scenario 2 – IPP Sale Post-Construction

(million USD or %) - real terms	BASELINE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2473.46	2584.77	2701.08	2839.16	3040.25	3172.98
Current GDP (Growth rate %)	4.50%	4.50%	5.11%	7.08%	4.37%	4.37%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	666.30	731.88	763.44	778.34	798.37	835.37
General Government Revenue	686.96	721.12	756.97	794.61	938.59	875.59
General Government Balance	20.67	-10.76	-6.47	16.27	140.22	40.22
Interest payments	8.66	9.53	10.48	11.53	12.68	13.95
Balance of Payments						
Current Account Balance	-170.43	-209.88	-217.22	-215.89	-177.38	-184.57
Net FDI	27.87	33.34	39.88	56.61	96.96	68.27
Current Account Balance plus Net FDI	-142.56	-176.54	-177.34	-159.28	-80.42	-116.30
Current External Receipts CXR	651.60	677.17	703.74	731.35	760.04	789.86
Current External Payments CXP	822.04	887.05	920.96	947.24	937.42	974.43
Exports	302.42	314.28	326.61	339.43	352.75	366.59
External Assets and Liabilities						
General Government Debt	637.80	701.58	771.74	849.12	936.00	1029.38
Gross External Debt	561.07	617.17	678.89	746.99	823.64	905.79
Public External Debt	549.90	604.90	665.38	732.13	807.30	887.81
NPV of Public External Debt	192.66	202.30	212.41	223.03	234.18	245.89

(million USD or %) - real terms	LOW CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2437.96	2511.09	2586.43	2680.55	2834.54	2916.86
Current GDP (Growth rate %)	3.00%	3.00%	3.64%	5.74%	2.90%	2.90%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	657.85	713.51	734.48	738.04	745.96	770.05
General Government Revenue	676.12	698.53	721.68	745.60	874.79	795.85
General Government Balance	18.27	-14.99	-12.79	7.56	128.83	25.80
Interest payments	9.74	10.96	12.33	13.87	15.60	17.55
Balance of Payments						
Current Account Balance	-168.29	-205.45	-210.36	-206.44	-165.18	-169.45
Net FDI	26.35	29.79	33.69	47.00	82.97	48.72
Current Account Balance plus Net FDI	-141.94	-175.66	-176.67	-159.44	-82.21	-120.73
Current External Receipts CXR	643.40	660.23	677.50	695.22	713.41	732.07
Current External Payments CXP	811.69	865.68	887.86	901.67	878.59	901.52
Exports	298.61	306.42	314.44	322.66	331.10	339.76
External Assets and Liabilities						
General Government Debt	652.30	733.84	825.57	928.97	1047.05	1177.65
Gross External Debt	573.82	645.54	726.24	817.22	921.33	1036.23
Public External Debt	562.40	632.70	711.79	800.97	903.05	1015.66
NPV of Public External Debt	195.20	207.40	220.36	234.14	248.77	264.32

(million USD or %) - real terms	HIGH CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2579.97	2812.17	3065.26	3357.67	3732.44	4060.21
Current GDP (Growth rate %)	9.00%	9.00%	9.54%	11.16%	8.78%	8.78%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	694.63	792.48	860.60	916.78	983.30	1072.57
General Government Revenue	719.50	791.05	869.71	956.19	1155.75	1155.82
General Government Balance	24.88	-1.43	9.11	39.41	172.44	83.25
Interest payments	8.38	9.01	9.68	10.41	11.19	12.03
Balance of Payments						
Current Account Balance	-176.87	-223.51	-238.87	-246.46	-217.85	-236.01
Net FDI	32.44	45.17	62.90	96.49	161.85	169.81
Current Account Balance plus Net FDI	-144.43	-178.34	-175.97	-149.97	-56.00	-66.20
Current External Receipts CXR	676.20	729.26	786.49	848.21	914.77	986.55
Current External Payments CXP	853.07	952.78	1025.36	1094.67	1132.62	1222.56
Exports	313.84	338.46	365.02	393.67	424.56	457.87
External Assets and Liabilities						
General Government Debt	623.31	670.06	720.31	774.54	834.60	897.03
Gross External Debt	548.31	589.44	633.65	681.38	734.45	789.36
Public External Debt	472.75	508.20	546.32	587.50	633.53	680.88
NPV of Public External Debt	177.00	183.63	190.52	197.66	205.08	212.77

Scenario 2A - IPP Sale Pre-Construction

(million USD or %) - real terms	BASELINE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2471.72	2587.34	2721.07	2859.07	2998.99	3140.81
Current GDP (Growth rate %)	4.68%	5.17%	5.07%	4.89%	4.73%	4.73%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	666.30	697.07	729.30	763.04	798.37	835.37
General Government Revenue	686.96	721.12	756.97	794.61	834.12	875.59
General Government Balance	20.67	24.05	27.68	31.57	35.75	40.22
Interest payments	8.66	9.53	10.48	11.53	12.68	13.95
Balance of Payments						
Current Account Balance	-170.43	-181.43	-208.70	-215.89	-219.13	-206.65
Net FDI	27.87	35.71	49.31	56.61	64.07	73.20
Current Account Balance plus Net FDI	-142.56	-145.73	-159.39	-159.28	-155.06	-133.44
Current External Receipts CXR	651.60	677.17	703.74	731.35	760.04	789.86
Current External Payments CXP	822.04	858.60	912.43	947.24	979.17	996.51
Exports	302.42	314.28	326.61	339.43	352.75	366.59
External Assets and Liabilities						
General Government Debt	637.80	701.58	771.74	849.15	934.16	1028.57
Gross External Debt	561.07	617.17	678.89	747.01	821.81	904.98
Public External Debt	549.90	604.90	665.38	732.16	805.47	887.01
NPV of Public External Debt	192.66	202.30	212.41	223.03	234.18	245.89

(million USD or %) - real terms	LOW CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2436.24	2513.72	2606.50	2700.57	2793.43	2884.86
Current GDP (Growth rate %)	3.18%	3.69%	3.61%	3.44%	3.27%	3.27%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	657.85	678.71	700.33	722.73	745.96	770.05
General Government Revenue	676.12	698.53	721.68	745.60	770.32	795.85
General Government Balance	18.27	19.82	21.35	22.87	24.36	25.80
Interest payments	9.74	10.96	12.33	13.87	15.60	17.55
Balance of Payments						
Current Account Balance	-168.29	-177.00	-201.83	-206.44	-206.93	-191.53
Net FDI	26.35	32.16	43.12	47.00	50.08	53.66
Current Account Balance plus Net FDI	-141.94	-144.84	-158.72	-159.44	-156.85	-137.87
Current External Receipts CXR	643.40	660.23	677.50	695.22	713.41	732.07
Current External Payments CXP	811.69	837.23	879.33	901.67	920.34	923.60
Exports	298.61	306.42	314.44	322.66	331.10	339.76
External Assets and Liabilities						
General Government Debt	652.30	733.84	825.57	929.00	1045.21	1176.84
Gross External Debt	573.82	645.54	726.24	817.25	919.50	1035.42
Public External Debt	562.40	632.70	711.79	801.00	901.21	1014.85
NPV of Public External Debt	195.20	207.40	220.36	234.14	248.77	264.32

(million USD or %) - real terms	HIGH CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2578.15	2814.58	3085.00	3377.21	3690.70	4027.41
Current GDP (Growth rate %)	9.17%	9.61%	9.47%	9.28%	9.12%	9.12%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	694.63	757.68	826.45	901.47	983.30	1072.57
General Government Revenue	719.50	791.05	869.71	956.19	1051.28	1155.82
General Government Balance	24.88	33.37	43.26	54.72	67.97	83.25
Interest payments	8.38	9.01	9.68	10.41	11.19	12.03
Balance of Payments						
Current Account Balance	-176.87	-195.06	-230.34	-246.46	-259.60	-258.09
Net FDI	32.44	47.54	72.33	96.49	128.96	174.75
Current Account Balance plus Net FDI	-144.43	-147.52	-158.02	-149.97	-130.65	-83.34
Current External Receipts CXR	676.20	729.26	786.49	848.21	914.77	986.55
Current External Payments CXP	853.07	924.33	1016.83	1094.67	1174.37	1244.64
Exports	313.84	338.46	365.02	393.67	424.56	457.87
External Assets and Liabilities						
General Government Debt	623.31	670.06	720.31	774.57	832.76	896.22
Gross External Debt	548.31	589.44	633.65	681.17	732.26	787.18
Public External Debt	472.75	508.20	546.32	587.29	631.34	678.69
NPV of Public External Debt	177.00	183.63	190.52	197.66	205.08	212.77

Scenario 3 - PPP Majority Public Ownership

(million USD or %) - real terms	BASELINE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2481.86	2593.54	2710.25	2836.73	2985.51	3118.70
Current GDP (Growth rate %)	4.50%	4.50%	4.67%	5.24%	4.46%	4.46%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	666.30	705.82	737.40	768.14	797.01	834.01
General Government Revenue	686.96	721.12	756.97	794.61	845.61	875.59
General Government Balance	20.67	15.30	19.58	26.47	48.59	41.58
Interest payments	8.66	9.34	9.89	10.85	11.32	12.59
Balance of Payments						
Current Account Balance	-170.43	-209.88	-217.22	-215.89	-177.38	-184.57
Net FDI	27.87	33.34	39.88	50.14	68.56	68.27
Current Account Balance plus Net FDI	-142.56	-176.54	-177.34	-165.75	-108.82	-116.30
Current External Receipts CXR	651.60	677.17	703.74	731.35	760.04	789.86
Current External Payments CXP	822.04	887.05	920.96	947.24	937.42	974.43
Exports	302.42	314.28	326.61	339.43	352.75	366.59
External Assets and Liabilities						
General Government Debt	637.80	728.37	824.60	926.40	1011.29	1104.67
Gross External Debt	561.07	643.96	704.95	771.41	821.46	903.60
Public External Debt	549.90	631.69	691.45	756.55	805.12	885.63
NPV of Public External Debt	232.69	245.14	257.84	270.79	284.33	297.86

(million USD or %) - real terms	LOW CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2446.23	2519.62	2595.21	2677.58	2779.11	2861.70
Current GDP (Growth rate %)	3.00%	3.00%	3.17%	3.79%	2.97%	2.97%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	657.85	687.46	708.43	727.83	744.60	768.70
General Government Revenue	676.12	698.53	721.68	745.60	781.81	795.85
General Government Balance	18.27	11.07	13.25	17.77	37.20	27.15
Interest payments	9.74	10.77	11.74	13.20	14.25	16.20
Balance of Payments						
Current Account Balance	-168.29	-205.45	-210.36	-206.44	-165.18	-169.45
Net FDI	26.35	29.79	33.69	40.53	54.57	48.72
Current Account Balance plus Net FDI	-141.94	-175.66	-176.67	-165.91	-110.61	-120.73
Current External Receipts CXR	643.40	660.23	677.50	695.22	713.41	732.07
Current External Payments CXP	811.69	865.68	887.86	901.67	878.59	901.52
Exports	299.61	306.42	314.44	322.66	331.10	339.76
External Assets and Liabilities						
General Government Debt	652.30	760.63	851.63	953.39	1044.86	1175.47
Gross External Debt	573.82	672.34	752.30	841.64	919.14	1034.04
Public External Debt	562.40	659.49	737.85	825.39	900.66	1013.47
NPV of Public External Debt	235.43	250.25	265.79	281.89	298.91	316.28

(million USD or %) - real terms	HIGH CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2588.73	2821.72	3075.67	3357.00	3680.06	4008.93
Current GDP (Growth rate %)	9.00%	9.00%	9.15%	9.62%	8.94%	8.94%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	694.63	766.42	834.55	906.57	981.95	1071.21
General Government Revenue	719.50	791.05	869.71	956.19	1062.76	1155.82
General Government Balance	24.88	24.63	35.16	49.62	80.82	84.60
Interest payments	8.38	8.82	9.09	9.74	9.83	10.67
Balance of Payments						
Current Account Balance	-176.87	-223.51	-238.87	-246.46	-217.85	-236.01
Net FDI	32.44	45.17	62.90	90.02	133.44	169.81
Current Account Balance plus Net FDI	-144.43	-178.34	-175.97	-156.44	-84.41	-66.20
Current External Receipts CXR	676.20	729.26	786.49	848.21	914.77	986.55
Current External Payments CXP	853.07	952.78	1025.36	1094.67	1132.62	1222.56
Exports	313.84	338.46	365.02	393.67	424.56	457.87
External Assets and Liabilities						
General Government Debt	623.31	696.85	746.38	798.96	832.41	894.84
Gross External Debt	548.31	616.23	659.71	705.80	732.26	787.18
Public External Debt	472.75	534.99	572.38	611.92	631.34	678.69
NPV of Public External Debt	217.23	226.48	235.95	245.42	255.22	264.73

Scenario 3B - PPP Private Ownership

(million USD or %) - real terms	BASELINE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2474.13	2585.46	2701.81	2836.88	3011.10	3143.87
Current GDP (Growth rate %)	4.50%	4.50%	5.00%	6.14%	4.41%	4.41%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	686.30	731.88	763.44	779.98	798.37	835.37
General Government Revenue	686.96	721.12	756.97	794.61	924.23	877.22
General Government Balance	20.67	-10.76	-6.47	14.63	125.86	41.85
Interest payments	8.66	9.53	10.48	11.53	12.68	13.95
Balance of Payments						
Current Account Balance	-170.43	-209.88	-217.22	-215.89	-177.38	-184.57
Net FDI	27.87	33.34	39.88	54.97	82.47	68.27
Current Account Balance plus Net FDI	-142.56	-176.54	-177.34	-160.92	-94.91	-116.30
Current External Receipts CXR	651.60	677.17	703.74	731.35	760.04	789.86
Current External Payments CXP	822.04	887.05	920.96	947.24	937.42	974.43
Exports	302.42	314.28	326.61	339.43	352.75	366.59
External Assets and Liabilities						
General Government Debt	637.80	701.58	771.74	849.13	935.93	1029.31
Gross External Debt	561.07	617.17	678.89	746.99	823.58	905.73
Public External Debt	549.90	604.90	665.38	732.13	807.24	887.75
NPV of Public External Debt	192.66	202.30	212.41	223.03	234.18	245.89

(million USD or %) - real terms	LOW CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2438.61	2511.77	2587.13	2678.23	2805.34	2887.68
Current GDP (Growth rate %)	3.00%	3.00%	3.52%	4.75%	2.94%	2.94%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	657.85	713.51	734.48	739.68	745.96	770.05
General Government Revenue	676.12	698.53	721.68	745.60	860.43	797.48
General Government Balance	18.27	-14.99	-12.79	5.93	114.47	27.43
Interest payments	9.74	10.96	12.33	13.87	15.60	17.55
Balance of Payments						
Current Account Balance	-168.29	-205.45	-210.36	-206.44	-165.16	-169.45
Net FDI	26.35	29.79	33.69	45.36	68.48	48.72
Current Account Balance plus Net FDI	-141.94	-175.66	-176.67	-161.08	-96.70	-120.73
Current External Receipts CXR	643.40	660.23	677.50	695.22	713.41	732.07
Current External Payments CXP	811.69	865.68	887.86	901.67	878.59	901.52
Exports	298.61	306.42	314.44	322.66	331.10	339.76
External Assets and Liabilities						
General Government Debt	652.30	733.84	825.57	928.97	1046.98	1177.59
Gross External Debt	573.82	645.54	726.24	817.23	921.27	1036.16
Public External Debt	562.40	632.70	711.79	800.97	902.98	1015.59
NPV of Public External Debt	195.20	207.40	220.36	234.14	248.77	264.32

(million USD or %) - real terms	HIGH CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2580.67	2812.93	3066.09	3355.53	3703.48	4031.34
Current GDP (Growth rate %)	9.00%	9.00%	9.44%	10.37%	8.85%	8.85%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	694.63	792.48	860.60	918.42	983.30	1072.57
General Government Revenue	719.50	791.05	869.71	956.19	1141.38	1157.44
General Government Balance	24.88	-1.43	9.11	37.78	158.08	84.88
Interest payments	8.38	9.01	9.68	10.41	11.19	12.03
Balance of Payments						
Current Account Balance	-176.87	-223.51	-238.87	-246.46	-217.85	-236.01
Net FDI	32.44	45.17	62.90	94.85	147.36	169.81
Current Account Balance plus Net FDI	-144.43	-178.34	-175.97	-151.61	-70.49	-66.20
Current External Receipts CXR	676.20	729.26	786.49	848.21	914.77	986.55
Current External Payments CXP	853.07	952.78	1025.36	1094.67	1132.62	1222.56
Exports	313.84	338.46	365.02	393.67	424.56	457.87
External Assets and Liabilities						
General Government Debt	623.31	670.06	720.31	774.54	834.53	896.96
Gross External Debt	548.31	589.44	633.65	681.38	734.38	789.30
Public External Debt	472.75	508.20	546.32	587.50	633.46	680.82
NPV of Public External Debt	177.00	183.63	190.52	197.66	205.08	212.77

Scenario 4 - 100% Government with Concessional Debt

(million USD or %) - real terms	BASELINE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2484.41	2596.21	2713.04	2835.12	2962.70	3096.03
Current GDP (Growth rate %)	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	666.30	699.80	731.81	764.94	796.70	833.70
General Government Revenue	686.96	721.12	756.97	794.61	834.12	875.59
General Government Balance	20.67	21.32	25.17	29.67	37.42	41.89
Interest payments	8.66	9.30	9.78	10.72	11.01	12.28
Balance of Payments						
Current Account Balance	-170.43	-209.88	-217.22	-215.89	-177.38	-184.57
Net FDI	27.87	33.34	39.88	47.71	57.07	68.27
Current Account Balance plus Net FDI	-142.56	-176.54	-177.34	-168.19	-120.31	-116.30
Current External Receipts CXR	651.60	677.17	703.74	731.35	760.04	789.86
Current External Payments CXP	822.04	887.05	920.96	947.24	937.42	974.43
Exports	302.42	314.28	326.61	339.43	352.75	366.59
External Assets and Liabilities						
General Government Debt	637.80	734.56	836.36	944.20	1029.09	1122.47
Gross External Debt	561.07	650.15	710.55	777.42	821.46	903.60
Public External Debt	549.90	637.88	697.04	762.57	805.12	885.63
NPV of Public External Debt	242.10	254.94	268.24	281.75	295.86	309.80

(million USD or %) - real terms	LOW CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2448.75	2522.21	2597.88	2675.81	2756.09	2838.77
Current GDP (Growth rate %)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	657.85	681.43	702.84	724.63	744.29	768.39
General Government Revenue	676.12	698.53	721.68	745.60	770.32	795.85
General Government Balance	18.27	17.09	18.84	20.97	26.03	27.47
Interest payments	9.74	10.73	11.63	13.06	13.94	15.89
Balance of Payments						
Current Account Balance	-168.29	-205.45	-210.36	-206.44	-165.18	-169.45
Net FDI	26.35	29.79	33.69	38.10	43.08	48.72
Current Account Balance plus Net FDI	-141.94	-175.66	-176.67	-168.35	-122.10	-120.73
Current External Receipts CXR	643.40	660.23	677.50	695.22	713.41	732.07
Current External Payments CXP	811.69	865.68	887.86	901.67	878.59	901.52
Exports	298.61	306.42	314.44	322.66	331.10	339.76
External Assets and Liabilities						
General Government Debt	652.30	766.82	857.22	959.41	1044.86	1175.47
Gross External Debt	573.82	678.52	757.89	847.66	919.14	1034.04
Public External Debt	562.40	665.68	743.45	831.41	900.86	1013.47
NPV of Public External Debt	244.64	260.05	276.19	292.85	310.44	328.22

(million USD or %) - real terms	HIGH CASE 2007	2008	2009	2010	2011	2012
Currency						
Exchange rate (Rfr/$)	553.72	553.72	553.72	553.72	553.72	553.72
Domestic Economy and Finance						
GDP - current USD	2591.39	2824.62	3078.83	3355.93	3657.96	3987.18
Current GDP (Growth rate %)	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
CPI	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Public Finances						
General Government Expense	694.63	760.40	828.96	903.37	981.64	1070.90
General Government Revenue	719.50	791.05	869.71	956.19	1051.28	1155.82
General Government Balance	24.88	30.65	40.75	52.82	69.64	84.92
Interest payments	8.38	8.78	8.98	9.60	9.52	10.36
Balance of Payments						
Current Account Balance	-176.87	-223.51	-238.87	-246.46	-217.85	-236.01
Net FDI	32.44	45.17	62.90	87.59	121.96	169.81
Current Account Balance plus Net FDI	-144.43	-178.34	-175.97	-158.87	-95.89	-66.20
Current External Receipts CXR	676.20	729.26	786.49	848.21	914.77	986.55
Current External Payments CXP	853.07	952.78	1025.36	1094.67	1132.62	1222.56
Exports	313.84	338.46	365.02	393.67	424.56	457.87
External Assets and Liabilities						
General Government Debt	623.31	703.04	751.97	804.98	832.41	894.84
Gross External Debt	548.31	622.42	665.30	711.82	732.26	787.18
Public External Debt	472.75	541.18	577.98	617.94	631.34	678.69
NPV of Public External Debt	226.43	236.28	246.35	256.38	266.75	276.67

Appendix C, Task 4: List of Laws and Draft Legislation TDI Reviewed

1. Constitution of the Republic of Rwanda (4 Jun. 2003, as amended 2 Dec. 2003 and 8 Dec. 2005).
2. Draft Bill of Fixing Rules of Use, Conservation, Protection and Management of Water Resources (Aug. 2006).
3. Draft Law on Arbitration and Conciliation in Commercial Matters (2006).
4. Draft Law Concerning the Establishment, Organisation, Functioning and Jurisdiction of the Commercial Courts (2006).
5. Draft Law on Electricity (15 Nov. 2007).
6. Draft Law Establishing the National Registration Services Agency (2006).
7. Draft Law Governing Privately Financed Infrastructure Projects (PFIP) (2006).
8. Draft Law on Public Procurement (9 Jan. 2006).
9. Law on the Code of Direct Taxes on Different Profits and Professional Incomes (N° 8/97, 26 Jun. 1997).
10. Law Determining the Modalities of Protection, Conservation, and Promotion of Environment in Rwanda (N° 4/2005, 8 Apr. 2005).
11. Law Determining the Organisation, Functioning, and Responsibilities of Rwanda Environment Management Authority (N° 16/2006, 3 Apr. 2006).
12. Law Determining the Use and Management of Land in Rwanda (N° 08/2005, 14 Jul. 2005).
13. Law on Direct Taxes on Income (N° 16/2005, 18 Aug. 2005).
14. Law Establishing an Agency for the Regulation of Certain Public Utilities (N° 39/2001, 13 Sept. 2001).
15. Law Establishing the Labor Code (N° 51/2001, 30 Dec. 2001).
16. Law Establishing the Rwanda Investment Promotion Agency (N° 14/98, 18 Dec. 1998).
17. Law on Immigration and Emigration (N° 17/99, 16 Aug. 1999).
18. Law Relating to Investment and Export Promotion and Facilitation (N°26/2005, 17 Dec. 2005).
19. Ministerial Order on Procedure to Recruit Foreign Workers (N° 13/19, 14 Mar. 2003).
20. Presidential Order Establishing Public Procurement Procedures (N° 28/01, 19 Jul. 2004).

Appendix D, Task 4: List of Laws and Draft Legislation Not Available to TDI[66]

1. Electrogaz Charter Laws.
2. Law Determining the Organization of Trading Companies (N° 06/1988), as amended, or most recent law on companies.
3. Draft Law on Bankruptcy.
4. Draft Law on Business Licensing.
5. Draft Law on Companies.
6. Draft Law on Competition and Consumer Protection.
7. Draft Law on Contracts.
8. Draft Law on Negotiable Instruments.
9. Draft Law on Secured Transactions

[66] As stated in footnote 1, we understand the laws listed in this Appendix D may exist but we do not have copies of the laws at this time. If we are provided with copies of the laws, then we will include an analysis in the Final Report.

Appendix E, Task 4: Business Law Reform Commission

Status of Proposed Legislative Reforms

Item	Title of Draft Law	Purpose	Legislative Status
1.	Draft Law on Intellectual Property Rights.	To facilitate the growth of the ICT sector. This law is mandatory for Rwanda to fulfill her obligations under the WTO.	In Parliament with the Parliamentary Committee on Science and Technology.
2.	Draft Law on Cooperatives.	To promote savings and investment.	Passed by Parliament.
3.	Law Establishing the Rwanda Registration Services Agency.	To facilitate the implementation of many of the commercial laws including the Draft Companies Law and Draft Law on Intellectual Property Rights.	Enacted.
4.	Organic Law Establishing the Commercial Court.	To establish stand alone commercial courts to improve efficiency in the resolution of commercial disputes.	Enacted.
5.	Law Amending the Statute of Judges and Other Judicial Personnel.	To establish the mechanisms for assigning judges to the commercial courts and to permit the hiring of foreign expatriate judges.	Passed by Parliament.
6.	Law Amending the Civil, Commercial, Labour and Administrative Procedure Code.	To provide specialized procedures for resolution of commercial disputes.	Passed by Parliament.
7.	Law on Arbitration and Conciliation.	To provide a modern framework for arbitration and conciliation.	Enacted.
8.	Draft Law On Competition and Consumer Protection.	To provide a suitable framework for regulation to ensure that competition prevails and that consumers are protected.	Draft finalized and submitted to Cabinet. Cabinet approval required prior to submission to Parliament.
9.	Draft Law on Companies.	To modernize the companies law and provide for new forms of legal entities that are not permitted under the current law.	Private sector consultations concluded. Draft finalized and submitted to Minister/ Cabinet. Cabinet approval required prior to submission to Parliament.
10.	Draft Bankruptcy Law.	To provide a modern framework for corporate and personal bankruptcy.	Private sector consultations concluded. Draft finalized and submitted to Minister/ Cabinet. Cabinet approval required prior to submission

			to Parliament.
11.	Draft Law on Contracts.	To modernize the contracts law and harmonize the law with the contracts laws of other East African countries.	Private sector consultations in progress.
12.	Draft Law on Condominium.	To boost the mortgage industry and further develop the financial sector by increasing the opportunities for acquiring title to property.	Private sector consultations in progress.
13.	Draft Law on Negotiable Instruments.	To consolidate scattered legal provisions regarding negotiable instruments into one unified law and to modernize the types of negotiable instruments.	Private sector consultations concluded. Draft finalized and submitted to Minister/ Cabinet. Cabinet approval required prior to submission to Parliament.
14.	Draft Labour Law.	To strike a balance between fulfilling commercial demands and protecting the personal rights of employees..	Consultations between the Ministry of Labour, the unions, and the private sector regarding the Draft Labour Law are in progress.
15.	Draft Law on Secured Transactions.	To provide for more chattel securities and promote mortgages.	Private sector consultations in progress.
16.	Draft Law on Electronic Commerce.	To provide for ICT development for commercial transactions.	Drafting has been finalized and translations are underway before discussion with the stakeholders.
17.	Draft Business Registration Law.	To ease business formation by limiting licensing requirements to those requirements provided by sector specific legislations.	Private sector consultations concluded. Draft finalized and submitted to Minister/ Cabinet. Cabinet approval required prior to submission to Parliament.
18.	Draft Law on Privately Financed Infrastructure Projects.	To facilitate the development of privately financed infrastructure projects within the context of good governance.	Private sector consultations concluded. Draft finalized and submitted to Cabinet. Cabinet approval required prior to submission to Parliament.

Appendix F, Task 5: Project Structure PowerPoint

The Project Structure PowerPoint presentation was prepared by Delphos International in June 2008.

Project Structure Recommendations
Task 5

Nyaborongo & Rukarara Hydropower Projects

Transaction advisory team to MININFRA

Delphos International

Disclaimer: Any figures presented herein are subject to further revision.

June 26, 2008

Plan of presentation

Background

Recommended structures

Conclusions and next steps

TOR Overview

- The TOR require the contractor to analyze alternative opportunities of financing, building and operating the plants, and provide recommendations as to the preferred modes for ownership, financing and management
- Options to be considered included:
  - IPP
  - PPP
  - Public investment using 100% budgetary resources
  - Public investment leveraging concessional debt
  - BOL - Build Own and Lease
  - BOO – Build Own Operate
  - BOOT - Build Own Operate and Transfer
  - BLT - Build Lease Transfer (variant of 5 above?)

Realities Based on Project Status

- Numbers 5-8 above are now irrelevant given that GoR has decided to construct Rukarara out of own resources (option 3) and to undertake the construction of Nyabarongo using concessional debt from India Eximbank (option 4)
- Options 5-8 can be viewed as sub-sets of IPP and PPP models, either of which could be applied to the post-construction activities of the two plants
- Given the realities of both projects, Delphos International is focusing its analysis on what post-construction options are available to GoR

Nyabarongo Cost & Implications for Recommended Structure

- In April 2008, GoR agreed on a fixed-price, date certain EPC price with BHEL and AIL, at the level of $97.7 million
- This new price, which has been benchmarked by third-party consultants (including Delphos) as within the reasonable range, but which exceeds SOGREAH's estimate developed in 1999, would raise the levelized tariff for Nyabarongo to above 15 cents per kWh for a 100% privately owned IPP operation involving commercial financing
- Such a tariff would not represent a significant benefit to Electrogaz (and hence end users who need to pay the full cost of the generation) compared to the average cost in Rwanda
- It would also not be an acceptable outcome to the World Bank and IMF, given the objective of GoR taking out additional debt was to achieve the lowest possible tariff that could be passed through to end-users

Benefits of India Eximbank Concessional Loan

- The India Eximbank concessional debt to GoR can be seen as a subsidy/transfer from the Indian government to end users of electricity in Rwanda, via the GoR as obligor

- Initial model runs suggest that the India Eximbank concessional loan should allow for a reduction of approximately 7 cents per kWh in the tariff payable by Electrogaz

- Conclusion: Delphos team has focused on IPP / PPP arrangements that preserve the concessional debt element for Nyabarongo

Timing Considerations

- It was originally thought to combine the two projects into a basket for private investment, given the small size of Rukarara

- We understand that Rukarara is scheduled to be completed at the end of 2009, whereas Nyabarongo has a 45 month construction schedule that has not yet begun (i.e. completion to be expected no earlier than Q2 2012)

- This represents a timing differential of at least 2 years

- One possible option is to develop model for Rukarara as pilot project, and apply to Nyabarongo upon completion of construction => potential to maximize value of later Nyabarongo sale

Plan of presentation

Overview

Recommended structures

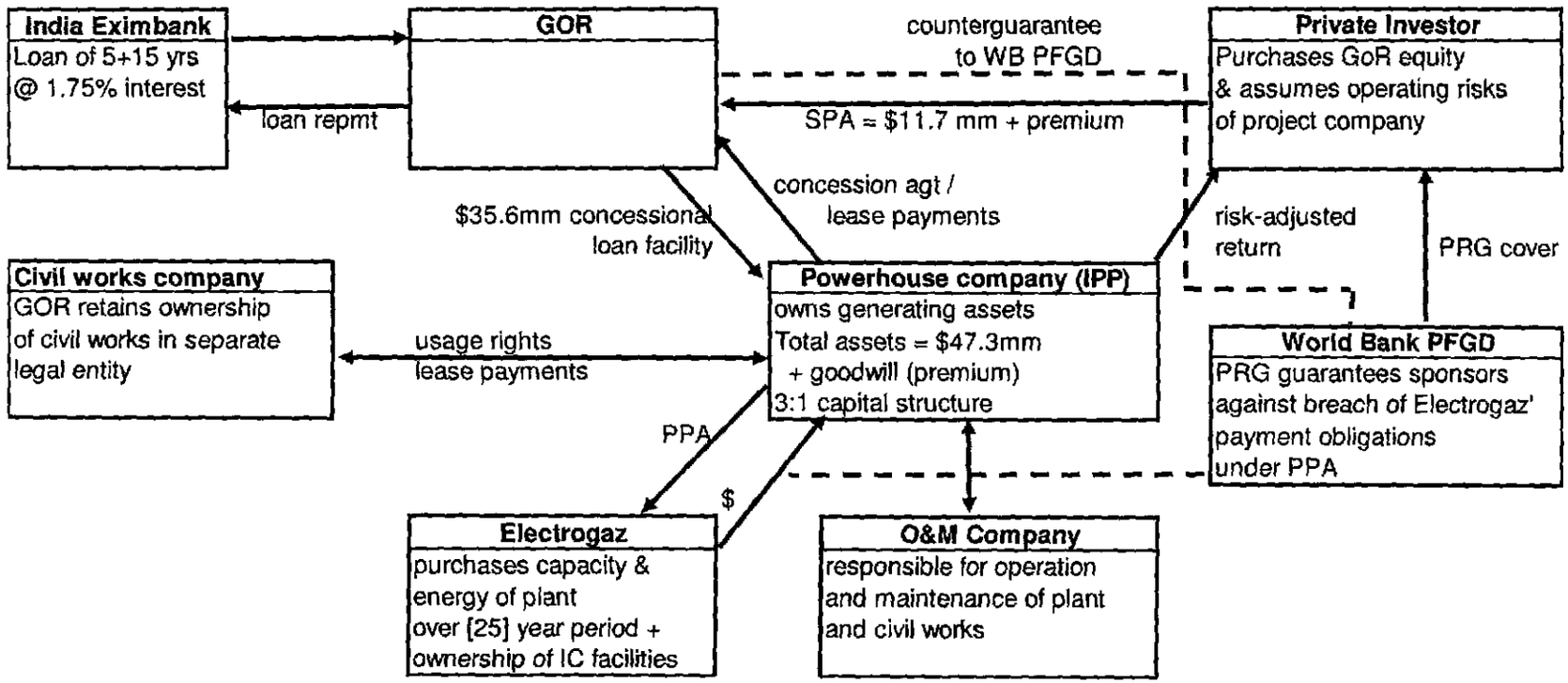
Conclusions and next steps

Pros and Cons of Private Ownership in Nyabarongo & Rukarara

- Pros:
  - Lower financial exposure to GoR (will become creditor to project company)
  - Shift operating risks (but not necessarily hydrology risk) to private sector
  - Net proceeds to GoR from sale => can be reinvested in new generation capacity
- Cons:
  - Relatively higher tariff to Electrogaz (objective should be to maximize private involvement while minimizing tariff increase)

Recommended Nyabarongo Structure - Conceptual Diagram

Nyaborongo Hydropower Transaction: Recommended Post-Completion Structure



Nyabarongo Structural Concept

- GoR passes through India Eximbank concessional loan in an amount associated with the powerhouse facilities => GoR becomes creditor to project company
- Project company enters into lease agreement with GoR for civil works => payments to GoR need to recover portion of India Eximbank loan that has not been passed through to IPP
- Project company enters into long-term PPA and O&M arrangements per term sheets (Task 6 deliverable)
- WB Project Finance Guarantees Department (PFGD) issues partial risk guarantee (PRG) to investor, covering payment default by Electrogaz under PPA
- GoR counterguarantees the PRG instrument
- Team has confirmed that such a counterguarantee of PPA payment obligations would not constitute "contracting or guaranteeing of nonconcessional external debt" per the IMF definition, and thus would not entail any effects for IMF's Debt Service Analysis.

Nyabarongo Private Structure: IPP Cash Flow

Impact to IPP/Sponsors *(USD '000s)*	2012	2013	2014	2015	2016	2017	2018	2019-25 Average
Cost of PRG Guarantee	(157.5)	-	(39.6)	(21.4)	(21.3)	(21.6)	(20.5)	(19)
Lease Payment	(2,339)	(4,679)	(4,679)	(4,679)	(4,679)	(4,679)	(4,679)	(4,679)
O&M Services Fee Paid	-	-	-	-	-	-	-	-
Income	(439)	(269)	(271)	(216)	(219)	(187)	(154)	112
Operating Cash Flow	4,067	5,163	5,055	5,003	4,997	4,846	4,769	4,424
Total Equity Contribution	(15,748)	-	-	-	-	-	-	-
Debt Service: Principal	(1,185)	(2,370)	(2,370)	(2,370)	(2,370)	(2,370)	(2,370)	(2,370)
Debt Service: Interest	(622)	(591)	(550)	(508)	(467)	(425)	(384)	(218)
Dividend Payments	-	3,962	2,136	2,125	2,160	2,051	2,015	1,836
Private Sponsors Net Cash Flow	(15,748)	3,962	2,136	2,125	2,160	2,051	2,015	1636

IRR (w/ unlevered beta)
15.00%

- **In acquiring the project, the IPP makes a payment to GOR equal to the equity portion of the project plus a premium equal to an amount that will generate a 10% return for the GOR.**
- **IPP makes an annual lease payment of approximately 7% of civil works cap ex amount per annum.**
- **PRG guarantee is priced at 100 basis points of equity investments and expected dividends.**
- **IPP makes debt service payments which correspond to the pro-rata portion of the EPC contract which the IPP owns (i.e. the power house).**

Nyabarongo Private Structure: GOR Cash Flow

Impact to GOR *(USD Thousands)*	2008	2009	2010	2011	2012	2013	2014	2015-21 Average
Lease Payment Received	-	-	-	-	2,339	4,679	4,679	4,679
O&M Services Fee Received	-	-	-	-	-	-	-	-
Nyabarongo Interest Income	-	-	-	-	622	591	550	384
Nyabarongo Principal Income	-	-	-	-	1,185	2,370	2,370	2,370
Total Equity (Contribution) Injected	(3,816)	(2,470)	(3,386)	(2,031)	15,748	-	-	-
Debt Service: Principal	-	-	-	-	(2,987)	(6,021)	(6,085)	(6,355)
Debt Service: Interest	-	-	-	-	(1,698)	(1,620)	(1,514)	(1,078)
Dividend Payments	-	-	-	-	-	-	-	-
GOR Cash Flow	(3,816)	(2,470)	(3,386)	(2,031)	15,210	(0)	(0)	(0)

IRR
10.00%

- **Receive a lease payment from the IPP for the civil works and IC facilities, as well as the principal for the IPP's pro-rata portion of the EPC-related debt and interest at 1.75% (India Exim Rate).**
- **Lease payment set to create a zero net cash flow for the GOR. As such, the lease payments end at debt service.**

Nyabarongo Public Structure: GOR Cash Flow

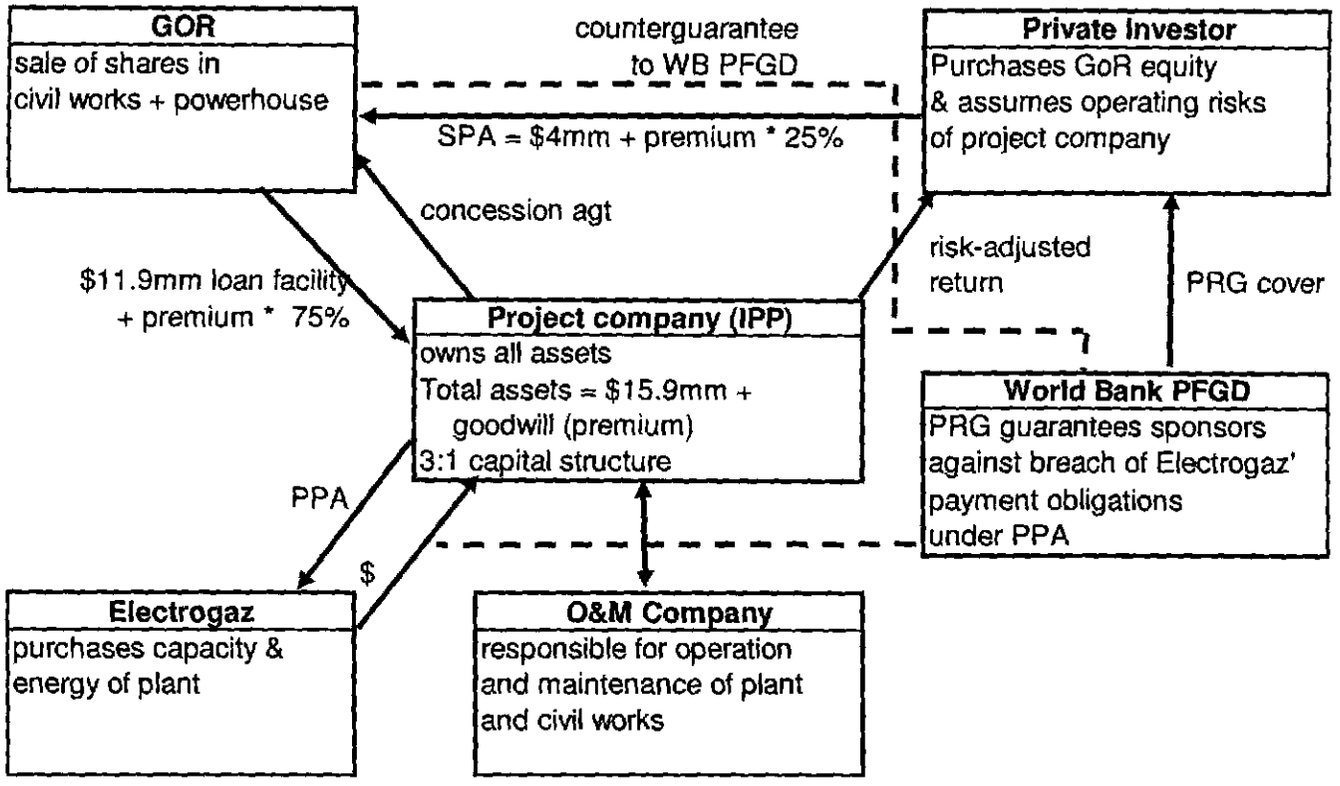
Impact to GOR *(USD Thousands)*	2008	2009	2010	2011	2012	2013	2014	2015-21 Average
Lease Payment Received	-	-	-	-	-	-	-	-
O&M Services Fee Received	-	-	-	-	-	-	-	-
Nyabarongo Interest Income	-	-	-	-	-	-	-	-
Nyabarongo Principal Income	-	-	-	-	-	-	-	-
Total Equity (Contribution) Injected	(3,836)	(2,490)	(3,406)	(2,051)	-	-	-	-
Debt Service: Principal	-	-	-	-	(2,862)	(5,799)	(5,901)	(6,331)
Debt Service: Interest	-	-	-	-	(1,710)	(1,634)	(1,532)	(1,103)
Dividend Payments	-	-	-	-	2,354	1,267	1,199	900
GOR Cash Flow	(3,836)	(2,490)	(3,406)	(2,051)	2,354	1,267	1,199	900

IRR
12.44%

- **No transfers with IPP; from the GOR perspective.**
- **Lower cost of capital supports allows for lower tariff levels.**
- **Binding constraint for this scenario is the debt service, which is tighter in later years with rising costs and constant tariffs (fixed at the B/E tariff), consequently, the GOR IRR is higher than the GOR break-even rate of 10%.**

Recommended Rukarara Structure - Conceptual Diagram

Rukarara Hydropower Transaction: Recommended Post-Completion Structure



Rukarara Structural Concept

- Same as Nyabarongo except as follows:
  - GoR converts 75% of project cost into long-term debt (with commercial terms) to project company => GoR becomes creditor to project company
  - Project company enters into concession agreement (no lease payments) with GoR for water rights usage

Rukarara Private Structure: IPP Cash Flow

Impact to IPP/Sponsors *(USD '000s)*	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019-25 Average**
Cost of PRG Guarantee	(46.00)	(2.54)	(4.48)	(4.46)	(4.46)	(4.41)	(4.26)	(4)
Lease Payment Paid	-	-	-	-	-	-	-	-
O&M Services Fee Paid	-	-	-	-	-	-	-	-
Income	330	406	447	493	524	576	633	940
Operating Cash Flow	1,972	2,016	2,014	2,014	2,029	2,014	2,014	2,014
Total Equity Contribution	(4,600)	-	-	-	-	-	-	-
Debt Service: Principal	(244)	(519)	(562)	(608)	(658)	(712)	(771)	(1,072)
Debt Service: Interest	(1,102)	(1,069)	(1,026)	(980)	(930)	(876)	(817)	(516)
Dividend Payments	254	448	446	446	441	426	426	426
Private Sponsors Net Cash Flow	(4,346)	448	446	446	441	426	426	426

IRR (w/ unlevered beta)
15.03%

- **Post completion sale of 100% of assets will be made to IPP, to be financed 25% with private equity and 75% debt financed by GOR**
- **Rukarara sold with a 'premium' of 16% above construction book value of assets in order to provide GOR with minimum 10% return.**
- **IPP makes debt service payments to the GOR at LIBOR + 4% on the debt piece, and collects dividends to achieve private equity return.**

Rukarara Private Structure: GOR Cash Flow

Impact to GOR *(USD Thousands)*	2008	2009	2010	2011	2012	2013	2014	2015-21 Average
Lease Payment Received	-	-	-	-	-	-	-	-
O&M Services Fee Received	-	-	-	-	-	-	-	-
Rukarara Principal Income	-	-	-	-	244	519	562	781
Rukarara Interest Income	-	-	-	-	1,102	1,069	1,026	807
Total Equity (Contribution) Injected	(4,496)	(8,501)	(2,865)	-	4,600	-	-	-
Debt Service: Principal	-	-	-	-	-	-	-	-
Debt Service: Interest	-	-	-	-	-	-	-	-
Dividend Payments	-	-	1,163	2,018	-	-	-	-
GOR Cash Flow	(4,496)	(8,501)	(1,701)	2,018	5,946	1,588	1,588	1,588

IRR
10.08%

- GOR subsidiary /SPV operates Rukarara during the first year and a half of operations.
- In 2012, GOR sells 100% of Rukarara at the book value of assets plus the necessary premium required to obtain a return of 10%.
- 25% of the acquisition price paid with equity up-front, with the remaining 75% financed by GOR provided debt at LIBOR + 4%.

Rukarara Public Structure: GOR Cash Flow

Impact to GOR *(USD Thousands)*	2008	2009	2010	2011	2012	2013	2014	2015-21 Average
Lease Payment Received	-	-	-	-	-	-	-	-
O&M Services Fee Received	-	-	-	-	-	-	-	-
Rukarara Principal Income	-	-	-	-	-	-	-	-
Rukarara Interest Income	-	-	-	-	-	-	-	-
Total Equity (Contribution) Injected	(4,496)	(8,501)	(2,865)	-	-	-	-	-
Debt Service: Principal	-	-	-	-	-	-	-	-
Debt Service: Interest	-	-	-	-	-	-	-	-
Dividend Payments	-	-	-	-	4,190	1,837	1,837	1,878
GOR Cash Flow	(4,496)	(8,501)	(2,865)	-	4,190	1,837	1,837	1,878

IRR
10.06%

- GOR, after financing the project with internally generated cash flows, retains ownership of the plant and realizes a return through dividends from the operating company.
- The tariff is set to generate dividends sufficient to return at least 10% to the GOR.

Fundamental Trade-offs

- A fundamental trade-off between cash flows back to the GOR (and investors) and the tariff level. By decreasing cash flows, in the private scenario, to keep the GOR return at a minimum break-even level (of 10% IRR), the tariff delta between the 100% public case and private case is less than 1 cent per kWh.
- Return/Tariff Metrics:

Private		Public	
Nyabarongo PE IRR	15.00%		
Nyabarongo PE NPV	2		
Nyabarongo Public IRR	10.00%	Nyabarongo Public IRR	12.44%
Min DSCR	1.67	Min DSCR	1.02
Average DSCR	1.85	Average DSCR	1.19
Tariff (US cents per kWh)	7.70 c/kWh	Tariff (US cents per kWh)	6.95 c/kWh
Rukarara PE IRR	15.03%		
Rukarara PE NPV	10		
Rukarara Public IRR	10.08%	Rukarara Public IRR	10.06%
Min DSCR	1.27	Min DSCR	n/a
Average DSCR	1.36	Average DSCR	n/a
Tariff (US cents per kWh)	6.14 c/kWh	Tariff (US cents per kWh)	5.69 c/kWh

- Other trade offs to be considered include exposure level, demonstration effects, and investment levels, among other things...

Fundamental Trade-offs

	Public	Private
Tariff (US cents per kWh)	6.95 (N), 5.69 (R)	7.70 (N), 6.14 (R)
GoR exposure	■Remains high after 2012 (see next slide)	■Lower than in public scenario, declines from privatization
GoR balance sheet	■GoR keeps asset on its books	■GoR becomes creditor to the IPP
Proceeds from sale	■No proceeds to reinvest	■GoR reinvests the proceeds of sales to IPP in future projects ($21.7mn)
Demonstration effect	■No positive signal to private investors	■Encourages future private investment •Lowers perceived risk •Lowers required returns in future

GOR Financial Exposure

million USD	GOR Financial exposure									
	2008		2009		2010		2011		2012	
	Total GOR debt	% of GDP	Total GOR debt	% of GDP	Total GOR debt	% of GDP	Total GOR debt	% of GDP	Total GOR debt	% of GDP
Scenario 0 - Baseline	**701.58**	**23.98%**	**771.74**	**25.24%**	**848.92**	**26.57%**	**933.81**	**27.97%**	**1027.19**	**29.44%**
Private	733.18	28.49%	823.72	30.62%	928.82	33.05%	1,030.37	35.08%	1,086.57	34.94%
100% Public	733.18	28.49%	823.72	30.62%	928.82	33.05%	1,030.37	35.08%	**1,120.53**	**36.51%**

- GOR Debt at a percentage of GDP is expected to increase with the India Exim facility for Nyabarongo through construction.
- Under the private scenario, the debt as a % of GDP starts to decline in the year of privatization, while in the 100% public scenario, exposure continues to increase.

NPV of External Debt Service: India Exim

million USD	NPV of Public External Debt									
	2008		2009		2010		2011		2012	
	$	% of exports	$	% of exports	$	% of exports	$	% of exports	$	% of exports
Scenario 0 - Baseline	202.30	64.37%	212.41	65.03%	223.03	65.71%	234.18	66.39%	245.89	67.08%
w India Exim Debt	261.33	83.15%	274.70	84.11%	288.74	85.07%	303.46	86.03%	316.92	87.00%

- NPV as a percentage of exports increases throughout the construction phase as repayment draws nearer.
- The marginal NPV (i.e. debt service related to this project) is expected to peak in 2012 before starting to decline once principal repayments commence.
- Regardless of private participation in the post-construction phase; this impact will be the same.

Private Structure – Macroeconomic Benefits

million USD	FDI IMPACT ON GDP									
	2008		2009		2010		2011		2012	
	Total FDI	Total GDP*	Total FDI	Total GDP*	Total FDI	Total GDP*	Total FDI	Total GDP*	Total FDI	Total GDP*
100% Public	33.34	2,574	39.88	2,690	47.71	2,811	57.07	2,937	68.27	3,069
IPP	33.34	2,574	39.88	2,690	47.71	2,811	57.07	2,937	89.96	3,110

**excludes electricity price change impact on GDP*

- Implementing private structure for Nyabarongo and Rukarara will result in a higher FDI level by $21.7 million, which are expected to create spill over effects into GDP growth.

Recommended Transition Structure

- Based on feedback from MININFRA, the Team recommends that GoR wait until 2012 when Nyabarongo is completed to sell both plants
- Interim arrangements should be put in place where:
  - GoR establishes SPVs as legal entities to hold Nyabarongo and Rukarara assets (2 companies for Nyabarongo – powerhouse and civil works / IC facilities; 1 company for Rukarara)
  - Accounting books should be kept separate from beginning => facilitates privatization upon completion
  - Rukarara directly employs a core management team (2-3 individuals and support staff) capable of running the plant more efficiently and at lower cost than an outsourced O&M contract, given the project's relatively small size
  - Rukarara is run at cost during initial operation period: i.e. passthrough of fixed and variable O&M costs but not including return on capital invested by GoR

Further Issues for Consideration

- Explore IFI loan alongside equity for privatization? Pros include demonstration for later projects; cons include $ amount (not in sweet spot of some IFIs) and need to match income with liabilities (more debt recovered upfront => bigger mismatch)
- 'Additionality' with development banks (refinancing does not support new investment, even if it encourages private sector participation in Rwanda's power generation sector)
- Identify potential equity investors in contemplated range of $5-15 million for Rukarara, Nyabarongo or combination of R+N (Task 7)
- DSCRs will rise over time due to level principal / declining interest payments: possible advisability to structure slightly higher front-end tariff in PPA

Estimated Tariff Deltas – Private vs Public Ownership

Cents per kWh	Nya	Ruk
Public investment case	6.95	5.69
Private investment case	7.70	6.14
Difference Private vs Public	0.75	0.45

Nyabarongo Sensitivity Analysis: IRRs to Private Equity => Tariff Delta Compared to 100% Public Case

	IRR (unlevered beta)	Tariff Delta from Public Case	IRR (levered beta)	Tariff Delta from Public Case
	12%	0.48	18.88%	1.07
	13%	0.57	20.05%	1.17
	14%	0.66	21.22%	1.26
Base Case	15%	0.75	22.37%	1.36
	16%	0.83		
Break-Even	**17.92%**	**0.99**		

All tariff deltas in US cents per kWh.

- **Base Case Assumptions: 4.04% Risk Free Rate, 1.16 Beta for IPP, 6% Market Premium, 4.00% Rwanda Country Risk.**
- **Sensitivity Analysis: 17.92% is highest IRR to offer Private Equity without breaking delta of 1 cent per kWh between private and public cases.**

Plan of presentation

Overview

Recommended structures

Conclusions and next steps

Next Steps

- Set up legal entity (private company vs. parastatal) to own project assets, keep proper accounting records, issue financial statements, etc.
- Confirm participation of insurers / lenders (WB/IDA, MIGA, etc) in transaction concept
- Finalize project structure and supporting legal documentation
- Fix PPA tariff in accordance with government energy policy objectives (e.g. more affordable electricity for end-users while attracting private sector investment)
- GoR should announce minimum acceptable 'budget' for sale (i.e. minimum price) at time of tender

Conclusions

- Need to fix project concept in terms of contemplated credit enhancement structure
- Need to test minimum credit enhancement that will provide required support to attract private investor on reasonable terms (Task 7 and follow-on support under TOR)
- No matter what structure involving the private sector ownership is chosen, the first step is to create separate legal entities to own the assets for both Nyabarongo and Rukarara projects. Books need to be maintained on a stand-alone basis and financial statements compiled for ease of bidder reference.
- Request donor funding to develop tender documentation including form agreements?

Appendix G, Task 7: Investment Memorandum

RWANDA HYDROPOWER PLANTS

INVESTMENT MEMORANDUM

SPONSORED BY:

USTDA
UNITED STATES TRADE AND DEVELOPMENT AGENCY

on behalf of

RWANDA MINISTRY OF INFRASTRUCTURE

Prepared by

Delphos International
London Economics International, LLC
Hunton & Williams LLP

SEPTEMBER 2009

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1. Executive Summary

Rwanda, located in the east-central of Africa, has seen significant changes in its economy since 1994, among them increased private sector initiatives and a more liberalized market. According to a release by the Government of the Republic of Rwanda ("GoR"), gross domestic product ("GDP") growth in year 2007 was 6%. However, Rwanda remains a very low income country, of which the inadequate infrastructure is a significant obstacle to social and economical progress. There is therefore an urgent need to meet the rapidly mounting demand for energy with Rwanda's growing population and economic activities.

In its Request for Proposals published in 2006, the USTDA identified that only 2.4% of the Rwandan population had access to electrical power supply and only 8% of energy need is fulfilled by electricity. Firewood, charcoal, and agricultural residues are predominant energy sources. The lack of investment in electricity generation, which results in deforestation, overuse of existing hydropower capacity, and inevitably deterioration of water supply, has urged the GoR to seek new power capacity. The GoR has taken steps to abolish the legislated monopoly enjoyed by the state-owned Electrogaz, paving the way for private sector involvement in electricity generation. Transmission and distribution were also opened to third party access by the start of 2009. In that regards, the development of the two hydropower plants on the Nyabarongo and Rukarara rivers is aligned with the GoR's energy strategy, adding a total of 38MW into the nation's power generation capacity.

The hydropower potential of the two rivers was identified as early as 1977, in the case of Rukarara. In 1999, the French engineering firm, Société Grenobloise d'Etudes et d'Applications Hydrauliques ("SOGREAH"), conducted a detailed feasibility study and conceptual design in Nyabarongo for a hydropower plant. Based on the prepared feasibility studies, the GoR proceeded to the next step of financing and constructing the projects in 2006. Presently, the EPC contractors for both projects have been selected and the construction of Rukarara Hydropower Plant has started. The EPC contractors are experienced in designing, engineering, procuring, constructing, commissioning, testing, and completing hydropower stations. The construction cost of the 9.5MW Rukarara Hydropower Plant ("Rukarara HPP"), is estimated at US $16 million. Upon completion, the hydropower plant in Nyabarongo, will be the biggest hydropower plant in the country with 27.8MW capacity and will cost an estimated $98 million ("Nyabarongo HPP").

Name	Location	Capacity (MW)	Cost (US$M)
Rukarara	Gikongoro	9.5	16.1
Nyabarongo	Ngororero	27.8	97.7

The GoR is funding the construction of Rukarara HPP from its own resources, and has received credit facilities from the Export Import Bank of India for the development of Nyabarongo HPP. It is currently considering whether to seek creditworthy and experienced power operators to take ownership of the two power projects' assets upon their completion. The GoR intends to operate Rukarara HPP through a subsidiary operator for a limited period and is considering to privatize Rukarara HPP (together with Nyabarongo HPP) upon the completion of Nyabarongo HPP

construction. Rukarara HPP (the smaller asset) and Nyabarongo HPP (the larger asset) could be either 100% or partially privatized.

2. Rwandan Macroeconomic Overview

Rwanda has exhibited significant progress in recovering from the 1994 civil war. Recent historical values of key macroeconomics indicators for the Rwandan economy are presented in Figure 1.

Figure 1. Selected macroeconomic indicators

	2004[a]	2005[a]	2006[a]	2007[a]	2008[b]
GDP at market prices (Rwfr bn)	1,054.3	1,197.2	1,402.1[b]	1,662.4[b]	2,162.7
GDP (US$ bn)	1.8	2.2	2.5[b]	3.0[b]	3.9
Real GDP growth (%)	4.0	6.0	7.3[b]	7.9[b]	11.2
Consumer price inflation (av; %)	12.3	9.0	8.9	9.1	15.4[a]
Population (m)	9.1	9.2	9.5	9.7	10.0
Exports of goods fob (US$ m)	98.0	128.0	145.0	184.0	212.8
Imports of goods fob (US$ m)	276.0	355.0	488.0	637.0	808.6
Current-account balance (US$ m)	-198.0	-84.0	-180.0	-147.0	-265.4
Foreign-exchange reserves excl gold (US$ m)	314.6	405.8	439.7	552.8	596.3
Exchange rate (av) Rwfr:US$	574.6	555.8	552.6	548.3	549.3[a]

[a] Actual. [b] Economist Intelligence Unit estimates.

Source: EIU, "Country Report: Rwanda," May 2009

There were several economic shocks in the first half of 2008. Political and social upheavals in neighboring Kenya led to the closing of Mombasa's port, an essential gateway for shipments into and out of the land-locked country. While there was very little transport of goods through Kenya in January, imports and exports through the country picked up again in February.

2.1 Domestic Production

The country recorded exceptionally high real GDP growth rates from 1995 to 2002 as the economy recovered from the genocide and earlier civil war, averaging 7.4% between 1999 and 2002, but was below 1% in 2003, the country's lowest annual growth rate since 1994. Estimates for real economic growth in 2004-06 have been subject to revision, but averaged just over 5% per year, driven by improved agricultural output and continued growth in services and, to a lesser extent, construction. Real GDP growth remained strong at 6% in 2007.[67] As a result of the poor global economic climate, the Economist Intelligence Unit forecasts that GDP growth will slow to 5.5% in 2009 and 6% in 2010.[68]

2.2 Fiscal Policy and Performance

Government receipts have increased significantly as a result of improved economic growth and efficiency in tax collection. This has allowed for increased government spending on priority items, particularly in the areas of infrastructure, salary increases for school and hospital staff and agricultural improvement.

Government receipts are projected to remain stable as a share of GDP throughout 2008 and 2009; there will likely be some erosion of import duties due to trade liberalization while the most

[67] The Economist Intelligent Unit, "Country Profile: Rwanda," 2008
[68] The Economist Intelligent Unit, "Country Profile: Rwanda," May 2009

promising opportunities for increased tax collection have already been exploited. The 2008 budget is focused on financing agriculture, energy, health, infrastructure and education. Government debt, which was US$1.5 billion at the end of 2005, was reduced significantly to US$416.4 million, equivalent to 14.7% of GDP, in 2007. The cost of servicing this debt will be substantially reduced in 2008-09 due to multilateral debt relief.

2.3 Inflation

The outlook for inflation in 2008 is troubling because of high international oil and food prices exacerbated by the Mombasa port closing. Fuel import costs have risen significantly throughout the first half of 2008 as alternative supply routes through Tanzania have replaced transportation routes through Kenya. While a good local harvest temporarily offset the impact of rising world food prices, allowing the headline inflation to remain in single digits, core inflation continued to increase, peaking at 11% in March 2008. The inflation rates for 2008 and 2009 are forecast to be 8.5% and 8% respectively. Over the past two years, the Rwandan Franc has remained stable against the US Dollar, and is expected to remain so in 2008.

2.4 International Transactions

2.4.1 Trade

Figure 2 overviews imports and exports from 1996 through 2006, with breakdowns across major categories.

Figure 2. Historical trade statistics.

Trade (US$ millions)		1986	1996	2005	2006
Total Exports (fob)		186	62	125	142
	Coffee	143	43	38	54
	Tea	20	9	24	32
	Manufactures	10	5	29	30
Total Imports (fob)		323	257	374	438
	Food	38	51	69	70
	Fuel and energy	55	27	71	58
	Capital goods	85	54	76	73

Source: Development Economics LDB Database

Between 2001 and 2006, Rwanda exhibited strong trade performance, with exports growing at an average of 12.5% per year. In 2006, exports reached US$152 million, more than double the 2002 level.[69] The growth in exports was primarily fuelled by coffee, tourism and tea, which accounted for 60% of total exports.

While exports have grown substantially since the 1994 civil war, imports have grown even more. This has increased the country's trade deficit from 8% of GDP in 2001 to 12% of GDP in 2006[70]. The rise in imports is due primarily to increased demand for capital and intermediate goods for development purposes. Also, increased private consumption has led to a substantial rise in demand for petroleum products.

[69] African Development Bank, "African Economic Outlook: Rwanda", 2008
[70] The Economist Intelligent Unit, "Country Profile: Rwanda," 2006

2.4.2 Foreign Direct Investment

The share of private investment substantially increased starting in the late 1990s, primarily as a result of newly instituted government policies for privatization and liberalization. This growth has moderated over the years, with the private capital formation measured at 20% in 2007.[71] Private capital formation is expected to stabilize in 2008 and 2009. The main reasons for the decline in foreign direct investment are due to Rwanda's land-locked position, deficient infrastructure, and small domestic market which together constrain purchasing power.

However, the focus of Rwandan legislation and policies in the last several years has aimed to increase the amount of foreign direct investment. Rwanda established a new investment law (March 2006), which outlines investment and export promotion and facilitation. The new law is also intended to assist investors in obtaining licenses and to provide further incentives to invest. In order to spur economic growth through investment, the GoR established a policy that all sectors should open to foreign investment.

Additionally, Rwanda participates in organizations that also promote foreign investment: the Multilateral Investment Guarantee Agency ("MIGA), which provides guarantees against non-commercial risks; the International Center for the Settlement "of Investment Disputes ("ICSID"); and the African Trade Insurance Agency ("ATI"), for which Rwanda is the founding member.

2.4.3 International Aid

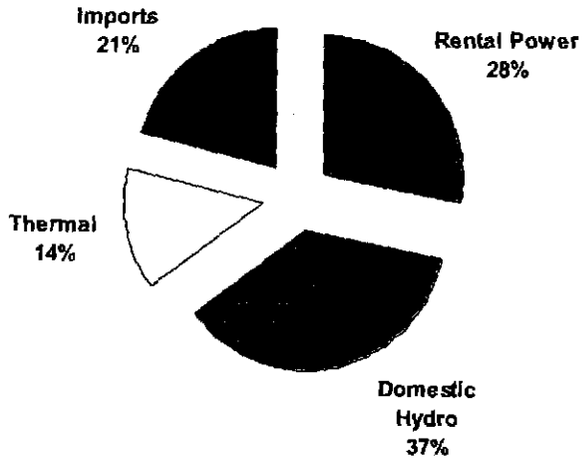
The Rwandan economy is heavily dependent on foreign aid, which has led to large current account deficits. External aid currently finances approximately half of Rwanda's total government budget. There were substantial aid flows throughout the period immediately following the civil war, peaking at US$ 700 million per year between 1994 and 1996. Since then, foreign aid has averaged US$ 340 million annually.[72]

[71] Ibid
[72] The Economist Intelligent Unit, "Country Profile: Rwanda," 2006

3. Electricity Sector Overview

In 2006, thermal sources accounted for 57% of Rwanda's total electricity supply, according to data provided by the Rwandan Ministry of Infrastructure ("MININFRA"). In 2008, domestic hydroelectric sources cut into thermal's share of the electricity market, and were responsible for 37% of total electricity supply, while thermal supply shrank to 42% of the total. Figure 3 below provides more details on the break-down of electricity supply in Rwanda in 2008 (Rental Power sources are thermal energy sourced).

Figure 3. Rwanda Electricity Sources.



Sources: Energy Joint Budget Support Review, April 2008, Rwanda MININFRA

The Government began a process of liberalizing the electricity market in 1999 by promulgating law no. 18/99. This law removed the right of Electrogaz, the vertically integrated utility, to monopolize the production and distribution of electricity. The company is currently being restructured to allow for increased private sector participation within the industry.

The Rwanda Utilities Regulatory Agency ("RURA") was established as part of the liberalization process. The Agency is generally perceived as relatively inexperienced and not fully independent of the Ministry of Infrastructure.

In 2008, approximately 118,000 customers had access to electricity, and 50% of the institutions providing social and administrative services have electricity coverage.[73] In 2006, daily peak demand averaged 50 MW, around 5 MW more than the total domestic and imported available capacity[74]. Electricity demand has been increasing rapidly, and was estimated at 229.7 GWh/year in 2007. The Ministry of Infrastructure's base case scenario expects that peak

[73] IMF, *Rwanda: Poverty Reduction Strategy Paper*, Washington: USA, March 2008
[74] Ministry of Infrastructure. *Investment Opportunities in the Energy Sector*. Kigali, Rwanda: January 2007.

electricity demand in Rwanda will grow by an annual average of 17.7% over the next ten years.[75] Electrogaz rented diesel-based generators from Scotland-based Aggreko, thereby considerably reducing the capacity deficit and associated service disruptions. These generators now supply approximately a quarter of the country's electricity. Installed capacity, as of July 2009, was 85.3 MW. Two plants, Rusizi 1 and 2, are located in the Democratic Republic of Congo, and so the national installed capacity is approximately 70 MW. However, due to the low lake levels, as well as a lack of rehabilitation of certain plants, the available capacity is significantly lower, at 59.10 MW, as illustrated below in Figure 4.

Figure 4. Installed and available capacity – Rwanda July 2009 (grid-connected)

Category	Name	Installed Capacity (MW)	Available Capacity (MW)
Hydropower	Ntaruka	11.5	7.25
	Mukungwa	12	12
	Gihira	1.8	0.7
	Gisenyi	1.2	0
Regional Hydropower	Rusizi I	3.5	3.5
	Rusizi II	12	8
Thermal Power	Jabana HFO	20.5	20.5
	Jabana Diesel	6.24	4.8
Rented Thermal Power	Gikondo Diesel	10	0[1]
Solar Power	Kigali Solar	0.25	0.25
Methane Gas	KP1	4.2	1.8
Total		**85.3**	**59.10**

(1) Contract under negotiation, by end July this should be online again
Source: Rwanda Ministry of Infrastructure

Because the government requires the electricity sector to be largely self-financing, the high installation and fuel costs of the diesel generators have been passed through to customers in the form of increased tariffs. At present, the flat tariff is 112 RWF per kilowatt-hour for residential customers. It is expected that tariffs will be modified over time as cheaper power sources become available.

Looking to the future, there is hope that the 55 billion cubic meters of methane gas reserves estimated within Lake Kivu will help mitigate ongoing shortages of electricity supply. The gas pilot project has been on the grid since November 2008, currently supplying around 1.8MW of capacity to the grid. Contour Global laid the foundation stone for their 100MW project in June 2009 and the first phase is expected to be online by fourth quarter 2010. Additionally, more than

[75] Ibid

20 mini-hydro projects are currently in the works, and the government is focusing on increasing access through the design of long distance transmission and local distribution networks.[76]

With respect to connectivity and Rwanda's distribution grid, there is a large electricity roll-out program on-going that will allow the country to improve access to electricity and reach 16% connectivity by 2012, whereas Rwanda is currently at 6%[77].

[76] African Development Bank, *African Economic Outlook: Rwanda*, 2008
[77] Current Status of the National Electricity Access Roll Out Programme (EARP), Ministry of Infrastructure

4. Legal and Regulatory Analysis

4.1 Overview of the Rwandan Energy Sector Regulatory Environment

Electrogaz, the vertically integrated public utility, wholly held by GoR, owns the electricity network in Rwanda. Electrogaz has power generating facilities with a total installed capacity of approximately 57 MW, which includes 15 MW of capacity from two Aggreko rental generators.[78] The available capacity for Electrogaz in January 2007 was about 33 MW due in large part to low rainfall hindering hydropower output.[79] Electrogaz imports an additional 11 to 12 MW of power from Rusizi I and II, the two hydropower stations on the Rusizi River. The peak demand for energy capacity in Rwanda in 2006 was approximately 50MW, which was 5 MW, or more, in excess of the total domestic and imported available capacity. MININFRA predicts that Rwanda's peak demand will grow by 25% per year for the foreseeable future.[80]

On the whole, Rwanda's demand for power exceeds its supply,- this provides a key investment opportunity in power generation that is urgently needed to help overcome Rwanda's electricity shortfall.. Since the mid 1990s, Rwanda has made significant progress in the areas of transparency, impartiality and predictability in its regulatory structure with respect to the energy sector. To further this progress, in October 2004, MININFRA set forth the Energy Policy for Rwanda ("Energy Policy") to outline GoR's policy principles for the increased development of the energy sector and provide guidelines for the reform. One of GoR's primary goals for energy sector reform is to establish a fully adequate institutional framework in Rwanda that facilitates private investment in generation and produces reliable and affordable energy supplies countrywide. Another GoR objective, expressed in the Energy Policy, is to ensure that (i) new legislation provides a clear division of roles and responsibilities among GoR, the ministry in charge of energy, and the Rwanda Utilities Regulatory Agency ("RURA") and (ii) oversight and management of the energy sector are in line with global trends regarding market liberalization and accountability.

The Energy Policy demonstrates to investors GoR's commitment to: (i) redesign the electricity industry to permit and encourage private sector investment, and (ii) develop an investment infrastructure that promotes stability and economic growth. GoR further demonstrated commitment to develop the private sector in 2005 by establishing the Business Law Reform Commission ("Reform Commission"). We understand that the Reform Commission was formed by the Cabinet with the mandate to review all of Rwanda's business laws, and recommend new or revised laws, as necessary, to remove barriers to private investment and incorporate international best practices.

GoR's recent initiatives to promote better governance and improve investment infrastructure will enhance private sector investment and economic growth. GoR's full implementation of the legislative reforms proposed by the Reform Commission will solidify transparent laws governing contract, property, and other business matters, and provide for a commercial court system to

[78] Ministry of Infrastructure. Investment Opportunities in the Energy Sector. Kigali, Rwanda: January 2007
[79] ibid, p. 3
[80] ibid, p. 4

adjudicate business disputes and enforce contract rights. While Rwanda's regulatory and legislative frameworks continue to evolve, private investment can be based in well structured contracts (e.g., PPAs, lease agreements, concession agreements) that establish the legislative framework for the project and provide for recourse to an international tribunal.

4.2 Description of Ordinances and Regulations Deemed Relevant to the Project

4.2.1 Electricity Laws

TDI reviewed the Law Establishing an Agency for the Regulation of Certain Public Utilities (N° 39/2001, 13 Sept. 2001) ("RURA Law"). RURA Law created RURA, the multi-sector regulatory body responsible for the oversight and regulation of the telecommunications, electricity, natural gas, water, waste (solid and wastewater), and transportation industries. RURA is an autonomous agency responsible for: (i) ensuring certain public utilities supply services throughout the country to meet the demands of individuals and businesses, (ii) ensuring compliance by the public utilities with the relevant utility laws, and (iii) promoting private sector investment in public utilities.

According to Article 13, RURA's governing Regulatory Board, is required to act in an "independent, open, transparent and objective manner" and RURA is prohibited from showing any form of discrimination in carrying out its activities which supports private investment. Article 22 of the RURA Law authorizes the Regulatory Board to make proposals to a Minister for new legislation to govern any public utility sector. RURA's authority propose rules applicable to all market participants that facilitate effective competition, non-discriminatory network access, and a level playing field to facilitate greater private sector participation and to maximize consumer benefits. Article 41 of the RURA Law encourages a competitive market favorable to investment by deeming as anticompetitive and voiding any agreement with a public utility that directly or indirectly fixes tariffs, or fixes purchasing or selling prices, or enters into agreement that has as objective or effect of preventing or restricting competition.

> Comment: Prior to issuing this IM, GoR may wish to consider that private investors in the Projects will likely require GoR to provide contract rights that minimize the risk of future regulations adversely affecting the Projects. Investors will likely expect GoR to enter into an "implementation agreement" with them that defines GoR's responsibilities for managing certain legal, regulatory, and political risks during the terms of the Projects in order to establish a predictable legal framework and provide protections for "change in law" events during the project term.

4.2.2 Investment Laws

TDI reviewed the following laws on the regulation of private investment in Rwanda: Law Establishing the Rwanda Investment Promotion Agency (N° 14/98, 18 Dec. 1998); Law Determining the Responsibilities, Organisation and Functioning of Rwanda Investment and Export Promotion Agency (RIEPA) (N° 45/2006, 10 May 2006); and Law Relating to Investment and Export Promotion and Facilitation (N°26/2005, 17 Dec. 2005).

2.1.1.1 RIPA/RIEPA Law

The Law Establishing the Rwanda Investment Promotion Agency ("RIPA Law") created the Rwanda Investment Promotion Agency in 1998. The RIPA Law also contains two chapters explaining the requirements for establishing a registered investment project in Rwanda and describing the investment incentives available to Rwandan registered investment project companies. In 2006, GoR enacted the Law Determining the Responsibilities, Organisation and Functioning of Rwanda Investment and Export Promotion Agency ("RIEPA Law"), which sets forth the responsibilities for the promotion of investments and exports by the national agency "referred to as [the] 'Rwanda Investment and Export Promotion Agency'" ("RIEPA").

RIEPA's primary responsibilities include the following: participate in activities and programs designed to attract investment in Rwanda; research, consolidate, and publish information that markets Rwanda investment opportunities; advise potential investors on the legal, financial, and other regulatory requirements for investing in Rwanda; assist investors with securing certificates, permits, and authorizations required by law to implement their projects; and advise GoR on national investment policies and export services.

2.1.1.2 Investment Law

In early 2006 GoR promulgated the Law Relating to Investment and Export Promotion and Facilitation ("Investment Law"). The Investment Law aims to stimulate foreign and domestic investment in Rwanda by providing investment incentives and establishing certain protections over foreign investments. The Investment Law also governs RIEPA's interaction with registered business enterprises.

The Investment Law sets forth the application procedures for investment project registration. Article 33 permits international arbitration for resolution of disputes between the investor and GoR so long as the dispute resolution mechanism is provided for in the certificate of registration for the investment enterprise. Further, the Investment Law offers certain significant tax deductions for registered investors. Other offered investment incentives include exemption from VAT on imports of goods and services, and an automatic right to work permits and visas for three expatriate workers. Article 19 permits the Cabinet to authorize additional incentives depending on the nature of the project and the importance of the project to the nation.

4.2.3 Procurement Laws

TDI reviewed the following procurement laws: Law on Public Procurement (N° 12/2007, 27 Mar. 2007); and Presidential Order Establishing Public Procurement Procedures (N° 28/01, 19 Jul. 2004).

2.1.1.3 Procurement Law

The Law on Public Procurement ("Procurement Law") expands the rules, regulations, and procedures applicable to public procurement to promote greater transparency, efficiency, and accountability in the public procurement process. The Procurement Law applies broadly to the procurement of all works, goods, consulting services or other services by any central or local GoR authority, parastatal, public institution, commission, agency, GoR project or specialized institution. Article 3 excludes from the scope of the Procurement Law procurements pursuant to an agreement with GoR that requires the use of other procurement rules to the extent those rules

are inconsistent with the Procurement Law. Article 5 requires the Minister in charge of public procurement to establish standard bidding documents and procurement regulations by Ministerial Order.

> *Comment: Prior to issuing this IM, GoR may wish to consider whether the Minister should promulgate transparent, non-discriminatory procurement regulations to demonstrate to bidders the fairness of the procurement procedures, and stimulate investment and competition.*

The Procurement Law sets forth different procurement methods and conditions for the use of each method. All tenders will require bid security in an amount up to 2% of the tender price and the successful bidder will be required to provide performance security in an amount between 5% and 10% of the contract price (see Articles 31, 43, and 75). The Procurement Law permits foreign investors to bid in open domestic tenders and permits procuring entities to issue international tenders.

2.1.1.4 Procurement Order

The Presidential Order Establishing Public Procurement Procedures ("Procurement Order") entrusts the management of public procurements to the National Tender Board ("NTB"). The Board of Governors for NTB approves proposals for the award of tenders and regulates the general policies of NTB. The Procurement Order sets forth detailed procedures for optional public procurement processes and permits single source procurement via direct agreements in certain limited circumstances. However, the Procurement Order appears to have been superseded by the Procurement Law.

> *Comment: Prior to issuing this IM, may wish to address whether the Procurement Order has in fact have been superseded by the Procurement Law in order to provide investors with clarity and certainty regarding procurement laws.*

4.2.4 Land and Water Resource Laws

TDI reviewed the following laws regarding the use of land and water resources in Rwanda: Law Determining the Use and Management of Land in Rwanda (N° 08/2005, 14 Jul. 2005); and Presidential Order Determining the Exact Number of Years of Land Lease (N° 30/01, 29 Jun. 2007); Law Relating to Expropriation in the Public Interest (N° 18/2007, 19 Apr. 2007).

2.1.1.5 Land Law

The Law Determining the Use and Management of Land in Rwanda ("*Land Law*") reserves all: (i) land, (ii) lake, river, and underground waters, and (iii) minerals and "other wealth underground" as public domain (Articles 3, 13, and 55). The Land Law specifies that GoR has supreme power to manage all land, with the exception of rights given to the people, and prohibits the change of course of the waters without permission from the competent authorities. Article 24 of the Land Law permits GoR to lease public land to others for a period of time between three and 99 years as determined by a Presidential Order. Article 6 of the Land Law grants any person or business that invests in Rwanda "full rights of ownership of land" and states that the Minister

of Lands will determine the "procedure to obtain authentic documents of such personal property."

> Comment: *Prior to issuing this IM, GoR may wish to consider that in order to facilitate private investment in the Projects the Minister should promulgate transparent, equitable, administrative procedures for investors to follow to obtain the necessary land titles or other documents evidencing land ownership. Investors will also want to know if a minimum dollar amount of investment is required to qualify for land ownership pursuant to Article 6 and what, if any, other restrictions apply when obtaining land rights pursuant to an investment in Rwanda.*

2.1.1.6 Presidential Order on Lease Terms

The Presidential Order Determining the Exact Number of Years of Land Lease ("*Lease Term Order*") establishes the term for leases of land based on: (i) the category of land and (ii) the use of the land. Article 7 stipulates that anyone who owns land designated for certain specified activities, including industrial and commercial, is "entitled to full ownership title upon request and . . . land registration, without waiting elapse of the lease period."

> Comment: *Prior to issuing this IM, GoR may wish to consider that trying to understand the Lease Term Order and the interplay between the Lease Term Order with the Land Law is challenging. To facilitate private sector investment, GoR should consider revising the Land Law to incorporate the requirements of the Lease Term Order, and clarify any ambiguities.*

2.1.1.7 Expropriation Law

The Law Relating to Expropriation in the Public Interest ("*Expropriation Law*") sets forth the procedures GoR must follow when expropriating private land in the public interest. Article 5 delineates 23 acts that are considered "in the public interest" and justify expropriation, including the establishment of water dams and electric lines. The Expropriation Law allows for due process prior to the taking of land and provides appeal rights for expropriated parties to challenge the permissibility of the expropriation and the amount of compensation. Article 22 states that compensation shall be calculated considering the prevailing market prices for the value of the land and the activities conducted on the land. Article 23 provides that "just compensation shall be awarded to the expropriated person before" relocation, however, if an expropriated party appeals the amount of the compensation award to the courts then Article 26 permits GoR to pay the expropriated party the amount approved by the Land Commission and continue with the taking of the land prior to final resolution by the courts of the appropriate compensation amount.

> Comment: *Prior to issuing this IM, GoR may wish to consider that private investors, which are often backed by international lenders, typically require the host country government to enter into a contract that specifies the formula for calculating expropriation compensation in the event the government directly or indirectly expropriates or adversely affects the project, such as through a change in law event, or if the government elects to assume control of the project following*

a project company default. The investors and lenders will want to ensure that, in the event of expropriation, the compensation will be sufficient to cover at least the outstanding debt and a return of equity. To facilitate private investment in the Projects, GoR should consider revising Articles 22 and 26 of the Expropriation Law, in the case of expropriation of an infrastructure project, to permit: (i) GoR to agree by contract to the method of calculating "just compensation," (ii) final appeal to an international arbitral tribunal, and (iii) injunction of further expropriation measures until completion of all dispute resolution proceedings.

4.2.5 Environmental Laws

TDI reviewed the following laws regarding environmental protection in Rwanda: Law Determining the Organisation, Functioning, and Responsibilities of Rwanda Environment Management Authority (N° 16/2006, 3 Apr. 2006); and Law Determining the Modalities of Protection, Conservation, and Promotion of Environment in Rwanda (N° 4/2005, 8 Apr. 2005).

2.1.1.8 REMA Law

The Law Determining the Organisation, Functioning, and Responsibilities of the Rwanda Environment Management Authority ("*REMA Law*") established REMA to implement GoR environmental policy and supervise environmental management in Rwanda. REMA is required to examine and approve all environmental impact assessment reports at any level of socio-economic activity undertaken by a person or entity and has the right to suspend activities that do not comply with the Law Determining the Modalities of Protection, Conservation, and Promotion of Environment in Rwanda ("*Law on Environment*").

2.1.1.9 Law on Environment

The Law on Environment determines the modalities of protecting, conserving, and promoting the environment in Rwanda. Article 17 of the Law provides that any actions affecting the use of water resources shall always be subject to a prior environmental impact assessment, and Article 30 specifically states that the construction of dams is subject to environmental impact assessment. Article 40 creates an affirmative duty for all public entities, private organizations, and individuals to conserve the environment. Article 50 requires GoR to establish regulations governing water dams.

4.2.6 Labor and Employment Laws

TDI reviewed the following laws on the regulation of labor and employment in Rwanda: Ministerial Order on Procedure to Recruit Foreign Workers (N° 13/19, 14 Mar. 2003); Law on Immigration and Emigration (N° 17/99, 16 Aug. 1999); and Law Establishing the Labor Code (N° 51/2001, 30 Dec. 2001).

2.1.1.10 Immigration Order and Immigration Law

The Ministerial Order on Procedure to Recruit Foreign Workers ("*Immigration Order*") restricts an employer's rights to recruit and hire foreign workers, other than in certain limited cases such as recruiting foreign workers born in Rwanda, to situations where there are no qualified workers in the Rwanda market <u>and</u> the foreign worker possesses a university degree plus related professional experience. Prior to recruiting any such foreign workers, the Director of Labor must approve the employer's application for recruitment authorization. A foreign worker hired

pursuant to a recruitment authorization is provided with a one year work permit, which is renewable a maximum of three times for non-managerial workers, at a cost to the employer of 200,000 Rwandan francs.

The Law on Immigration and Emigration ("*Immigration Law*") sets forth the requirements for a foreigner's entry into and residence in Rwanda. Visitors are not authorized to stay in Rwanda for more than three months unless they are approved for residence permits or a living visa, which is only issued to foreigners that are living in Rwanda for the purpose of assisting Rwanda.

> *Comments: Prior to issuing this IM, GoR may wish to consider that in order to encourage private investment in the Projects, the Immigration Order and Immigration Law should provide the Director of Labor, or the Investment Law should provide RIEPA, with the authority to offer a foreign investor the ability to receive work and residency permits for certain groups of skilled workers necessary for the implementation of the Projects.*

2.1.1.11 Labor Code

The Law Establishing the Labor Code ("*Labor Code*") controls the rights and obligations of employers and employees in the work environment. The Labor Code requires all employment agreements for a period in excess of 90 days to be in writing. The Labor Code prohibits discrimination in hiring and prohibits employers from requiring employees to work more than 40 hours per week unless overtime is paid for those hours worked in excess of 40 hours. Finally, the Labor Code prohibits employers from restricting an employee's ability to work upon termination of the employment arrangement (i.e., employers cannot enforce non-compete agreements with employees).

4.2.7 Tax Laws

TDI reviewed the following laws on the imposition of income taxes in Rwanda: Law on Direct Taxes on Income (N° 16/2005, 18 Aug. 2005); Law on the Code of Direct Taxes on Different Profits and Professional Incomes (N° 8/97, 26 Jun. 1997).

The Law on Direct Taxes on Income ("Tax Law") establishes the rules for determining personal and corporate taxable income and sets the tax rates on taxable income. Article 56 abrogates all previous legal provisions contrary to the Tax Law. The Tax Law provides for the taxation of taxable business profit at a tax rate of thirty percent (30%). However, registered investment entities that operate in a Free Trade Zone pursuant to the Investment Law, and certain foreign companies headquartered in Rwanda are exempt from corporate income tax and entitled to tax free repatriation of profits.

> *Comment: Prior to issuing this IM, GoR may wish to consider that it may need the legislative right to offer additional tax concessions to investors in the Projects. It is not clear whether the general grant of power to the Cabinet pursuant to the Investment Law is sufficient to permit the Cabinet to offer additional tax concessions that are not specified in the Tax Law.*

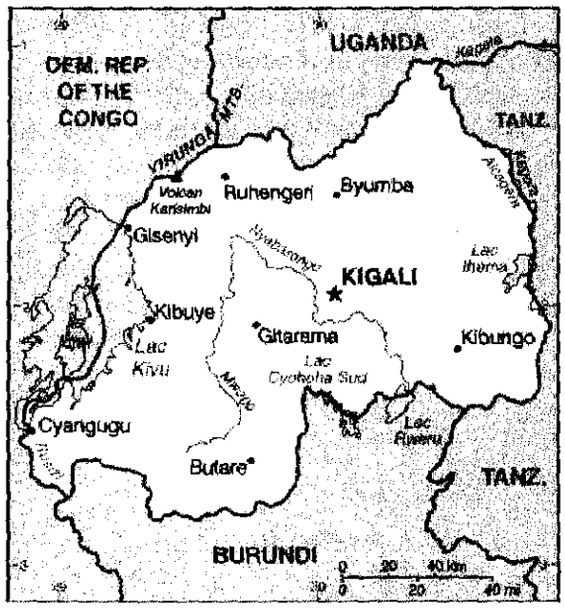
4.2.8 Constitution

TDI reviewed the Constitution of the Republic of Rwanda (4 Jun. 2003, as amended 2 Dec. 2003 and 8 Dec. 2005).

The Constitution of the Republic of Rwanda ("*Constitution*") establishes a parliamentary democracy form of government and sets forth certain fundamental rights of the citizens that are protected by the Constitution. Article 201 provides that unwritten customary law remains applicable as long as it has not been replaced by written laws or is inconsistent with written laws.

5. Project Overview

5.1 Background



Known as the "Land of a Thousand Hills", Rwanda is characterized by hills and small rivers which represent significant potential for micro-hydro power. In November 2006, the GoR announced its intention to develop two hydropower projects: a 27.8MW capacity facility in Nyabarongo and a 9.5MW capacity facility in Rukarara. The Project's regional context is of critical importance, as Rwanda continues to deepen its economic ties within the East African Community ("EAC"), whose members also include Burundi, Kenya, Uganda, and Tanzania. Accordingly, the GoR's objective is to complete the Project and generally fulfill present and projected demand for power (currently facing a deficit of 50 MW of energy), while achieving tariffs that are comparable to the levels within the EAC. Furthermore, it is understood that the government's goal is to ensure that domestic industries are not subject to a cost disadvantage.

5.2 Economic Impacts

The amount of financing required for Nyabarongo HPP and Rukarara HPP is large in relation to the Rwandan economy. To estimate the economic impact of project implementation, the Delphos team developed a macroeconomic model forecasting various macroeconomic indicators for the period 2008 through 2012.

GDP growth increases from 8.2% to 9.32% in the later years due largely to an increase in FDI. Government balances nearly double over the timeframe as growth in revenues outpace growth in expense. Government debt increases in the middle years, but decreases with the influx of FDI in 2012 and so remains on the whole stable. Gross and public external debt also remained relatively stable over the timeframe.[81]

As compared with baseline forecast, General Government Balance, as a percentage of GDP, has, on average, a slightly higher growth rate over the five-year forecast horizon. The General Government Debt slightly increases over the years as a percentage of GDP, but drops below the baseline forecast for 2012. The Current Account Balance is substantially increased, as a percentage of GDP, relative to the baseline.

The principal objective of the energy sector of Rwanda is to contribute to the accelerated social and economic improvement of the population by producing enough energy to sufficiently power

[81] Please note: the data cannot be compared year to year. The comparison can only occur on a case–to-case basis

the social and economic sectors that increase the quality of life. To achieve this goal, the Rwandan Ministry of Infrastructure set the following specific objectives in the *National Energy Policy and National Energy Strategy 2008-2012*:

- Increase access to electricity or enterprises and households
- Reduce cost of service in the supply of electricity
- Diversify energy supply sources and ensure security of supply
- Strengthen the governance framework and institutional capacity of the energy sector

The Rukarara and Nyabarongo power projects will increase Rwanda's electricity capacity and allow for greater access to the electrical power supply. It is estimated by the Ministry of Infrastructure that currently only 6% of households have access to electricity supplies. Electrogaz is presently connecting approximately 1,400 new customers per month and this is being increased to 2,000 per month as Electrogaz involves private sector contractors to increase the rate of connection of new customers. Figure 5 below shows energy demand and distribution projections for the period up to 2020.

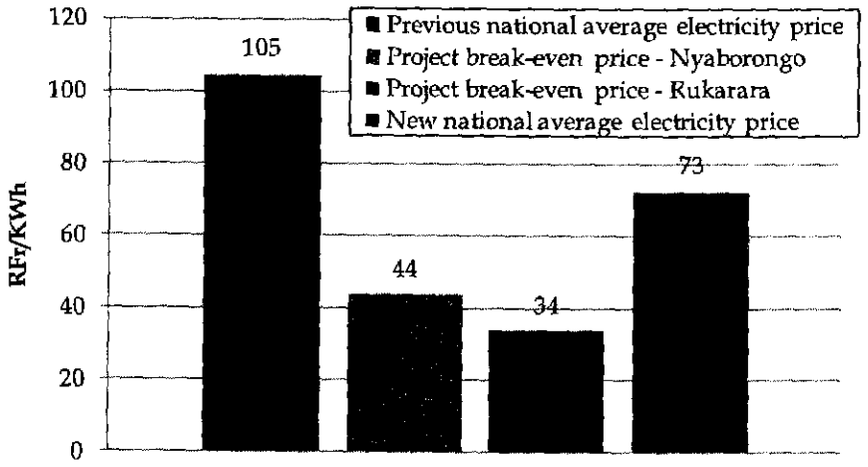
Figure 5. Energy demand projections and distribution (Source: *National Energy Policy and National Energy Strategy 2008 – 2012*, Ministry of Infrastructure)

	2008	2012	2015	2020
Peak power demand (MW)	55	112	193	360
% of households with electricity	4.5%	13.4%	23.0%	35.0%
% of energy consumed by households	38.0%	64.0%	75.0%	83.0%

In 2007, 54% of electricity supplies came from thermal sources, net imports accounted for 33%, and hydroelectric power made up the remaining 13%. The Rwandan Ministry of Infrastructure expects to generate more electricity from hydropower and thermal sources, as detailed in its National Energy Policy and National Energy Strategy, with hydropower sources being especially important for small off-grid systems. Hydroelectric power plants provide a more diversified source of energy for the country, besides the more traditional sources historically in use.

The project also achieves reduction in the cost of electricity service. Figure 6 below presents estimates of the impact on national average electricity prices of construction of Nyabarongo HPP and Rukarara HPP. The average tariff price post-construction is estimated to be 73 RFr/KWh, a significant reduction from prevailing prices.

Figure 6. Impact on electricity prices



In addition, the new supply of electricity from the Rukarara and Nyabarongo power projects will support the growth of agriculture and small to medium enterprises ("SMEs"), which comprise the majority of Rwanda's economy. Creating local business opportunities is a key aspect of economic growth and poverty alleviation. Access to reliable electricity will reduce costs and increase productivity, allowing the SMEs to extend income generating activities beyond daylight hours. Access to electricity will also reduce electricity rationing, allow for the use of electric pumps in agriculture and food processing, the refrigeration of foods and other products for use in retail sales, street vending, restaurants and related enterprises, and the spread of computers and telephones, increasing communication and the flow of information. Additionally, electricity - safer and cleaner than traditional fuels - will improve working conditions. Several case studies conducted to relate modern energy services, such as the provision of electricity, to business development have found that access to electricity can substantially improve the profitability of commercial enterprises as well as the quality and quantity of goods produced and traded.[82]

Improved accessibility of reliable electricity will spark increased levels of innovation and allow for the establishment of new types of businesses. Electricity enables electronic commerce (e-commerce) and information and communication technologies ("ICT"), the ever more critical tools for economic growth. E-commerce and ICT allow local businesses to access both domestic and international markets, and provide multinational companies mediums through which they can participate more effectively in Rwandan markets.

Additionally, the Rukarara Project will facilitate the direct and induced employment among the local communities by creating about 300 local hire jobs during the construction phase and about 13 full-time positions during the operational phase. The Project also requires access roads for the transport of construction material; therefore, road access will be improved for the local communities through the construction process. Especially during the dam construction period, road access will have a multiplying effect on trade in the service industries.

[82] UNDP, Energizing the Millennium Development Goals, August 2005

5.3 Social Impacts

The expected increased reliability and availability of electricity and reductions in cost of service, resulting from operation of the Rukarara and Nyabarongo plants will likely yield significant impacts at the social and political levels. Many households currently spend significant portions of their incomes on inefficient energy services such as batteries, candles, kerosene lanterns and charcoal for heating, cooling and lighting. Their costs per unit of energy are therefore often than what is paid by richer portion of the population. Power supply shortages have worsened water supply problems in several areas, forcing conversions to expensive diesel-powered water pumps.

A reliable and reasonably-priced supply of electricity is considered by most development agencies to be a powerful way of alleviating poverty and social inequality. Figure 7 below lists some of the social benefits of improved access to electricity.

Figure 7. Summary of social benefits of electrification

Electricity Benefits	Basic End-Use	Services
Lighting, heating, cooling, refrigeration, telecommunications, education	Light bulbs, furnace, fans, pumps, machinery	Refrigeration, communication, pumped water, mechanical power

Increased provision of electricity has a significant positive impact on the health of a society, particularly with regard to the urban poor and rural communities. Access to electricity helps to reduce malnutrition-related mortality by increasing both the levels of domestic food production and household incomes. It also reduces the number of incidents of water borne diseases by allowing for the use of pumps, water purifiers and other water treatment systems. Access to clean water can eliminate a leading cause of child mortality. In addition, increased access to electricity can reduce the spread of HIV/AIDS and malaria. Electricity allows for the use radio, television and other communication tools; helps to attract and retain social and health workers by improving both work and living environments; and improves safety by allowing for increased lighting in public areas.

Improved access to electricity is expected to significantly improve the quality of health centers. Many health centers are currently unable to provide vital medical services because they do not have the electricity necessary for cooling systems and medical equipment. Increased access to electricity will enable health clinics to rely on refrigeration for vaccines; boil water to sterilize equipment; provide illumination for patient care areas and for operating theaters; and provide the electricity necessary for appliances such as microscopes, centrifuges and other medical equipment. Lower-cost electricity will help hospitals reduce their utility expenditures, freeing funds for investment in core infrastructure.

Both projects, which are being built in the name of providing a public good (electricity), will also involve negative social impacts associated with the displacement of families in the areas of water catchment and/or access to the project sites. For Rukarara, the ESIA has estimated that 150 families will lose their land either previously used for shelter or as agricultural land. For Nyabarongo, the social impact assessment produced in January 2009 estimates that

approximately 4,000 households will lose their land either through inundation or due to project site access requirements, while approximately 500 homes will need to be destroyed. For both projects, it is expected that adequate compensation will be given to the affected persons.

5.4 Political Impacts

A 2005 USAID study reports that investments in a country's energy sector can increase stability and overall quality of not just economic, but also political sectors.[83]

Although corruption within the government and private sector is an often cited concern of private sector investors in Africa, Rwanda enjoys a favorable perception with respect to its relatively low levels of corruption when compared to its East African neighbors. In particular, no East African country ranks higher than Rwanda on Transparency International's Corruption Perception Index (#102, tied with Tanzania for best index in the region and globally tied with the likes of Mongolia, Dominican Republic and Lebanon, all ranking ahead of Argentina and Egypt). This reputation has been achieved through significant strides in recent years to improve the quality of governance. According to the World Bank's 2007 Worldwide Governance Indicators, Rwanda significantly improved political stability (measured as 37.0 in 2007 compared to 5.3 in 2002), control of corruption (58.5 in 2007 compared to 35.0 in 2002), rule of law (30.5 in 2007 compared to 18.6 in 2002) government effectiveness (43.6 in 2007 compared to 13.3 in 2002).[84] In addition, the 2007 Ibrahim Index of African Governance identifies Rwanda as having made very impressive gains.[85]

Reduced corruption and improved transparency have been shown to encourage foreign direct investment ("FDI"), a key driver of economic development. According to the World Business Environment Survey ("WBES"), conducted in 2000, corruption ranked highest among factors discouraging investment.[86] An effective method for demonstrating that a country is a good investment target is through the so-called "showcase" effect. Successful projects financed in whole or in part by foreign investment offer strong evidence that a country is a good potential target for future investment. Infrastructure projects such as Rukarara and Nyabarongo constitute excellent potential showcase projects, as they require active and open participation by parties within both the public and private sectors which through example should help spur future investment projects.

[83] USAID, Energy Democracy, Governance and Conflict Management, 2005
[84] http://info.worldbank.org/governance/wgi/index.asp
[85] http://www.moibrahimfoundation.org/index/single.asp?countryid=35
[86] Emery, James J. (2003), "Governance, Transparency and Private Investment in Africa", Global Forum on International Investment, OECD

6. Project Description

Project Location	Project Type	Main Hydrology Factors	Primary Generation Months
Rukarara HPP	Reservoir	Monsoon Rainfall	January –May
Nyabarongo HPP	Reservoir	Monsoon Rainfall	--

6.1 Rukarara HPP

The GoR started the construction of Rukarara HPP in June 2007, using its own budgetary resources. The construction works are expected to be completed in early 2010. The GoR intends to retain the ownership of Rukarara HPP until at least the completion of Nyabarongo HPP. The GoR is considering privatization structures for both projects to be implemented upon completion of Nyabarongo.

The proposed Rukarara HPP plant is located about 7km from Gikongoro town. The total land required for Rukarara HPP, including cultivated land that would be inundated by the small reservoir for daily generation, will be 27.5 hectares.

According to the Final Report prepared by Rukarara HPP's selected contractor EPG, a dam designed with height between 11 and 12 meters can achieve a reservoir storage capacity of 125,250 cubic meters, which will permit the Rukarara HPP plant to operate at full capacity during the entire system daily peak hours for more than 95% of the days during the year. For the purpose of error cushion, a 12 meter high dam consisting of gravity concrete structures will be built across the Rukarara River to store water in a reservoir suitable for daily storage and to divert the water into the channel. The dimensions of the dam are 60m of length, 12m of height, and 14m of spill length.

The plant will generate electricity for sale to Electrogaz as single buyer at pre-agreed prices. The net energy available for sale to the Electrogaz grid, after allowing for transmission losses, down times of the grid, and energy consumption by the plant, is assumed to be 95% of gross generation. The estimates of net monthly energy generation are shown as below:

Figure 8. Estimated Monthly Energy Generation.

Month	Net Energy (kWh)
January	3,924,195
February	4,857,243
March	4,110,950
April	5,114,245
May	4,694,927
June	2,889,189
July	2,289,191
August	2,195,549
September	2,568,557
October	3,420,205

November	2,164,130
December	1,971,106
Year	**40,202,488**

Rukarara HPP's average annual plant factor[87] (also known as the capacity factor) is expected to average 48.2%, calculated as follows:

$$\text{Plant factor} = \frac{\text{Net energy produced per year}}{\text{Installed capacity x Number of hours in year}} \times 100\%$$

$$= [40{,}202{,}488 / (9{,}519 \times 8.760)] \times 100\%$$

$$= 48.2\%$$

6.2 Nyabarongo HPP

The GoR has undertaken the construction of Nyabarongo HPP using concessional debt from the Export-Import Bank of India (the "India Exim Bank"). Nyabarongo HPP has a 45 month construction schedule that has not yet begun. However, the completion is expected no earlier than the second quarter of 2013.

The site of the hydroelectric installation of Nyabarongo HPP is located at a loop in the river which originates in the North of the country, deviates towards the West on approximately 2km, then returns towards the East to take again its general direction. The mean level of the river is estimated to be 35 - 40 meters. The valley presents a V profile and is wider in loop half upstream and more tightened in half downstream. Taking into account the overall configuration of the loop of Nyabarongo, two alternatives had been retained at the time of the studies. These two alternatives exploit the natural fall of 37m approximately created by short-circuiting this loop by means of a tunnel of supply a length of approximately 1200m (these two alternatives are explained in the detailed feasibility study of the project). At the downstream of the entry of this tunnel of supply, a dam will be built above the level of the river and serve to increase the natural available fall. At the downstream end of the tunnel, at the exit of the loop, a turbine harnesses the flow.

The latest feasibility study of Nyabarongo HPP identified a potential 65m fall, an installed capacity of 27,8MW and an annual production of 153GWh. A dam with water course design has been chosen after careful studies of possible social and economic impact to the region. A concrete dam, situated at the entry of the loop, will be built with a height of 41m and a length of 225m at the top end of the dam. The power house, with two Francis turbines installed, will be built on the right bank of the river at the end of the loop. The power outlet is situated downstream from the power house, prolonged by a 110kv line over 27km to transport the produced energy to the Kilinda substation, then to the main grid of Rwanda.

[87] The plant factor is the ratio of mean annual output (over a number of years of operation) of a power station to its maximum annual output if it operates at full capacity for the whole year.

7. Construction

7.1 Construction Schedule

SCHEDULED COMPLETION DATES			
Project Name	**Construction Start**	**Site Dev. & Detailed Engineering**	**Commissioning**
Rukarara HPP	Complete	Complete	Q1 2010
Nyabarongo HPP	Dec 2008	In process	Q1 2013

7.2 Rukarara HPP

7.2.1 Construction Cost

Rukarara HPP's total project cost is estimated to be US$16.9 million, of which $16.1 million is paid to the Engineering Procurement Construction (EPC) contractor and the remaining approximately $800,000 is for civil works contingency. The overall cost estimate includes EPC, site preparation, access roads, and the dam among other costs. The transmission lines cost is included but ongoing capital expenditure (15+ year overhaul) is excluded in the EPC cost estimate. The average construction cost per kW installed is $1,636.

Figure 9. Rukarara HPP EPC Cost.

	USD Thousands
Site Preparation	187
Diversion, Dam, Intake	1,317
Spillway and Headrace Tunnel	7,262
Transmission Station	576
Operations Site/Village	1,178
Total Civil Works	**9,657**
Electrical Equipment	5,360
Transmission Lines and Posts	300
Total Equipment Costs	**5,660**
Contingency, Studies	**750**
[redacted]	

7.2.2 Construction Financing

The GoR has gone ahead with the construction of Rukarara HPP, using its own resources to meet the Project's cost of $16.9 million. The construction was started in June 2007 and the Project is

now on schedule for completion before the end of 2009. Payment of E&M equipment and penstock pipes is completed.

7.3 Nyabarongo HPP

7.3.1 Construction Cost

The cost of construction of Nyabarongo HPP was initially estimated by SOGREAH, a French engineering consulting firm, at US$77.5 million in 1999 (1 USD was equivalent to FRW 310). The current total project cost is estimated at $113 million, of which approximately $98 million will comprise the EPC contract, which includes approximately $66 million of civil works cost and approximately $32 million of equipment cost. Unlike Rukarara HPP, the EPC cost estimate excludes transmission lines cost and ongoing capital expenditure (15+ year overhaul). The average construction cost per kW installed is $3,651. See Figure 10 for the breakdown of Nyabarongo HPP's EPC cost.

Figure 10. Nyabarongo HPP EPC Cost.

	(USD)	(%)
EPC		
Cash Paid to Contractor	97,700	87%
Developer's Fee	4,500	4%
Environmental/Social	7,500	7%
L/C Fee	977	1%
Interest During Construction (incl. w/o tax)	1,493	1%
Commitment Fees	605	1%
TOTAL COST	112,775	100.00%

The GoR is currently in the procurement process of hiring an engineering consulting firm to supervise and control the construction works. The supervision cost is estimated at 9% of the total construction cost at around $10 million. The overall project cost is therefore close to $112.8 million.

GoR expects to bear the following costs in addition to the $17.7 million balance of the EPC Contract price:

- $7.5 million for environment and social impact studies and mitigation
- $4.5 million for project management
- $1.5 million for interest during construction
- $1.0 million budgeted for L/C fees
- $0.6 million for commitment fees

7.3.2 Construction Financing

Approximately US $80 million, or 71% of Nyabarongo HPP's total project cost of $112.8 million, will come from a loan provided by India Exim Bank. In October 2008, India Exim Bank signed an agreement to extend a Line of Credit (LOC) of $20 million to the GoR to finance the EPC component of Nyabarongo HPP construction. That was the first tranche of the $80m LOC approved by the Government of India. The second tranche of $60 million is anticipated to be

approved by India Exim Bank by June/July 2009. India Exim Bank will pay 100% invoice value upfront to Indian Exporters upon shipment of machinery/provision of services from India for execution of the power project in Rwanda. The LOC has a 5 year grace period, 20 year payment period at an interest of 1.75%. Figure 11 below summarizes the main terms of the GoR's agreement with India Exim Bank:

Figure 11. Summary of Agreement Terms with Exim Bank of India.

Total Amount	US $97.7 million
First Tranche	US $20 million
Grace Period	5 years
Commitment Fee	0.50% per annum on undrawn credit
Interest Rate	1.75%
Payment Period	20 years
Concessionality	40%
Requirements	Goods and services of the value of at least 85% of the contract price shall be supplied by the Seller from India, and the remaining goods and services (other than consultancy services) may be procured by the Seller for the purpose of the Eligible Contract from outside India.

8. Engineering, Procurement, and Construction Contracts

The EPC Contract requires the EPC contractor to deliver a fully operational power station that meets detailed specifications and performance criteria by an agreed upon date for a fixed price. The EPC contractor has complete responsibility for designing, engineering, and constructing the power station, which includes procuring all necessary materials, equipment, machinery, and parts required for project development. The EPC contractor is also responsible for starting the power station and demonstrating, through completion of specified performance tests, that the power station performs in accordance with the target performance criteria.

The legal provisions of an EPC Contract are short in comparison to the technical provisions and attachments to the EPC Contract, which contain a detailed scope of work and specify the full design, engineering, and mechanical criteria for the power station. Under the financing structure of the Projects, GoR may seek an Investor in the Power Stations while construction of the Power Stations and Dams is underway, or alternatively following completion of construction. GoR must also monitor the work of the EPC contractors and ensure that they comply with the performance guarantees for plant output, efficiency, and reliability, or that they pay GoR damages for any missed performance targets before GoR's final acceptance of the Projects. Once the EPC contractors hand over the Power Stations to GoR, the EPC contractors are no longer liable to GoR for the performance guarantees.

8.1 Rukarara HPP

The Rwandan government has awarded a contract to Sri Lanka-based Eco Power Global (Private) Limited ("EPG") for engineering, procurement and construction of the Rukarara HPP located in Gikongoro district.

EPG is owned 85% by Eco Power (Private) Limited (EPL) and 15% by Dr. R.D. Bandaranaike, EPL's Chief Executive Officer. EPL has extensive experience in the construction of small hydropower plants in Sri Lanka, having developed 10 projects of a total capacity of 23MW. In 2005, EPL decided to focus on power generation in Africa by setting up EPG to spearhead its investments in the continent.

8.2 Nyabarongo HPP

The construction of Nyabarongo HPP has been awarded to a consortium comprised of Bharat Heavy Electrical Ltd and Angelique International Ltd (the "Consortium"), as per the financial agreement with the Exim Bank of India. Angelique International will undertake the civil works and transmission line while Bharat Heavy Electrical will supply and install hydromechanical and electromechanical equipments. BHEL will serve as the lead partner of the consortium.

<u>Bharat Heavy Electrical Ltd.</u> ("BHEL")

Founded in the late 1950s, BHEL is the largest engineering and manufacturing enterprise in India in the energy-related/infrastructure sector, today. Over 65 percent of power generated in India comes from BHEL-supplied equipment. Overall it has installed power equipment with a total capacity of over 90,000 MW. Nyabarongo HPP is the first order received by BHEL from

Rwanda but has already established a presence in Uganda and Tanzania, in addition to several other African countries.

Angelique International Ltd. ("Angelique")
Angelique is an engineer, procurement, and construction company with headquarter in New Delhi. Established in 1996, Angelique focuses on emerging markets in Africa, Southeast Asia, and Latin America. Angelique's strengths lie in housing design, engineering, supply, and construct transmission lines from 11kV and 33kV up to 800 kV.

9. Privatization Opportunities

The GoR is now considering an opportunity to enter into a post-construction partnership with a private investor (the "Investor"). Upon commissioning of the two hydropower plants, GoR would sell the powerhouses at Nyabarongo and Rukarara, and the related switchyard facilities (together, the "Power Stations") to the project company established by the Investor to manage the Projects (the "Company"). Due to the small size of Rukarara, GoR would fully privatize the plant whereas in the case of Nyabarongo, GoR may retain ownership of the dams and related civil works the "Dams", depending on the privatization structure GoR chooses to pursue. The Company would operate and maintain the Power Stations and Dams, and sell all of the Power Stations' capacity and energy to Electrogaz under a PPA. More details on the potential privatization structures for each plant are provided in sections 9.1 and 9.2.

The proposed ownership and financing structure for the Projects strikes a balance between the interests of GoR in minimizing the consumer tariff and the interests of the Investor in minimizing investment risks. The recommended financing structure requires a smaller equity investment by the Investor than if the Investor purchased both the Power Stations and the Dams. Investment risk is reduced because of the smaller size of investment. The smaller amount invested in the Projects by the Investor should also correlate into a lower tariff for consumers because GoR's cost of capital for financing the construction of the Dams will be lower than the rate of return Investors typically require on similar investments.

The project agreements collectively define the rights and obligations of the Company as well as other Project participants (such as the offtaker). One fundamental purpose of the project agreements is to allocate the potential Project risks between the parties. All power projects are subject to potential commercial (market), construction, technological, operational, environmental, legal, and political risks (among others). The party that is most capable of mitigating or absorbing a specific risk bears primary responsibility for that risk. The project agreements interrelate to ensure that all Project risks are addressed and that the Project rights and obligations are appropriately allocated amongst the parties for the duration of the Project.

9.1 Rukarara HPP

Rukarara HPP plant will be made fully operational within a year of its completion, or 2011. The GoR plans to retain the ownership of the plant and operate it through a subsidiary (the "GoR Operator") during the first year and a half of operation. The GoR Operator will sign an Operation & Management arrangements per term sheet with the GoR and a 20-30 year PPA signed with Electrogaz. The Rwandan government intends to retain the ownership of the plant through internally generated cash flows. The GoR will receive dividends from the GoR Operator for a definite period.

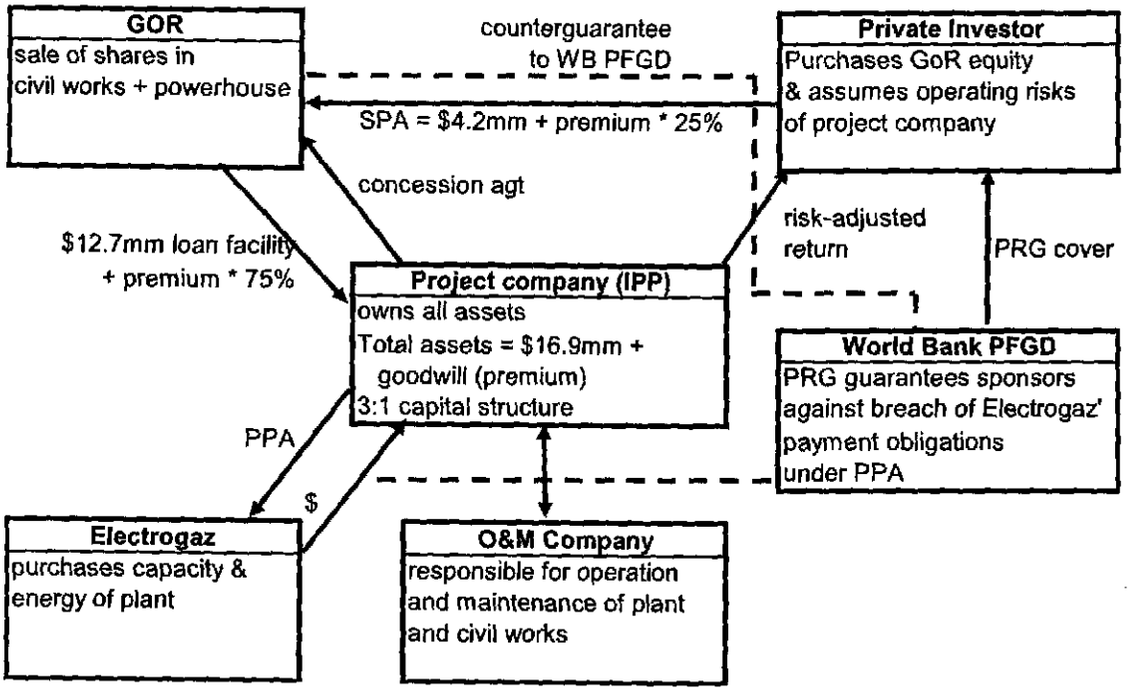
In 2012, or upon the completion of Nyabarongo HPP's facility, the GoR would seek a creditworthy Investor to take full ownership of Rukarara HPP's assets, excluding transmission lines. The Investor would establish a Company to enter into concession agreement, with no lease payments for rights to water usage.

Under this scenario, a premium in the sale price of Rukarara HPP's assets will be incorporated in order to cover the construction risk assumed by the GoR. The premium will be funded pro-rate debt to equity at the same capital level, ensuring a minimum return on investment of 10%. The sale can be financed with 25% paid up-front and 75% in deferred payment. The up-front payment is expected to come from private equity. Deferred payment will be structured as long-term debt provided by the GoR, with commercial terms at LIBOR +4%. As such, the GoR would be effectively the creditor of the project. The Company will be fully entitled to collect dividends that yield attractive private equity return.

The proposed post-construction structure is illustrated as below:

Figure 12

Rukarara Hydropower Transaction: Recommended Post-Completion Structure



9.2 Nyabarongo HPP

Together with Rukarara HPP, Nyabarongo HPP would be partially or wholly privatized, as the following two scenarios explain in greater detail.

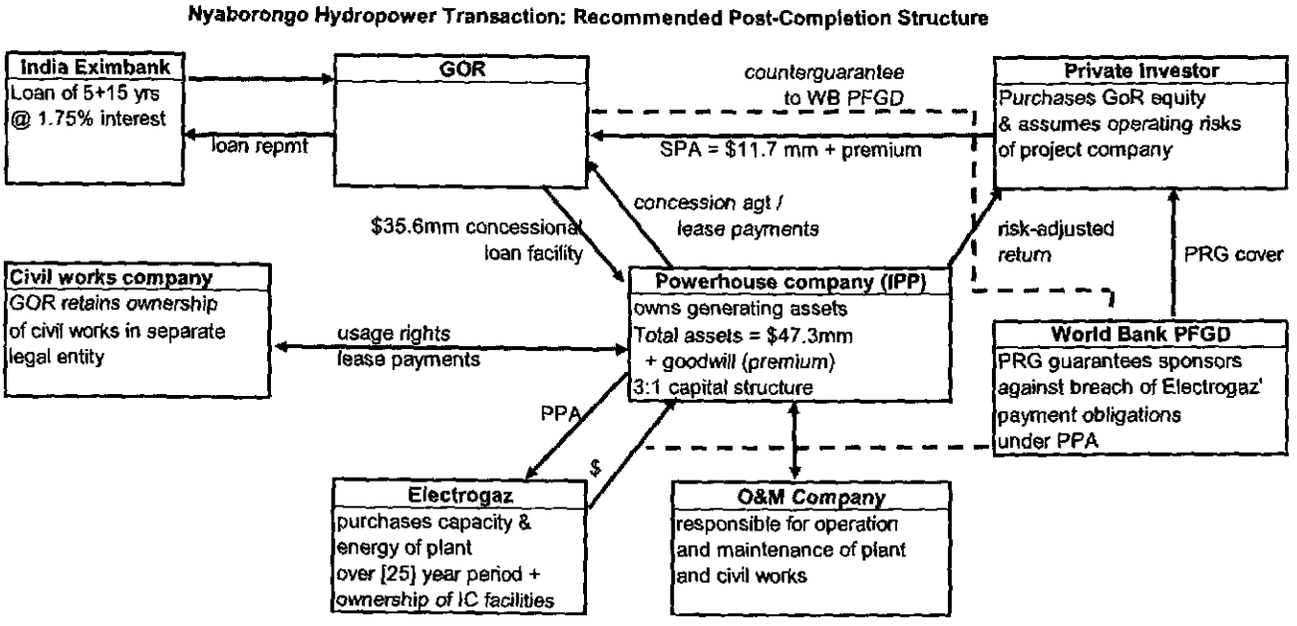
9.2.1 Partially Privatized [case C]

With the completion date slated for 2012, the GoR would establish a separate legal entity to own Nyabarongo HPP's civil works. The GoR would look for a creditworthy project Investor to acquire the generating assets and to enter into a lease agreement for the civil works and inter-connection (IC) facilities. Under this scenario, the annual lease payment is estimated to be 7.1% of civil works project cost. Sale of the generating assets will be structured similarly to the sale of Rukarara HPP's assets, with 25% financed by private equity and 75% financed by long-term debt provided by the GoR (through the India Exim Bank facility) at 8.25% interest rate (1.75% of base rate and 6.5% of interest spread). The expected tenor of the debt is 15 years excluding 1 year of grace periods if Nyabarongo is privatized by December 2012.

Similar to the case of Rukarara HPP, the Investor's Company would also sign a long-term PPA with Electrogaz. As part of the PPA, the World Bank Project Finance Guarantees Department (PFGD) may issue a partial risk guarantee (PRG) to the Company which would cover payment default by Electrogaz. The PRG would be then counter-guaranteed by the GoR.

The below chart illustrates the structure:

Figure 13



9.2.2 100% Privatized [case B]

Alternatively, the GoR may seek to fully privatize Nyabarongo HPP's assets which include the generating asset as well as the civil works and IC facilities and exclude transmission lines. The GoR is proposing to structure the sale with 25% of total cost financed by upfront private equity. The remaining 75% being long-term debt is structured identical to the case of partial privatization and will be provided by the GoR at 8.25% interest rate (1.75% of base rate and 6.5% of interest spread). The expected tenor of the debt is 15 years excluding 1 year of grace periods if Nyabarongo is privatized by December 2012.

As in the case of Rukarara HPP, the Company would sign a long-term PPA with Electrogaz which guarantees a fixed capacity in addition to an associated energy charge. The recommended financing structure involves a Partial Risk Guarantee (PRG) provided by the World Bank to backstop non-payment risk by Electrogaz, and,counter-guaranteed by the GoR through an Indemnity Agreement.

10. Power Purchase Agreements

Both Nyabarongo HPP and Rukarara HPP are expected to operate under a PPA with Electrogaz. The Company will sign a PPA stipulating the terms and conditions of electricity pricing, payment, interconnection, metering, and other issues. The below paragraphs summarize some key terms that TDI has suggested to the GoR and which will be subject to further refinement before a formal privatization tender is issued.

The capacity price will be fixed at the time of signing the PPA, but some adjustment to the tariff or to the tariff components is allowed at the time of financial closing (e.g. foreign exchange hedging, spare parts contracts, swapped-out interest rate). The capacity is designed to recover all of the Company's fixed costs for the Project, including fixed financing, operation, and maintenance costs. The energy payment is to cover the Company's variable costs.

Capacity payments will be made in the currency of the host country. To mitigate the exchange risk to foreign investors and international lenders, a large portion of the capacity component of the capacity payment will be indexed to a foreign currency (or payable in a foreign currency) and the amount to compensate for operation and maintenance expenses is indexed to some measure of inflation. Additionally, Electrogaz shall provide the Company access to an alternative source of funds to cover the utility's invoice in the event Electrogaz is unable to meet a payment obligation.

The cost of developing the interconnection facilities to connect the power station to the grid code shall be shared between the Company and Electrogaz. For Nyabarongo and Rukarara, the Power Stations are not sold until after commercial operations and GoR will initially bear the full costs of designing, constructing, installing, and commissioning the interconnection facilities, but may recover at least some of those costs in the purchase price it receives upon the sale of the Power Stations. Ongoing maintenance obligations of the interconnection facilities are shared between the Company and Electrogaz.

Tariffs will be calculated to ensure a dividend payout to keep the GoR return at a minimum break-even level of 10% on the upfront investment and include all the project expenses incurred by the Company.

Some of the project expenses that might be factored into the tariff calculation are:
1. Purchase price for the Power Stations;
2. Labor and insurance costs;
3. The fees and expenses of the legal, technical, and financial advisors incurred in connection with the purchase of the Power Stations;
4. Letter of credit fees, permit and licensing fees, guarantee fees;
5. Land lease and license fees and expenses, including payments made pursuant to a CA;
6. Operation and maintenance expenses, including payments made pursuant to an O&M Agreement; and
7. Cost of debt and equity.

The tariff estimates are currently ranging between 9.21-12 U.S. cents/kWh for the Nyabarongo project, depending on the chosen ownership and financing structure, and approximately 6.77 U.S. cents/kWh for the Rukarara project. (More details are available in Section 12 of this report.)

The expected salient features of the PPA between the plant operator and Electrogaz can be summarized as below:

Purchaser	Electrogaz. Electrogaz is wholly owned by GoR and is the vertically integrated public utility that owns the electricity network in Rwanda. Electrogaz has power generating facilities with a total installed capacity of approximately 57 MW and imports an additional 11 to 12 MW of power.
Term	20-30 years from the date of commissioning of the Power Station
Tariff	Depending on the final financial structure of the plant. Two tariff proposals are: *1) GoR sets tariff and bidders bid price of shares in project company*

2) *GoR sets entry price for investors and bidders bid tariff*

Payment Support	The obligation of Electrogaz under the PPA will be guaranteed by GoR pursuant to the Implementation agreement.
Payments	Electrogaz shall make monthly Capacity Payments to the Company. Capacity Payment is the sum of (a) the Capacity Price x Available Capacity, plus (b) the Energy Price x Net Electrical Output.
Currency Risk	Capacity Payments will be paid in Rwanda Franc. To mitigate the exchange risk, all or a large portion of the capacity component of the Capacity Payment will be indexed to a foreign currency (or payable in a foreign currency) and some portion indexed to some measure of inflation, usually the amount to compensate for operation and maintenance expenses.
Hydrology Risk	Capacity payments will be based on capacity tests performed when there is adequate water.
Guaranteed Availability	Guaranteed Availability will be required during the rainy season and can be as high as 98% of contracted capacity during that time.
Insurance	Insurance is required by Prudent Utility Practices and will be purchased at the Company's sole cost and expense but with reimbursement from Electrogaz. The required insurance coverage generally includes casualty, business interruption, employer's liability, environmental liability, transit, automobile, and political risk insurance.
Governing Law	The PPA will be governed and construed in accordance with the laws of the Republic of Rwanda.
Dispute Resolution	Disputes shall be handled by international arbitration

11. Operation and Maintenance Agreement

The Investor (to the extent it does not have sufficient experience) will hire a third party Company with experience in operating and maintaining facilities similar to the project (e.g., for a hydropower project the operator would have expertise running the powerhouse and switchyard facilities, as well as operating the dam and related civil works). Hiring a separate operator reduces the Investor's overall project risk by sharing the risk of an operational failure with another party.

Prior to sale of the Company, the GoR expects to operate the Power Stations using a recognized, reputable O&M Contractor (which could include a special purpose subsidiary of Electrogaz staffed by a mixture of local and/or foreign employees having the requisite qualifications). The term of O&M Agreement is 2-3 years with the option to renew in the event the Company does not want to use an O&M Contractor or prefers a different O&M Contractor.

The O&M Contractor's scope of work encompasses all of the services the power station owner is obligated to provide pursuant to the PPA and generally include operation, maintenance, and repair activities, and obligations to hire and train personnel, monitor warranties, maintain permits, comply with reporting responsibilities, and maintain inventory.

The O&M Contractor is required to operate the Power Stations and Dams in compliance with the performance standards established in the PPA, prudent utility practices, and equipment warranties. The O&M Contractor must also operate the Power Stations and Dams in accordance with applicable laws and permits.

The calculation of the tariff in the PPA includes payments under the O&M Agreement.

12. Financials

12.1 Assumptions

12.1.1 EPC Assumptions

A fixed-price, date-certain, EPC Contract has been negotiated for both Rukarara HPP and Nyabarongo HPP. The price of the EPC Contract is based on the offer from the contractors. Rukarara HPP's construction program is expected to take 28 months between June 2007 and early 2010. Nyabarongo HPP EPC Schedule is anticipated to last over a period of 36 months, starting in December 2008.

12.1.2 Operating and Investing Assumptions

EPG estimates total cost of Operation & Management for Rukarara HPP to be US $280,000. This assumption is pro-rated by capacity for Nyabarongo HPP to be $1 million. The construction duration is changeable depending on financial close but the PPA is assumed to start immediately after the end of construction.

A variable generation tariff, instead of a fixed capacity payment to generator, is used to calculate revenue. Since the energy price is treated as a variable cost per kWh basis, the break-even tariff is the 'all-in' tariff.

12.1.3 Generation Assumptions

Based upon the information prepared by EPG, SOGREAH, Electrogaz, and Rwandan Ministry of Water, Nyabarongo HPP's firm capacity is assumed to be 8.9 MW, which corresponds to median water flow of 36.8 cumecs and an annual generation of 153 GWh. Rukarara HPP will have a firm capacity of 4.0 MW and an annual generation of 40 GWh. The generation assumptions are based on the Mwaka power plant's hydrology standard deviations.

12.1.4 Financing and Tax Assumptions

The Letter of Credit Fee on EPC Contract is assumed to be 1% of the contract's total value. There is only nominal mortgage and financing fees for both projects.

The CIF Tax will be 3% on imported equipments and materials needed for the power plant construction. A Valued Added Tax (VAT) of 18% may apply on those items but will be refundable within a 6-month claim period. The Withholding Tax is 15%, which applies to cash flow out of the country only.

Income tax is assumed to be 30%. There will be accelerated tax depreciation since 50% of capital expenditures are written off in the first year of operations, per Rwandan GAAP. The write-off flows through to the Income Statement to the 5 year carry forward of negative taxable income.

12.2 Break-Even Cash Flow Analysis

12.2.1 Rukarara HPP

Rukarara	
Tariff	**6.77 cents /kWh**
Equity IRR	**14.38%**
Average DSCR	**1.32**
Min DSCR	**1.23**

Under a privatization scenario, the GoR intends to break even by selling Rukarara HPP's assets to the IPP for $4.6m upfront and $13.8 million in debt.

Based on the break-even analysis, the all-in tariff is calculated to be 6.77 cents per KWh, allowing the IPP an achievable minimum required return on investment of 14.4%. Under the long-term PPA contract with Electrogaz, which consists of a guaranteed fixed capacity and associated energy fee, annual revenue is projected to be a constant $2.6 million for 30 years. After 2012, the IPP's net income, after annual debt service payment, will grow at a stabilized average rate of 10% per year, increasing to $911,000 by year ten and $1.6 million by year twenty.

Figure 14. Rukarara HPP Break-Even Cash Flow Summary. *(USD Thousands)*

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	2,585	2,585	2,585	2,585	2,585	2,585	2,585	2,585	2,585	2,585
Net Income	342	425	470	501	554	612	674	753	832	911
Operating Cash Flow	2,084	2,132	2,130	2,145	2,131	2,131	2,131	2,131	2,131	2,131
Operating Expense	500	452	454	454	454	454	454	454	454	454

Operating expense is estimated at $500,000 for the first year of operations. The average annual operating cash flow for the entire project life after a privatization is expected to be approximately $2 million. With such strong forecasted cash flow, the IPP will achieve sustainable debt service coverage ratio (DSCR) of 1.23 at a minimum. Please see Figure 14 above for a summary of Rukarara's expected cash flows.

12.2.2 Nyabarongo HPP

Section 9 ("Privatization Opportunities") outlines two possible variants of a privatization of the Nyabarongo HPP: 1) a partial privatization whereby ownership of the power station assets is transferred to a private investor group, with GoR retaining ownership of the civil works and 2) a full privatization whereby the GoR transfers ownership of all assets (power house and civil works) to a private investor group. The break-even cash flow results of these two variants are presented below:

Partially Privatized

Nyabarongo	
Tariff	9.21
Equity IRR	17.94%
Average DSCR	2.05
Min DSCR	1.47

Under this variant, the GoR is expected to sell Nyabarongo HPP's generating assets to the Company for $32.8 million in the form of equity and $36.8 million as long-term debt to break even. The debt will have favorable terms. The Company is responsible for paying the annual lease for the civil works, approximating 7% of the $65.8 million of total civil works construction cost. As such, estimated average Debt Service Coverage Ratio (DSCR) is 2 for the entire project life, with the minimum DSCR being 1.47. The Company will assume payment of PRG at 1% of equity and expected dividends.

The Company is required to maintain $500,000 for working capital. With the all-in tariff calculated in the break-even analysis to be 9.21 cents per KWh to allow equity IRR of 18%, the Company can expect to start generating in 2013 $1.7 million of dividend. Annual dividend will average $2.5 million for the first 10 years of the Nyabarongo HPP's project.

Figure 15. Partially Privatized Nyabarongo HPP Break-Even Cash Flow Summary. *(USD Thousands)*

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	14,098	14,098	14,098	14,098	14,098	14,098	14,098	14,098	14,098	14,098
Net Income	(34)	254	414	509	674	840	1,005	1,169	1,332	1,495
Operating Cash Flow	6,499	7,640	7,762	7,755	7,602	7,523	7,441	7,356	7,268	7,178
Operating Expense	6,372	6,261	6,339	6,425	6,502	6,581	6,664	6,749	6,837	6,928
Dividends	1,728	2,493	2,617	2,813	2,863	2,987	3,108	3,226	3,340	3,452

100% Privatized

Nyabarongo	
Tariff	11.98
Equity IRR	17.93%
Average DSCR	2.07
Min DSCR	1.40

To allow the GoR to recuperate its investment, Nyabarongo HPP's assets would be sold to the Company in the range of $41 million in form of equity and $80 million in long-term debt. After debt service payment, the Company can expect an annual net operating cash flows in the range of $4.0- $5.0 million. The Company's net annual income is projected to grow at an average rate of 10% for the first 10 years then slow down to 3% for the next 10 years. Based on the break-even analysis, the Company will earn dividends as early as 2013, starting at $4.3 million then increasing to $7.5 million by year ten. The dividend stream will average $5.9 million annually for the first 10 years.

The break-even tariff (lowest cost at which electricity can be produced on a full cost-recovery basis including repayment of debt and an appropriate return on capital) is approximately 12 cents per kWh. At this level, the project's internal rate of return on equity for the Company is 18%. The DSCR conditions are met, with an average of DSCR of 2.07 and a minimum DSCR of 1.40 (in later years, after certain tax advantages are lost).

Figure 16. 100% Privatized Nyabarongo HPP Break-Even Cash Flow Summary. *(in USD Thousands)*

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	18,328	18,328	18,328	18,328	18,328	18,328	18,328	18,328	18,328	18,328
Net Income	5,412	6,042	6,408	6,650	7,010	7,369	7,724	8,077	8,426	8,773
Operating Cash Flow	14,043	16,280	16,206	16,198	16,041	15,960	15,876	15,788	15,698	15,605
Operating Expense	2,352	2,052	2,126	2,214	2,294	2,375	2,460	2,547	2,638	2,731
Dividends	4,277	4,677	5,042	5,474	5,758	6,117	6,472	6,825	7,175	7,522

As seen from Figure 16 above, the partially privatized Nyabarongo HPP will generate strong annual revenue of $18 million. After debt service and other expenses, net income is expected to grow at an average rate of 6% per year for the first 10 years.

13. Risk Analysis

13.1 Construction Risk

Construction risk includes the risk that a) the project is not completed, b) the project is completed late, or c) the project is completed over budget. The GoR has mitigated this risk by i) allowing sufficient leeway time in the EPC contracts ii) including strong provisions in the EPC contracts for delays caused by the contractor and recourse for non-performance; iii) making payments to the EPC contractor on a milestone basis, with escrowed retention payments until final acceptance. This risk is effectively eliminated since the GoR has started construction process and would only seek privatization upon the completion of the HPPs.

13.2 Technological Risk

Technology risk will be minimal as the equipment being used at each of the projects has been utilized successfully in hydropower projects throughout the world. In addition, extended warranties from equipment suppliers will further mitigate technology risk.

13.3 Hydrology Risk

Hydrological risk is a major concern for hydropower projects as the amount of electricity generated for sale is in direct proportion to the availability of the water supply. In this case, however, hydrology risk is not borne by the Investor as the proposed PPA terms indicate that this risk would be placed with the offtaker, as the defined water supply availability is based on periodic unit capacity rating tests. In addition, the conducted sensitivity analysis of downside hydrology conditions shows that the downside hydrology risk is sufficiently mitigated to make both projects profitable for the operators.

Please note that hydrology data used was taken from Mwaka station to generate hydrology standard deviations away from median water flow and associated probabilities. Mwaka is located on the same river and therefore its hydrology data deemed comparable to that of Nyabarongo HPP and Rukarara HPP. However, there could remain issues of inaccuracy and inconsistency in risk assessment.

13.4 Offtaker Risk

Offtaker risk, including the risk of late payment and/or other PPA defaults is mitigated by a PRG issued by the World Bank (counter-guaranteed through an Indemnity Agreement by the GoR) to protect the IPP against PPA payment default. In addition, the PPA company, Electrogaz, is Rwanda's Electricity and Water Utility Authority and thus fully backed by the GoR. In consideration of the GoR's interest in upholding its credit rating with various donor institutions, it can be argued that the risk of Electrogaz payment default under the PPAs would be minimal.

13.5 Price and Inflation Risk

Price risk will be mitigated through long-term PPAs with Electrogaz. The Company will be subject to some inflation risk as most of its operating costs will rise with inflation, while the majority of its PPAs (in terms of projected saleable kWh) are not indexed to inflation. However, as operating costs are generally only 10-20% of total revenue, and of those certain costs (such as water charges) are fixed, inflation is not expected to be a major risk factor.

13.6 Interest Rate Risk

Interest rate risk will be mitigated by obtaining fixed rate debt through a long-term interest rate swap.

13.7 Environmental Risk

Rukarara HPP and Nyabarongo HPP will generate electricity in a renewable and environmentally-friendly fashion, and the projects are viewed in a positive light by local and international government bodies.

According to the Environmental Impacts and Social Assessment Report for Rukarara (Rukarara EIA) compiled by ESF Consultants, potential adverse environmental impacts related to the Project could likely include displacement and hydrological change. As typical with hydropower projects, other potential environmental impacts could include flooding, displacement, diseases, siltation, erosion and livelihood disruption. Most of these potential impacts can be accurately mitigated through technology, inputs used, and capacity building.

Principally, displacement and hydrological change during the filling of the dam were the main concerns of the report, however, it proposes actions in order to mitigate both of these impacts. According to the Rukarara EIA, an effective resettlement action plan could include compensation to displaced individuals for loss of land, after documented valuation, and resettling people in an identified land or already-existing community. With respect to hydrological change, the effects of reduced water flows downstream from the dam will be short-term, until the dam is filled up. The effects of changes in flooding patterns can be mitigated by carefully controlling the silt gates during desilting of the reservoir and opening them at night only, for example, when farmers/users are out of their fields.

13.8 Legal Risk

Some risk factors for investors exist including RURA's lack of independent rulemaking authority, the absence of a full institutional framework law for the regulation of the electricity sector, ambiguities in the laws, the lack of an established legal framework for businesses and the restrictions on hiring foreign workers. Mitigating these risk factors are current draft laws which further reform the laws and regulatory framework in Rwanda to facilitate privatization, encourage private investment, and stimulate economic growth. The World Bank and GoR engaged Pierce Atwood Consulting ("PA"), pursuant to the Urgent Electricity Rehabilitation Program, to draft a comprehensive electricity law that addresses each aspect of electricity sector development and regulation. PA Draft Law on Electricity sets forth an institutional and legal framework conductive to private sector investment in the electricity sector. It would facilitate the creation of a National Energy Agency by providing information for investors determining infrastructure development opportunities in Rwanda.

Appendix H, Task 7: Technical Specifications

Rukarara Plant Design Parameters:

Net Design Head	137m
Design flow	8,000 l/sec
Length of head race channel	3,610m
External diameter of penstock	1,7000/1,800/1,900 mm
Length of penstock	237m
Turbine type	Francis
Number of turbines	3
Turbine design speed	1,000 rpm
Turbine rating	3 x 3.3 MW
Number of generators	3
Generator rating	3 x 4 MVA
Generator rpm (3 phase 50 Hz synchronous)	1,000
Design plant capacity	9.5 MW

(Source: Rukarara Feasibility Study by EPG)

Nyabarongo Plant Principal Characteristics:

Annual provision	1160 Mm^3
Medium flow of the river	36,8 m3/s
Exceptionnel water level	1500,40
Normal water level	1497,00
Lower level/ turbine level	1493,00
Volume of the dam	40 Mm3
Useful volume	12,5 Mm3
Nominal level downstream	1430,50
Level of chock of the rough turbine	1428,30
Head	66,5 m
Equipment discharge	51 m^3/s
Installed capacity	27,8 MW
Capacity guaranteed at 95 % of the time	8,9 MW
Capacity delivered to the grid	17,2 MW
Annual production	153 GWh
Power Transmission HV line to Kilinda station	• voltage 110 kV • length 27 km

(Source: Nyabarongo Feasibility Study by SOGREAH)

Appendix I, Task 7: Rukarara HPP EPC Contract

Rukarara HPP EPC Contract

EPC Contractor	Eco Power Global (private) Limited
EPC Subcontractor	Turbo Institute of Slovenia (supplier of the electro mechanical equipment for the Facility)
Effective Date	November 26 2007
Term	
Total Contract Price	Euro 3,795,000 and US Dollar 11,180,500
Currency	US Dollar and Euro only
Terms of Payment	The GoR is to instruct the National Bank of Rwanda to issue irrevocable confirmed letters of credit of • US $9,680,500 made available to the Contractor in a bank in the country of the Contractor as specified by the Contractor • Euro €3,795,000 made available to Turbo Institut of Slovenia" in a bank situated in Slovenia as specified by the Contractor EPG shall reimburse the GoR 50% of the cost of the letters of credit subject to a maximum reimbursement of US $35,000.
Schedule of Payments	(a) Advanced Payment: US$1.5 million
Insurance Requirement	Euro 3,795,000 and US Dollar 8,737,450
Dispute Resolution	Disputes shall be handled in accordance with the Law on Arbitration and Conciliation in Commercial Matters, 2008 of Rwanda
Taxes	Value Added Tax Exempted

Appendix J, Task 7: Nyabarongo HPP EPC Contract

Nyabarongo HPP EPC Contract

EPC Contractor	Bharat Heavy Electrical Limited - Angelique International Limited Consortium
Lead Partner	Bharat Heavy Electrical Limited
Term	45 months
Total Contract Price	US Dollar 97,700,000 (firm lump sum not to exceed price and shall not be subject to any escalation/price adjustment)
Schedule of Payments	(a) Advance Payment: 20% of contract price payable upon signing of contract agreement (b) Interim Process Payments: payable per agreed key dates and specific milestones (c) Retention Payment: 5% of contract price shall be retained by the GoR against every against every Statement submitted for progress payments
Currency	US Dollar only
Performance Security	Ten percent of the Contract Price, shall be issued by State Bank of India to MININFRA within 28 days after both the Parties have signed the Contract Agreement
Dispute Resolution	Disputes shall be handled in accordance with the Law on Arbitration and Conciliation in Commercial Matters, 2008 of Rwanda
Jurisdiction	The Courts in Kigali
Performance Parameters	(a) FRL: **EL ± 1500.40 m** (b) MDDL: **EL ± 1497.00 m** (c) Minimum Gross Head: **± 66.50 m** (d) Maximum losses through the Water Conductor System: **Not exceeding 2.5 m.** (e) CL of Turbine: **EL ± 1428.30 m** (f) Power output: **29 MW (2 x 14.5 MW)** (g) Minimum Combined efficiency for Turbines and Generators: **92 %**. (h) Maximum Combined efficiency for

Turbines and Generators: **94 %.**

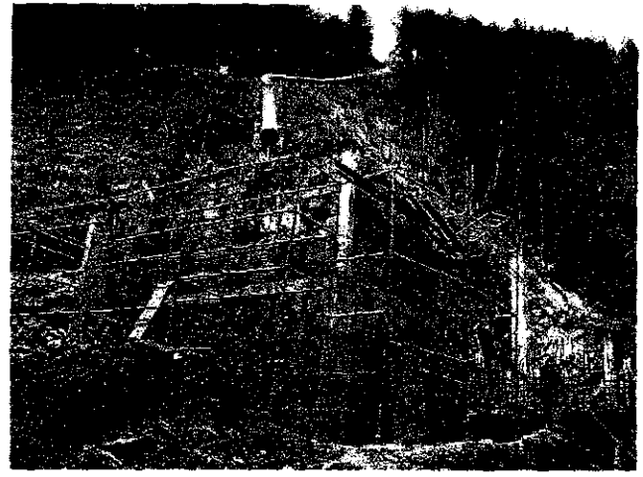
Liquidated Damages

Compensation payable by the Contractor for delay in milestones completion, shortfall ande delays in performance guarantees. The total amount payable shall not exceed the percentage of total Contract Priece stated in the Employer's Requirement.

Taxes

Exempted from all import levies, taxes and duties as per Rwandan Laws, except Income Tax (personal and Corporate) and Value Added Tax on local purchases.

Presentation to Investors

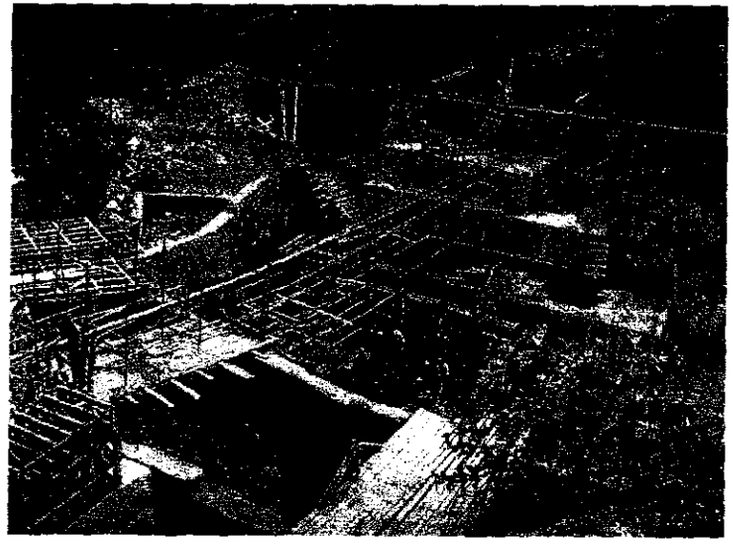


Nyaborongo & Rukarara Hydropower Projects

Executive Summary

- Rwanda is investing in two hydropower plants to:
  - Serve the country's burgeoning demand
  - Meet its full economic and developmental potential

Rukarara Hydro Power Plant



Nyabarongo Hydro Power Plant

Executive Summary

- ***Domestic Demand.*** Increased economic activity drives the demand for the development of the two hydropower plants.

- ***Government Action.*** To incentivize private sector investment in the energy sector, the Government has taken steps to abolish the legislated state-owned energy monopoly.

- ***Results-Driven.*** The Government has pushed forward the development of the two hydropower plants to add a total of 38MW to the country's power generation capacity.

Key Players

- EcoPower Global (EPG)
  - EPC Contractor for Rukarara HPP

- Bharat Heavy Electrical, Limited (BHEL)
  - EPC Contractor for Nyabarongo HPP

Project Overview – Rukarara

- ***Capability.*** The hydropower potential of the Rukarara River was confirmed in 2006 by EcoPower Global to be 9.5 MW.

- ***Cost of Construction.*** Estimated at US $16 million.

- ***Funding.*** The GoR is funding the construction of Rukarara HPP from its own resources.

Project Overview – Rukarara

- ***Investment Options.*** While GoR intends to operate Rukarara HPP through a subsidiary operator for at least a limited period, it is considering partial or full privatization of the smaller project.

- ***Financing History.*** The GoR has financed its construction through its own equities.

- ***Projected Net Income.*** After 2012, net income, after annual debt service payment, will grow at a stabilized average rate of 10% per year, increasing to $911,000 in 10 years and $1.6 million in 20 years.

Project Overview - Nyabarongo

- ***Capability.*** The hydropower potential of the Nyabarongo River was confirmed in 1999 by a French engineering firm to be 27.8 MW.

- ***Cost of Construction.*** Estimated at US $98 million.

- ***Funding.*** The GoR has received credit facilities from the Export-Import Bank of India for the development of Nyabarongo HPP.

Project Overview - Nyabarongo

- ***Investment Options.*** The GoR anticipates the either full or partial privatization of the Nyabarongo HPP.

- ***Financing History.*** The Export-Import Bank of India is currently financing its construction.

- ***Projected Net Income.*** After debt service and other expenses, net income is expected to grow at an average rate of 6% per year for the first 10 years, beginning at $5.4 million in 2013.

Project Status

Rukarara	Nyabarongo
• Construction works are completed. • Commissioning is expected to begin in the first quarter of 2010.	• Currently the access roads are under construction • Commissioning is expected to begin in 2013.

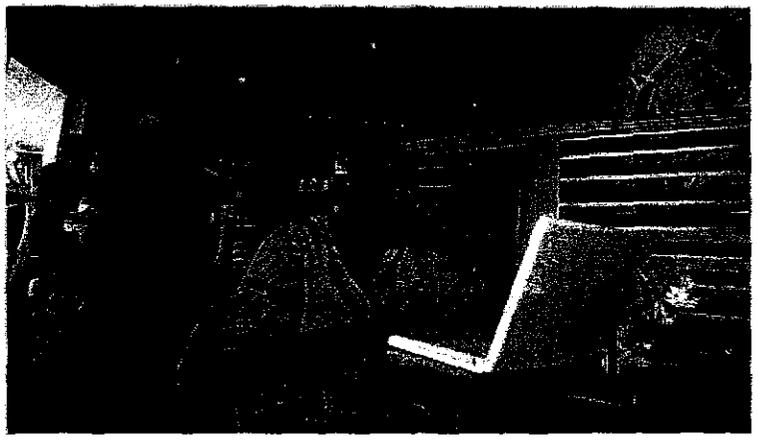
Financial Information

Rukarara	Nyabarongo*
• Projected Net Income ○ Average growth rate of 10% per year, increasing to $911,000 in 10 years and $1.6 million in 20 years.	• Projected Net Income ○ Average growth of 10% per year, increasing to $5.84million in 10 years and $8.7 million in 20 years.
• Operating Expenses ○ Estimated at $500,000 for the first year of operations. ○ Average annual operating cash flow for the entire project life expected to be approximately $2 million.	• Operating Expenses ○ Estimated at $2.3 million for the first year. ○ In 20 years, annual operating expenses will stabilize at approximately $2.7 million.

*Assuming full privatization

Rwandan Macroeconomic Market: An Introduction

- Over the last decade, Rwanda's economy has experienced significant, positive changes:
  - increased private sector initiatives
  - a more liberalized market
  - greater transparency in commerce



Rwandan Macroeconomic Market: Domestic Production

- GDP Growth Rates:
  - 1999-2002: 7.4%
  - 2003: 1%
  - 2004-2006: 5%
  - 2007: 7%
  - 2009: 5.5%
  - 2010: projected at 6%

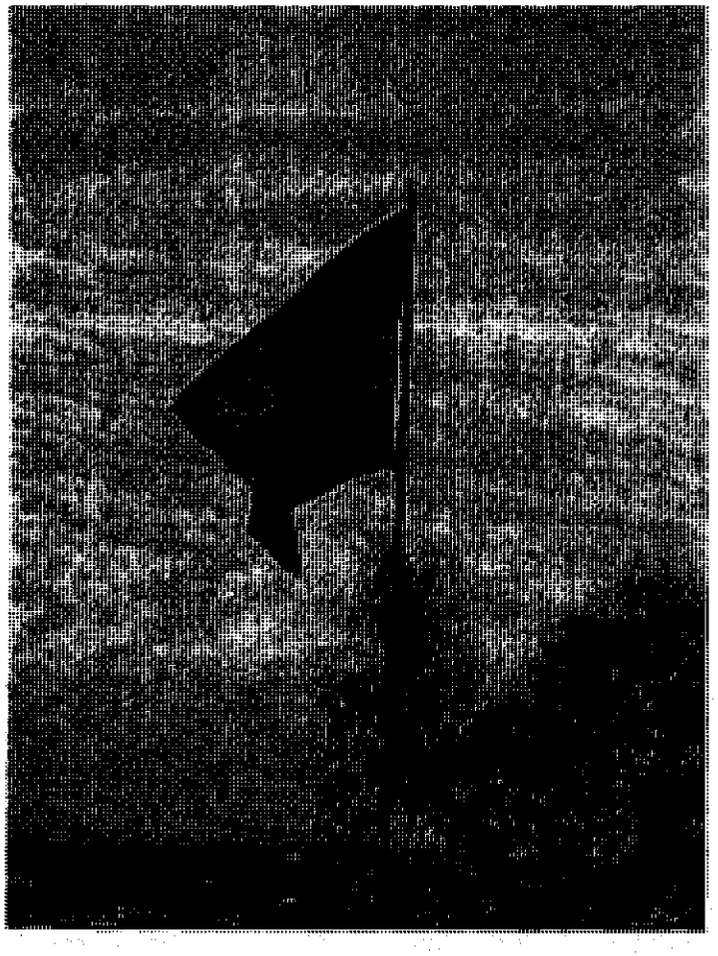
- Growth Driven by:
  - Improved agricultural output
  - Continued growth in services
  - Construction

Rwandan Macroeconomic Market: Foreign Direct Investment

- Encouraged by Government of Rwanda
  - Instituted policies for privatization and liberalization
- Rwandan Investment Law (March 2006)
  - Establishes certain protections over foreign investments
  - Provides further incentives to invest
  - Assists investors in obtaining licenses
- Participation in Protected Investment Organizations
  - Multilateral Investment Guarantee Agency
    - provides guarantees against non-commercial risks
  - International Center for the Settlement of Investment Disputes
  - African Trade Insurance Agency

Regulatory Climate

- The Government of Rwanda is in the process of reforming its laws and regulatory framework to:
  - facilitate privatization
  - encourage private investment
  - stimulate economic growth



Regulatory Climate

- Examples of evolving legal codes include the introduction of:
  - Investment Laws
    - Encourages and protects foreign investments
  - Procurement Laws
    - Expands the rules, regulations, and procedures applicable to public procurement
    - Promotes greater transparency, efficiency, and accountability in the public procurement process
  - Draft Privately Financed Infrastructure Projects Law
    - Stipulates that infrastructure projects are to be considered as "investments" according to the Investment Law

Development Impact

- Electricity is required to fuel continued development.
  - Increased demand for electricity is forecast to come from:
    - continued industrial growth
    - increased private construction
    - continued demographic growth
    - migration from the countryside to the cities
- Increased electricity leads to expanded opportunities.
  - Increased national employment levels
  - Growth of the small business community
  - Improved health and education

Appendix L, Task 9: Corporatization and Training Support to MININFRA and Other GoR Stakeholders

MININFRA has undertaken construction of the Projects based on a combination of own funds (equity) and $80 million - $97.7 million of concessional loans from Ex-Im Bank.

GoR has decided to retain government ownership in the Projects for the time being, to keep the cost-recovery tariffs as low as possible. However, at the same time MININFRA seeks to set up the projects in such a way that will achieve maximum operating/management efficiency in the short term, while preserving the flexibility to privatize (in part or in whole) the Projects at some future point in time, in accordance with the national Energy Policy objectives. With the interest of developing the Projects as corporatized entities, the Consultants propose that MININFRA undertake the following outlined steps:

1. **Register the Projects** as limited liability entities (e.g., corporations). Prepare corporate governance mechanisms. Provide for appropriate legal allocations of assets by function.

   a. Registration of a Company in the Republic of Rwanda

   Under law n 07/2009 of 27/04/2009, registration of a company must be preceded by reservation of a name and the registrar general cannot register a company under a name unless the name has been reserved and granted. Application for registration of a company must be delivered to the registrar general and should be:

   - In a prescribed form
   - Accompanied by a memorandum of association which is prepared in accordance with the type of the company to be formed.

   Once the registrar general is satisfied that the requirements of the law have been complied with, he issues a certificate of registration which in law is regarded as conclusive evidence that the company is incorporated.

   b. Management of Companies in the Republic of Rwanda

   Under the companies act, article 169 thereof; the business and affairs of a company are managed by, or under the direction or supervision of the Board of Directors. The Board may however delegate to a committee of Directors or employees of the company, or any other person any of its powers. Where a board delegates its powers however, it remains responsible for the acts of the delegate as if the power had been exercised by the board itself.

   Members of the Board of Directors are appointed by the annual general meeting of shareholders. Members of the Board of Directors should be of a sufficient member provided for by the articles of Association.

   c. Requirement of an Auditor

Article 238 of the companies Act obliges every company to appoint an auditor at each annual meeting.

d. Corporate Conduct

Corporate functions must of necessity be performed by human functionaries. The general meeting of shareholders is one of the entities within the company performing corporate functions. Other such entities are the board of Directors, committees of Directors, the managing Director, the Secretary, employees of the company and the company agents who may, but need not be, appointed from the ranks afore mentioned. When an organ of the company acts, it is for all practical purposes the company itself which acts. These organs however can only bind the company within the extent of their authority. In Rwanda for instance a company cannot enter into a major transaction unless the approval of the general assembly is first had and obtained.

e. Permitting

The Projects would require the following permits:

- Concession agreement by MININFRA (see below)
- Certificate of approval of environmental impact Assessment issued by REMA
- A license issued by RURA (A requirement under the Draft Gas and Electricity law).

2. **Finalize the PPA, Concession Agreement, and any third-party O&M arrangements** (which may help maximize the value of an eventual sale, to the extent the third party O&M contractor is unaffiliated and recognized/reputable) based on terms sheets provided under Task 6 of the existing engagement. Prepare transmission service agreements.

By following the recommended outline of activities, MININFRA will achieve the following objectives:

1. **Create more effective governance mechanisms** for the operation of the Nyabarongo and Rukarara projects. This would be achieved through operation of the projects as "normal" companies, with proper corporate governance structures and contractual arrangements. By creating a separate cost centre with income (through generation at agreed tariffs) and corporate governance (shareholder meetings, appointment of board of directors, management and O&M personnel, etc) the project companies will be able to better manage their operations, including maintenance. Agreeing a cost-reflective tariff under a PPA will avoid a situation where required maintenance is deferred indefinitely, affecting the availability and performance of the projects. Conversely, performance standards under the PPA will put this responsibility (and the associated risk) on the shoulders of the project company management, with clear penalties (and cash flow

consequences) for under-performance. Since the companies will establish and keep their own books, it will be easier to gauge performance with potential rewards or sanctions for company employees.

2. **Build capacity** among public-sector stakeholders in the operation and regulation of a sector involving unbundled participation. Stakeholders that will gain from the exercise include RURA (regulator), the Energy and Water Board (offtaker) and RECO (from the perspective of cost controls and management). Indirect beneficiaries include MINECOFIN (whose required credit enhancements to attract private investment may be reduced as the result of successful implementation of the projects) and MININFRA (as supervising ministry of the Energy and Water Board, who until now has been "gifting" assets to Electrogaz). This objective would be further supported through a training component.

3. **Create a demonstration effect** to spur private investment in the power generation sector in support of GoR's long-term policy objectives. By mimicking a properly functioning IPP structure, initially under 100% government ownership, GoR should increase the selling price for its equity in the projects and/or reduce the tariff to RECO, through reduction of perceived risk from private sector investors and lenders.

4. **Decrease cross-subsidization** by requiring each part of the company to keep its own books, which will provide an improved view of profit/loss centres.

5. **Build financial history**, which will provide potential investors a better understanding of the value of the company at the time of privatization. This increased certainty will allow for better pricing.

By implementing the outlined tasks and achieving the aforementioned objectives, the GoR will develop the Projects to present as marketable, corporatized entities to potential investors.