

REPUBLIC OF RWANDA



MINISTRY OF INFRASTRUCTURE

**ENERGY PERFORMANCE REPORT /BACKWARD LOOKING JSR
FOR FY 2014/15**

ENERGY SECTOR

Kigali, November 2015

Table of Contents

List of abbreviations	3
I. INTRODUCTION	4
II. PERFORMANCE REPORT FY 2014/15.....	5
2.1 Increase access to electricity.....	5
2.2 Increase installed generation capacity.....	6
2.3 Energy efficiency and energy security supply	7
2.4 Economic and competitive tariff.....	8
2.5 Institutional, legal and regulatory framework and analytical studies	8
2.5.1 Policy and legal framework	8
2.5.2 Analytical studies and EU Budget Support Indicators	9
2.5.3 Update on EWSA Reform	10
2.5.4 Cross-cutting issues.....	11
2.6 Progress on 2014/2015 targets and policy actions	11
2.7 Challenges.	12
III. BUDGET EXECUTION FY 2014/15.	12
IV. REVIEW PROGRESS OF EDPRS II MIDTERM TARGETS FOR ENERGY SECTOR AND UPDATE ON SUSTAINABLE ENERGY FOR ALL (SE4ALL).....	12
V. PRIORITY AREAS FOR THE 2016/17 FISCAL YEAR.	13
VI. UPDATE ON THE PREVIOUS JSR RECOMMENDATIONS.....	13
VII. ANNEXES	15



List of abbreviations

Abbreviations	
AfDB	African Development Bank
BTC	Belgium Technical Cooperation
CFLs	Compact Fluorescent Lamps
EARP	Electricity Access Rollout Program
EDCL	Energy Development Corporation Limited
EDPRS	Economic Development and Poverty Reduction Strategy
EIA	Environment Impact Assessment
EU	European Union
ESME	Energy Small and Medium Enterprises
FY	Fiscal Year
GOR	Government of Rwanda
HEP	Hydroelectric Project
HP	Hydro power
HPP	Hydro Power Plant
ICS	Improved Cook Stoves
IPP	Independent Power Producer
JICA	Japan International Cooperation Agency
JSR	Joint Sector Review
KPLC	Kenya Power and Lighting Company
LCPDP	Least Cost Power Development Plan
LV	Low Voltage
MINALOC	Ministry of Administration and Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MINEDUC	Ministry of Education
MHPP	Micro Hydropower Plant
MININFRA	Ministry of Infrastructure
MV	Medium Voltage
MW	Megawatt
PMHPP	Pico and Micro Hydropower Plants Project
PPA	Purchase Power Agreements
PSF	Private Sector Federation
PV	Photovoltaic
RDB	Rwanda Development Board
REFIT	Renewable Energy Feed-In- Tariffs
REG	Rwanda Energy Group
RMT	Rwanda Mountain Tea
RURA	Rwanda Utilities Regulatory Agency
SCBI	Strategic Capacity Building Initiative
SP	Societe Petroliere
SWH	Solar Water Heater
UNU-GTP	United Nations University Geothermal Training Programme
USAID	United States Agency for International Development

I. INTRODUCTION

Access to safe, reliable and cost effective energy is essential to achieve the levels of growth defined under the Economic Development and Poverty Reduction Strategy (EDPRS II). Energy sector is one of the priority sectors that bears a systemic impact on the entire economy. Decisions taken now will influence the direction of growth for other key sectors. Indeed, the provision of adequate infrastructure is essential for the development of industries and businesses especially for the development of energy-intensive industries, such as mining, agro processing industries, etc. and for ensuring a high quality service delivery from social institutions, such as health facilities, schools and administrative offices

For the period 2013/14-2017/18 covered by Economic Development and Poverty Reduction Strategy Second Phase (EDPRS II), Rwanda formulated clear objectives for the development of the Energy Sector, namely (i) Increasing electricity generation capacity, (ii) Increasing access to electricity, (iii) Maintaining an economic and competitive tariff, (iv) Sustainable and efficient use of biomass energy solutions, (v) Maintaining security of supply and stability of petroleum products' prices, (vi) Strengthening institutional, legal and regulatory framework and capacity building.

Objective of the Backward Looking Joint Sector Review

The backward looking 2014/15 JSR has the following main objectives:

- To assess progress in achieving sector objectives with focus on progress against 2014/15 targets for EDPRS 2 core indicators and their corresponding policy actions;
- To present and discuss budget execution performance;
- To review progress in achieving EDPRS 2 midterm targets;
- To review progress against implementation of recommendations from the last JSR meeting;
- To update stakeholders on planned analytical works in the sector as per the previous JSR resolutions;
- To highlight priority areas for the 2016/17 fiscal year that will inform the planning and budgeting process for institutions in the sector;
- To update stakeholders on key issues within the sector.



II. PERFORMANCE REPORT FY 2014/15

This section highlights the achievements against 2014/15 energy priorities in both electricity distribution, generation, biomass, sector policy actions and targets, etc.

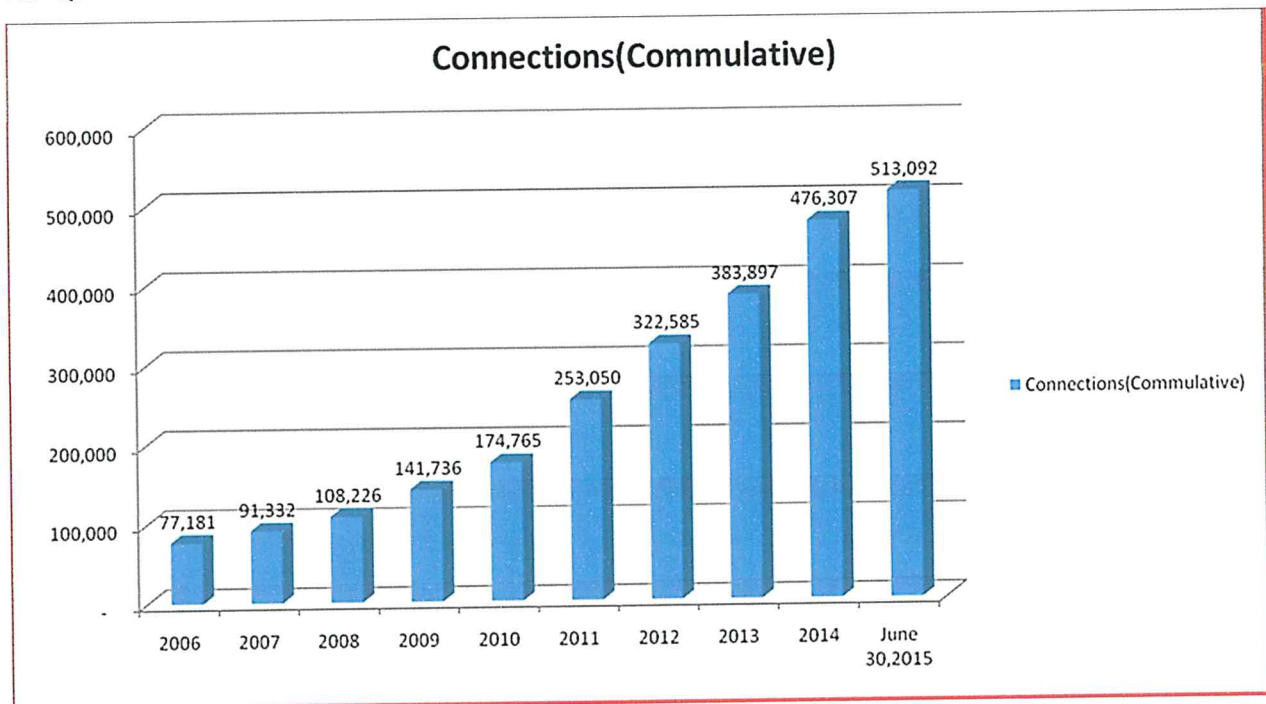
2.1 Increase access to electricity

The objective target for 2014/15 was to have increased power production and extension of the national electricity grid in order to increase the number of electricity connections by 50,000 with the budget available. Further, the government priority was to enhance electricity supply through off-grid systems i.e. installation of 8,000 solar home systems through MOBISOL-REG cooperation project and Ignite by June 2015.

The electricity connection target was achieved with 61,047 new households connected (2% increase) to the grid, 6,400 households electrified with off-Grid solutions (Mobisol, Ignite and support from Government of China) and the installation of 300 schools project completed. The off-grid baseline survey to be conducted during this fiscal year will provide a current status for off-grid connection countrywide.

Over the same period, the national electricity grid has been extended with the construction of 473 km of MV lines and 1151 km LV lines against the targets of 318.93km of MV lines and 517.61 of LV lines.

During the first quarter of 2015/16, new 19,282 connections were achieved and 800 Mobisol solar kits installed compared to the quarterly targets respectively of 18,000 and 3000. During the same period 178.256 km of MV and 298 km of LV lines were constructed exceeding the targets for Q1 of 134 MV and 294 LV lines.



Source: data from REG/EARP

9 ①

2.2 Increase installed generation capacity

The current energy generation is composed of Hydro, thermal, solar and Methane source of power. During 2014/2015 fiscal year, 40.5MW were commissioned leading to a cumulative capacity of 160MW; this was mainly achieved by the completion and operationalization of Nyabarongo I MHPP with an installed capacity of 28MW, Gigawatt Solar power plant (8.5MW) and diesel (4MW) in SEZ.

In the efforts to improve the performance of existing MHPPs with the involvement of Private Developers, the leasing of 15 MHPPs and Concession of 7 MHPPs were approved by the Cabinet Meeting of 5 August 2015 as detailed in Annex 1.

As a strategy to bridge the deficit in power supply for short and medium term, REG will install 30MW diesel power. The project will be commissioned in two phases: (i) 10 MW at Gikondo and 10MW at Mukungwa by January 2016 and (ii) 10 MW at Gikondo in by March 2016.

The current implementation progress on other ongoing generation projects is summarized below.

Table1: Implementation progress of ongoing generation projects

N ^o	Project name	Implementation status
1	KivuWatt methane gas (25MW)	The hot commissioning is ongoing with the plant supplying progressively to the national grid, 22MW was reached as of 16 th November 2015.
2	Gishoma peat to power project (15MW)	The construction of the water supply system, commissioning and trial run of peat feeders, installation of electrical lights and fittings in water intake pump house are in progress and expected to be completed by the end of December 2015. The final commissioning of the power plant will depend on the completion of the transmission line Ntendezi-Bugarama transmission line and related substations expected to be ready by June 2016.
3	Nyabarongo II MHPP project	The feasibility study for Hydropower plant, irrigation and water supply is ongoing. The interim draft report was submitted and presented by the consultants. The final report is expected to be provided by January 2016. The negotiations with SINOHYDRO on the construction of a 37.5 MW hydropower plant at the dam site have started. SINOHYDRO will submit the revised technical and financial proposal on 20 th November 2015 after which negotiations will continue.
4	IPP-Giciye II (4MW) by Rwanda Mountain Tea	Project is progressing well, civil works are to be completed by end December 2015 and the commissioning of the power plant is planned end March 2016.
5	IPP-Goldsol Solar (10MW)	The PPA negotiations, substation sizing in respect to the investment cost and feed-in tariff are ongoing. Upon concluding negotiations on PPA and substation construction, the project construction will start.
6	Symbion Methane Gas (50MW)	The revised Feasibility Study was submitted and discussed, the negotiations of the Power Purchase Agreement are ongoing and the Concession was approved by the Cabinet on 14 th October 2015.
7	IPP-Rukarara V (5MW) by REFAD	Construction of the access to Mushishiro dam site is ongoing, construction works for the power plant to follow after availability of the drawings.

N ^o	Project name	Implementation status
8	30 MW thermal power project	The tender notice for the procurement of 30 MW diesel power plant has been out since September 26th 2015. The commissioning of the first 10 MW at Gikondo and 10MW at Mukungwa is expected in January 2016 while the second 10 MW at Gikondo will be in March 2016.
9	Rehabilitation of Mukungwal MHPP	The project is on good track with works completed at 95%. The hot commissioning of first machine (6MW) is expected on 19 th November 2015.

Power trade and regional interconnections – The construction of different interconnections lines to facilitate regional power interchanges is at different stages with construction works at 100% completion for Mirama-Shango line (220 kV-93km) and 100% completion for the 110kV TL linking Shango and Birembo. However the construction of Shango substations is delaying due to the poor performance of the contractor, expected completion for this substation is by February 2016.

A PPA was signed on 9th December 2014 between Kenya (KPLC) and Rwanda (REG), for importation of 30MW of power from Kenya. Commencement of Commercial Operations Date (COD) was shifted to April 2016 due the delayed construction of high voltage transmission lines and substations between Kenya, Uganda and Rwanda.

2.3 Energy efficiency and energy security supply

Energy efficiency and security supply cover ongoing programs to promote the sustainable use of biomass fuels, biogas, ICSs, Solar Water Heater, CFLs, and fuel storage.

Biogas and ICSs- The achievements for the FY 2014/15 include the decentralization of biogas and ICSs programs to decentralized entities that was concluded with the signing of handover documents on 19th February 2015 between MININFRA and MINALOC and the transfer of the subsidies to the Districts followed by the guidelines for usage of funds.

Against the annual target of 3,500 for FY 2014/15 equivalent to 2,235,625,000 liters/year, 1,171 domestic biogas digesters equivalent to 598,043.693 liters/year of usable domestic gas were constructed, 8 institutional biogas were completed (against annual target of 22) and 129 masons were trained countrywide on Biogas construction during the same period. Within the same period, a total cumulative of 1,018,114 ICSs were disseminated country-wide by different ICS players.

Solar Water Heater - Under the “Solar Rwanda Program”, with the annual target of 5,000¹ SWHs installations, so far about 1665 SWH were installed. The equivalent energy saved by year from 1665 SWH is estimated at 128,707,835.18 KWh.

¹ From the Solar Water Heater Midterm Review Report, November 2014.

CFLs- The distribution of 800,000 CFLs was completed in April 2014 and World Bank is now conducting the fifth post installation survey of phase 4 (400,000CFL distributed from July 2012 up to April 2014) and phase 3 (200,000CFL distributed from 2009 to end 2010). This survey is conducted after the lamps distribution to make sure that it has been done in compliance with the monitoring plan. The carbon credits verification will be conducted early 2016.

Fuel storage- In order to address supply shortfalls due to limited storage facilities, Government committed to increase the fuel storage capacity through development of modern petroleum storage facilities. This is being done with the active participation of private sector investors.

During 2014/15 FY the fuel storage of 19,000m³ was completed by OILCOM and is operational and another of 16,000m³ is under commissioning by SP. However the contract for the rehabilitation of Rwabuye storage was terminated due to the poor performance of the contract and currently there is no budget planned for to restart the works.

2.4 Economic and competitive tariff

Considering the need to ensure the financial sustainability and improved quality of service by the Electricity Utility Corporation Limited (EUCL), Rwanda Utilities Regulatory Authority (RURA) carried out a review of the electricity end user tariffs.

After consultations on the amount of State subsidy and its allocation among different customer categories, a decision effective 1st September 2015 was taken to set new electricity tariffs for end users.

The end user electricity tariffs are hereby fixed as follows:

Customer Category	Existing Tariff, VAT exclusive (Frw/kWh)	New Tariff, VAT exclusive (FRW / kWh)	% change
Medium Voltage (Industrial)	126	126	nil
Low Voltage – All (Residential and Non-Residential)	134	182	36% increase

2.5 Institutional, legal and regulatory framework and analytical studies

2.5.1 Policy and legal framework

National Energy Policy and Energy Sector Strategic Plan - After intensive consultations with all energy stakeholders, the final policy document together with updated ESSP were approved by Cabinet on 20th March 2015.

Renewable Energy Law - A Consultant recruited through EU financial support is on board to support the development of a new renewable energy law. After comments to the draft law were received in May 2015, a revised draft document was submitted in September 2015 and is under review by MININFRA. The draft report will be presented to the SWG for comments, with the goal to finalize the document by end of 2015.



2.5.2 Analytical studies and EU Budget Support Indicators

A number of studies have been conducted during 2014/15 FY while others still ongoing as detailed below.

Geothermal Master Plan - The GoR through the Ministry of Infrastructure with Japan International Cooperation Agency (JICA) support developed Geothermal Master Plan. The study started end 2013 and the final report was submitted in March 2015.

Geothermal surface studies - The no-objection for Exploration of Bugarama site was provided and the surface studies on this site are ongoing. The EDCL with support of JICA is conducting additional surface studies (gravity and geological) and re-analyzing a geothermal conceptual model in the Kinigi prospect area. EDCL has applied to the African Union-Geothermal Risk Mitigation Facility (AU-GRMF) funded by EU and KfW for financial support for three (3) test drillings at Kinigi. The application is under examination by AU-GRMF and the result is expected in December 2015.

Least Cost Power Development Plan - The LCPDP, which outlines demand forecasts, resources available and commitments, was developed with the support of JICA experts. The draft report was presented to the Electricity Generation TWG on 9th February 2015 and the final report was submitted in March 2015, now awaiting Cabinet approval.

Nyabarongo II Feasibility Study (128MW) - an interim report was submitted on 18th January 2015 by the consultant (Feedback Infra). The final report is expected in January 2016.

Rural Electrification Strategy study - With EU financial support the Rural Electrification Strategy with an action plan and financial analysis of the tariff is under development. An inception report was presented and the revised report was submitted in October 2015. This will be presented to the Electricity Access Technical Working Group for comments. The goal is to finalize the report before end of 2015 with a validation workshop.

Scaling-up Renewable Energy Programme (SREP) Investment Plan - the final draft Investment Plan was presented to the SWG on 25th September 2015 and the final document was presented to SREP Board on 11 November 2015.

Feasibility of the Small and Medium Enterprises Renewable Energy Fund – Also being developed by the SREP project is this report, for which a draft was presented on 25 September 2015 to the SWG meeting.

Kigali Distribution Network Strengthening - EUCL through financial support of World Bank conducted a study “Kigali 15kV Network Upgrade”. The final report was submitted by the consultant and approved. The tender documents are available for implementation of the recommendations of the study.

Feasibility Studies of Peat to Power Plants including Country-Wide Peat Assessment - countrywide peat assessment interim report was presented to REG and MININFRA while sampling for the remaining sites continues. The final report will be submitted by Mid-December 2015 after the laboratory results from the samples.



Biomass strategy and charcoal value chain: draft terms of reference for the biomass strategy have been drafted and discussed by Biomass TWG. They are waiting for approval final approval from Chair and Co-Chair of Biomass TWG before the request for Expression of Interest (Eoi).

Energy Sector Financial Recovery Plan – The consultant for the study was financed by World Bank. The key findings from the study was presented to the Economic Cluster on 26th October 2015 and recommendations were approved.

Off-grid Baseline Study – the study is under procurement process, the contract is expected to be signed in January 2015.

The update on EU Budget Support indicators is summarized in Annex 2 of the report.

2.5.3 Update on EWSA Reform

The Prime Ministers Order Law N°87/23 of 16/8/2014 provided 12 months for most of the reform activities that were accomplished in August 2015 for both Rwanda Energy Group and Subsidiaries and Water and Sanitation Corporation (WASAC).

Key activities included development of Organizational structures, job Profiles and reward structures, Staff skills assessment and Recruitment, Asset Separation, verification and valuation and Tariff review for water and electricity.

Looking ahead, the reform programme is focused on improving institutional performance through:

Policy & Procedure Manuals - To this end both WASAC and REG have draft manuals covering many of their core operational areas. These have been used on pilot basis and are under review, with final Board approvals expected before end of December 2015.

Financial Management Systems and Reporting structures - This activity has been carried forward. Both WASAC and REG are expected to have an Oracle Consultant in place before end of December 2015.

Sector Plans - REG is evaluating offers for the firms that will develop both Strategic and Business plans. It is expected that the Consulting firm will be in place by close of December 2015.

Performance Improvement Programmes - REG is evaluating offers of Business Improvement Support Firms to facilitate the Company in developing specific work flow processes, support implementation of Business plans and provide support in entrenching new technologies and service oriented practices in the Company.

Tariff Review - Electricity tariffs were revised upward effective 1st September 2015 after a long consultative process. EUCL has undertaken an exercise for customer categorisation that will include proposals for Life Line (social tariff) to be ready by the first quarter of 2016.

REFIT - RURA in consultation with the Ministry of Infrastructure is reviewing the Renewable Feed-in-Tariff for small hydropower projects up to 5MW.

New Information Systems - REG is procuring an integrated Business information management system that will cover corporate resources management, Customer Management Services and

Incident Recording and Distribution Management components. Bidding closes at beginning of November 2015, contract is expected to be signed by February 2016 and implementation will last 18 months.

2.5.4 Cross-cutting issues

Capacity Building and Technical Assistance - Experts in different fields are supporting the successful development of Rwanda's energy sector. The only current active technical assistances in energy sector include: (i) 1 expert for EWSA reform at REG Holding level with World Bank support and iii) Consultants for Lake Kivu Monitoring Program (LKMP). The recruitment process of Experts through 4 years BTC Capacity Building Project is ongoing to support EUCL.

After the reform REG has elaborated a capacity building strategy for 2016-21 and an implementation roadmap starting 2016/17. At ministry level, it is expected a clear capacity building action plan will result from the Functional Review exercise started in October 2015.

Environment and Gender- The environment is one of the cross-cutting issues that is predominantly addressed in the implementation of energy programs/ projects. The replacement of biomass energy with other sources such as biogas reduces the reliance on firewood and the pressure exerted on the natural environment. The dissemination of improved carbonization techniques and improved cook stoves across the country as well as promotion of biogas use for domestic and institutions are also strategies implemented by energy sector to reduce the pressure on biomass.

The focus on the development of local and renewable sources of energy such as micro-hydropower, solar or geothermal energy reduces the amount of carbon dioxide emitted into the atmosphere and thus contributes to the global protection of the environment. Environment Impact Assessment (EIA) is also a precondition to all power projects and the protection of rivers near Micro Hydro projects is done in coordinated way with all concerned institutions.

Gender is another key cross-cutting issue that is being addressed by energy sector through the rural electrification program. Increasing energy access in itself will promote women's empowerment by enabling more small businesses. Improving energy services, in particular in the area of cooking, are key drivers for the emancipation of women and children from time-consuming duties, contributing then to improvement of the quality of life and education.

2.6 Progress on 2014/2015 targets and policy actions

The targets for the Economic Development and Poverty Reduction Strategy for the energy sector are mainly captured in two important indicators, namely electricity generation capacity and number of households, institutions and enterprises with access to energy. These indicators are illustrating how far electricity is available to support social and economic development of the country. The progress in implementing energy EDPRSII targets for 2014/2015 is shown in Annex 3.

2.7 Challenges.

The main challenges faced by energy sector includes (i) electricity tariffs remains subsidized and so do not reflect the investment costs incurrent, (ii) limited diversification, relying mainly on hydropower projects and thermal generators, (iii) dependence on biomass for cooking for the majority of households and (iv) Security of supply not ensured. The detailed challenges and lessons learned are developed in the annex 4.

III. BUDGET EXECUTION FY 2014/15.

The overall energy budget execution rate is 89.89% in the Fiscal Year 2014/15. The execution rate is respectively 125.09% for the recurrent and 82.87% for development budget. The recurrent budget has exceeded 100% due to the increase in expenditures for the heavy fuel that can be justified by the delay of some projects that were supposed to be completed during 2014/15 FY. The budget allocated to fuel subsidies increased from 15,971,551,459 FRW to 20,055,280,983 FRW during the budget revision.

The under execution of the budget for Energy Efficiency and Supply Security is due to the slowdown of rehabilitation works of Rwabuye Fuel storage due to poor performance of the contractor.

IV. REVIEW PROGRESS OF EDPRS II MIDTERM TARGETS FOR ENERGY SECTOR AND UPDATE ON SUSTAINABLE ENERGY FOR ALL (SE4ALL).

EDPRS II midterm progress- The Economic Development and Poverty Reduction Strategy second phase (EDPRSII) covering the period of 5 years (2012/13-2017/18) set national targets for energy sector for electricity access and generation capacity.

The current trend however shows that much efforts are still required to catch up in the next fiscal years to achieve EDPRS II targets. The annex 6 shows the current status and balance in terms of targets registered in achieving EDPRS II targets. It is compulsory to assess in details the requirements in terms of financing, implementation capacity, etc. to cover the gap with possibilities to revise and set realistic targets. For the access to electricity for example, the total annual budget required is USD 1.2 billion with a financing gap of about USD 600 million for the achievement of annual planned targets.

Sustainable Energy For All (SE4ALL) - The SE4All Action Agenda acts as a strategic roadmap for the country's energy sector to 2030 and identifies national targets aligned with the global SE4All objectives of universal energy access. The draft SE4All Action Agenda was presented to SWG members on 16 February 2015 and the final report is ready to be submitted to Cabinet for approval. The annex 7 summary high level targets for SE4All. The total annual energy costs associated with meeting these targets in 2030 are estimated by this study to be USD 1,320m, of which about USD 750m would be for on-grid electricity generation.

V. PRIORITY AREAS FOR THE 2016/17 FISCAL YEAR.

The priority for 2016/17 that shall be the reference point for energy sector in planning and budgeting are in line with EDPRSII annual targets and the ESSP. The key priority areas will cover the following:

1. Efforts will be focused in the construction of substations and both domestic and regional transmission lines. The detailed list of substations and transmission lines with the timeline, estimated budget and source of funding is in annex 8.
2. Increasing energy production: REG will continue promoting energy production through IPP's model by facilitating Developers for sites acquisition and infrastructures i.e. transmission lines for new sites. The IPPs projects concerned are Nyabarongoll, Symbion methane gas project, 10 MW Solar IPP PROJECT, new MHPPs IPPs, etc.
3. Regional hydro power projects of Rusumo Falls and Rusizi III where Government of Rwanda participation as one of the country beneficiaries will be important; the budget of land acquisition for Rusizi III is also one of the priorities for 2016/17.
4. Continue connecting of new household customers and designated productive areas, specifically identified industrial zones for financial sustainability in order to achieve EDPRSII targets.
5. Continue increase of fuel storage capacity by constructing Rwanda Petroleum Terminal at Rusororo/Gasabo District (To be constructed by a private investor) and rehabilitation of Rwabuye fuel storage.
6. Conduct key studies i.e. feasibility study for 100MW Methane gas, Wind resource assessment, etc.

VI. UPDATE ON THE PREVIOUS JSR RECOMMENDATIONS

The recommendations from the previous Forward Looking Joint Sector Review are at different stages of implementation as reflected below.

Table4: Implementation status of the recommendations from the previous JSR.

No	JSR Recommendation	Implementation status
1	Private sector: Set up a special meeting with Private sector and explore opportunities for engagement for facilitating better private sector participation. Before mid-June 2015	Special meeting not yet organized. However private sector was represented in all TWGs meetings.
2	ESSP mid-term: A review scheduled for Q1 2016 is expected to address several of the issues raised by the Co-Chair. Engage DPs early on and formalize the engagement process latest by Q4 2015	ESSP mid-term review not yet initiated. DPs will be engaged through regular TWGs discussions

No	JSR Recommendation	Implementation status
3	<p>TWGs: eSWAP to share ToR for inputs in order to finalize TWG ToR, proposals, governance and timelines, aligned to stakeholders and SWG by mid-June 2015.</p>	<p>TWGs ToRs shared with all TWGs members for inputs.</p> <p>Meeting between Chairs and Co-Chairs of different TWGs organized and general timeline of activities set.</p> <p>TWGs initiated meetings and started working on some activities</p>
4	<p>SWG: Hold an extra-ordinary SWG meeting for discussing cross-cutting themes, Tariffs, LCPDP, Sustainability of Investments before 30 June 2015</p> <p>-Tariffs: We need to capture and address issues soon including REFITs. Also RURA to understand and discuss the 'Reverse Auctions' policy instrument</p> <p>-LCPDP: Need to discuss this in a separate forum</p> <p>-Also consider if additional TWG are required (e.g. Capacity Development) to be completed.</p>	<p>Not yet organized.</p>
5	<p>Database: Set up a central database for sector studies for stakeholder access before mid- July 2015.</p>	<p>ToRs of consultancy support for an energy sector information sharing platform, including document database were elaborated. The recruitment process is ongoing.</p>
6	<p>Forward looking JSR report: inputs, comments to the report to be submitted to eSWAP team for consideration in the final report to be submitted to MINECOFIN.</p>	<p>Final report was signed by Chair and Co-Chair and submitted to MINECOFIN on 10th June 2015.</p>

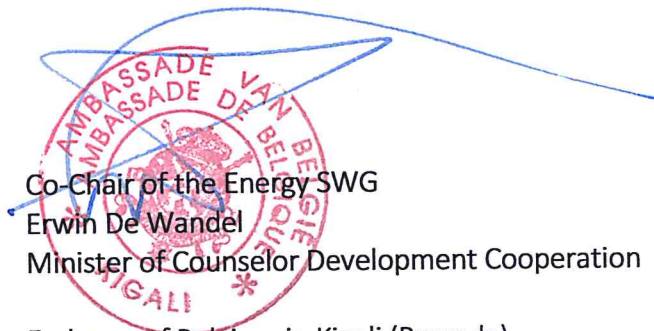
Chair of the Energy SWG
 Christian RWAKUNDA
 Permanent Secretary

Ministry of Infrastructure



Co-Chair of the Energy SWG
 Erwin De Wandel
 Minister of Counselor Development Cooperation

Embassy of Belgium in Kigali (Rwanda)



VII. ANNEXES

Annex 1. Leasing and concessions of MHPPs

Leasing of MHPPS		
No	Investors	Micro Hydro Power Plants
1	Carera- Ederer & Tiger Hubert Heindl	Agatobwe
2	Joint Venture between Energicotel Ltd & Adre Hydropower	Keya, Nkora, Nyamotsi I, Nyamotsi II & Cyimbiri
3	Joint Venture between Prime Energy and Kochendörfer & F.EE Hydropower GmbH	Mukungwa II & Gashashi
4	Joint Venture between Prime Energy and Kochendörfer & F.EE Hydropower GmbH	Rukarara II & Gisenyi
5	Joint Venture between Rwanda Energy UK Ltd (RGE) and Africa Energy Services Group Limited	Janja & Nyirabuhombohombó
6	Rwanda Mountain Tea	Rugezi & Gihira
7	Rural Energy Promotion Limited (Repro)	Mutobo
Concessions of MHPPs		
#	Investors	Concessions for Micro Hydro Power Plants
1	Ngali Energy Ltd	Base I, Base II, Ngororero, Rwondo & Ntaruka III
2	Led Energy Solutions and Green Energy Ltd	Mugara
3	Prime Energy Ltd	Rukarara 6

Q

Ø

Annex 2: EU Budget Support Indicators.

No	Indicator	Current status
1	Functional review carried out and action plan for the implementation of the recommendations of the functional review developed and validated by SWG by 2016.	The contract was signed between MININFRA and Capacity Development Consultants LTD. The inception report was submitted on 17 November 2015 and the draft final report is expected by end December 2015.
2	M&E unit in MININFRA operational and make public Joint Sector Reviews reports on the performances of the sector.	Energy performance report prepared on annual basis: forward looking JSR report presented in May 2015 and backward looking to be presented by November 2015.
3	Electrification and Renewable Energy Fund Investment Plan is approved by MININFRA and MINECOFIN.	Revised draft report submitted in October 2015, expected to be presented to energy stakeholders by December 2015.
4	Adoption of renewable energy law by SWG after Stakeholders consultation > linked to the second variable tranche of 6 M EUR (weight 25%).	Revised draft document submitted by Consultant in September 2015, to be presented in December 2015
5	Biomass energy baseline established, incl. use of cooking methodologies, forest coverage, use of electricity for domestic lights, demand supply/balance on biomass and gender aspects (ex. time spend by women for collection of firewood).	Not net initiated
6	Forestry inventory carried out with update on productivity by district and vegetation type (draft report available) > linked to the third variable tranche of 10 M EUR (weight 12%).	Ongoing by the Ministry of Natural Resources

Annex 3. Sector Indicators Matrix-progress 2014/15 targets and indicators

EDPRS2/sector outcome	Sector outcome indicators	Baseline (2012)	2014/15 Policy Actions	Brief Description of Progress against implementation of 2014/15 Policy actions
ECONOMIC TRANSFORMATION				
Increased electricity generation capacity	Electricity generated	110.8MW	1.Complete Construction of ongoing generation projects: - Nyabarongo (28MW); - KIVUWATT (25 MW), -GIGAWATT (8.5 MW), -Gishoma Peat (15 MW)	<ul style="list-style-type: none"> •Gigawatt Solar (8.5 MW) and Nyabarongol HEPP (28MW) commissioned and officially inaugurated respectively on 17 Sept 2014 and 6 March 2015. • KivuWatt Methane (25MW) - The hot commissioning is ongoing with the plant supplying progressively to the national grid. 22MW as of 16th November 2015. • Gishoma Peat (15 MW) The final commissioning of the power plant will depend on the completion of the transmission line Ntendezi- Bugarama transmission line and related substations expected to be ready by June 2016.
RURAL DEVELOPMENT				
Increased Household access to Electricity	% households with access to on-grid electricity	17%	Electricity connections increased by 61, 047	Policy action fully achieved at 100%, electricity connections increased by 61,047 from June 2014 to June 2015 (2% increase).
	% households with access to off-grid electricity	1%	1000 solar kits installed by Ignite and 8000 systems will be installed by Mobisol by June 2015	6,400 households (80% achieved) were electrified with off-Grid solutions by June 2015.
Increased household use of cleaner energy cooking technologies	% of households using cleaner cooking energy technologies	• 2,841 domestic biogas & 68 institutional	Construction of 3,500 domestic biogas digesters and 15 New Institutional biogas,	<ul style="list-style-type: none"> •1,171 domestic biogas and 8 institutional biogas •129,196 ICSs disseminated

EDPRS2/sector outcome	Sector outcome indicators	Baseline (2012)	2014/15 Policy Actions	Brief Description of Progress against implementation of 2014/15 Policy actions
		biogas plants constructed • 27,500 Canarumwe and 5,000 Canamake disseminated	91,242 ICSs to be disseminated	
Increased fuel storage capacity to 150 million litres by 2017	Fuel Storage volume facilities constructed	Storage capacity of 30 million litres	Increasing the security of Supply through construction of Fuel storage Facilities and Rehabilitation of Rwabuye fuel Storage	Oilcom fuel facility: construction works completed 100% and ready for commissioning. SP fuel facility: Overall progress estimated at 90% Rehabilitation of Rwabuye: ongoing and overall progress is estimated at 33%.




Annex 4: Challenges and lesson learnt

Challenges	Lessons learnt/strategies
<p>Electricity tariffs: the electricity tariff is still subsidized and so do not reflect the investment costs incurred in generation, transmission and distribution.</p>	<p>Electricity tariffs were revised upwards effective September 01, 2015. EUCL has undertaken an exercise for customer categorization and which will also include proposals for Life Line (social tariff proposals) to be ready by the first quarter of 2016.</p>
<p>Diversification: The current electricity installed is generated from hydropower projects and thermal generators, curtailing the capacity to increase generation and bearing significant impact on the tariff.</p>	<p>Government is promoting diversification into other generation technologies including methane gas, peat, geothermal and solar to remedy the problem in question.</p> <p>The Governments of Kenya, Uganda and Rwanda signed a Tripartite MOU to promote Power Generation and Interconnection of Transmission Systems Distribution in the region. This will help to enable both Bilateral and Multilateral Power Trades.</p>
<p>Biomass use: The majority of households use biomass for cooking with associated dangers including deforestation and respiratory infections.</p>	<p>The sensitization program to use improved cooking technologies and charcoaling technologies are some of the means to sustainable use of biomass resources.</p> <p>Another strategy to ensure energy efficiency is the promotion of use of biomass alternatives such as LPG, biogas and peat briquettes. LPG tax removal, subsidies and technical support for biogas and private sector involvement in making peat briquettes are some of measures in place.</p> <p>These replace the demand for wood fuels and save on the environment.</p>
<p>Security of supply (Petroleum products): Rwanda imports all the petroleum products and we are always victims of the prices and supply fluctuations.</p>	<p>To remedy this, the Government plans to support the storage of sufficient fuel reserves ²to cushion the economy from unfair effects of supply and or price shocks.</p>

² A 4 months consumption equivalent will be stored by government and private sector as strategic reserves by 2017

Annex 5: 2014/15 Budget execution by program and subprograms

PROGRAM AND SUBPROGRAMS	BUDGET ALLOCATED (FRW)	BUDGET EXECUTED (FRW)	BALANCE	EXECUTION RATE (%)
TOTAL ENERGY SECTOR	97,165,142,738	87,342,355,508	9,822,787,231	89.89%
RECURRENT BUDGET				
ADMINISTRATIVE AND SUPPORT SERVICES	16,166,209,596	20,221,921,260	-4,055,711,663	125.09%
SUBSIDIES FOR FUEL	15,971,551,459	20,055,280,983	-4,083,729,524	125.57%
OPERATING BUDGET	194,658,137	166,640,277	28,017,861	85.61%
DEVELOPMENT BUDGET				
FUEL AND ENERGY	80,998,933,142	67,120,434,248	13,878,498,894	82.87%
ELECTRICITY GENERATION	57,774,369,686	49,240,594,787	8,533,774,899	85.23%
ELECTRICITY TRANSMISSION AND DISTRIBUTION	20,951,581,490	15,817,322,066	5,134,259,424	75.49%
ALTERNATIVE ENERGY SOURCES PROMOTION	833,707,731	792,897,794	40,809,937	95.11%
ENERGY EFFICIENCY AND SUPPLY SECURITY	186,274,234	16,619,601	169,654,633	8.92%
GOR COUNTERPART FUNDS (projects)	1,253,000,001	1,253,000,000	1	100.00%

Source: REG/Budget Department

Annex 6: EDPRSII energy targets-current status and gaps

EDPRS Outcome	Indicators	Baseline (2012/13)	EDPRS II Targets 2017/18	2014/16 (October 2015) status	Balance to achieve EDPRS II Targets
Increased electricity installed capacity to 563 MW	MW of electricity installed capacity	110	563	160	403
Increased access to electricity by 70% (48% on grid and 22% off-grid)	% of households connected to grid electricity	17.6%	48% (1,108,882 new connections)	23%	25%
	% of households with access to electricity through off-grid solutions	1%	22% (111,812 new off-grid solutions)	1.5% ³	20.5%

³ The figure is an estimate that will be confirmed after the off-grid baseline survey which is under procurement process.

Annex 7:SE4All high-level targets for 2030

Sector	Target
Access to clean and sustainable cooking	<ol style="list-style-type: none"> 1. To close the gap (currently about 20%) between production and consumption <ol style="list-style-type: none"> a. 100% access to much more efficient cookstoves than currently used b. Improve charcoal production and partially replace charcoal with biomass pellets c. Increasing production of wood by improving forestry management 2. To maximize health benefits of efficient cookstove solutions
Access to electricity	<ol style="list-style-type: none"> 1. To achieve 100% electricity access: by 2025, all households will have at least basic levels of access (Tier 1 and above), and by 2030, all households will have at least moderate access to electricity services (Tier 2 and above). 2. Progress to higher quality and quantity of electricity over time, with >50% of the population having Tier 3-5 access by 2030.
Renewables	<ol style="list-style-type: none"> 1. Exceed the global target (26%) of renewables as share of primary energy 2. Exceed the global SE4All target (44%) of renewable electricity.
Energy efficiency	<ol style="list-style-type: none"> 1. At least double the efficiency of biomass energy use 2. Extend current rates of electrical efficiency improvement to 2030

P

Ø

Annex 8: List of priority transmission lines and substations for 2016/17 FY

SUBSTATION PROJECTS									
REGIONAL									
Project Name	Voltage Level	Status of the project	Sources of Fund	Estimated cost	Available budget	Deficit	Planned COD		
Birembo(110/15kv), Shango , Rubavu, Kibuye, Bwishyura substations	220/110/30 kv	Under construction	AfDB	US \$ 33,715,661.85	US \$ 33,715,661.85	None	Dec.2015(for Shango and Birembo) & Dec. 2016 (Rubavu, Kibuye and Bwishyura)		
Huye substation	220/30kv	Under bidding process for contractor	KfW	Euros €9 Million	Euros €8 Million	Euros €1 million	June -2017		
Bugesera substation and extension of Shango	220/30kv	Under bidding process for supervising firm	AfDB	US \$12.3 million	US \$12.3 million	None	December - 2017		
DOMESTIC									
Extension of Rulindo & Construction Gabiro Substations	110/30kv	Evaluation of the bids on-going	GoR	US \$ 18,627,972	0	US \$ 18,627,972	December -2017		
KSEZ substation	110/15kv	Under feasibility study	JICA	Rwf 4,500,000,000	Pledged-Financing Agreement not yet signed	Rwf 4,500,000,000	Dec-18		
Mamba substation.	220kv	Under Feasibility study	GoR	Rwf 5,472,000,000	0	Rwf. 5,472,000,000	Dec-17		

9

Substation of Nyabarongo II.	110 kV	Under Feasibility study	GoR	Rwf. 4,180,000,000	0	Rwf. 4,180,000,000	Dec-19
Rwabusoro , Kigoma and Extension of Rilima Substation.	220/110/30kV	Under Feasibility study	GoR	Rwf. 20,764,112,000	0	20,764,112,000	Dec-17
Shango substation	400/220kV	Under Feasibility study	GoR	Rwf. 11,400,000,000	0	Rwf. 11,400,000,000	Dec-20
Mont Kigali and Nemba substations	110/30/15kV	Under pre-feasibility study	EU	Euros € 11,000,000	Euros € 11,000,000	None	Dec-17
Symbion Substation.	220/15kV	Under pre-feasibility study	GoR	Rwf. 6,840,000,000	0	Rwf. 6,840,000,000	Dec-17
TRANSMISSION LINES projects							
REGIONAL							
Project Name	Length in km	Current project Status	Financiers	Estimated budget	Available Budget	Deficit in Frw	Planned COD
Mirama- Shango 220Kv transmission line	92.8Km	Under construction	AfDB & GoR	USD \$ 29,117,208.72	USD \$ 29,117,208.72	None	November-2015
Shango- Rubavu- Karongi -Goma 220Kv transmission line	183km	Under construction	AfDB & GoR	USD \$ 26,386,234.89 Plus Rwf \$ 5.3 billion	USD \$ 26,386,234.89	Rwf \$ 5.3 billion	December 2015

4

Kigoma-Huye-Akanyaru	62km	Bidding process	KfW	Euros 12 Million	Euros 12 Million	None	June - 2017
Rusomo-Bugesera-Shango	119km	Bidding process for supervision firm	AfDB	US \$28.3 million	US \$28.3 million	None	December - 2017
Kamanyola- Kibuye	92.5km	Feasibility studies completed	none	Euros €27.5 million	0	Euros €27.5 million	December 2021
DOMESTIC							
Ntendezi-Bugarama 110Kv transmission line	17.5 km	Under construction	GoR	US \$ 2,511, 181.60	US \$ 2,511, 181.60	None	June -2016
Rulindo -Gicumbi-Gabiro-Musha 110kv Transmission line.	93 km	Evaluation of the bids on-going	GoR	USD \$ 14,258,333	USD \$4,771,156.40	USD \$ 9,487,186.40	December -2017
Nyabarongo Il-Rulindo 110KV transmission line	13	Feasibility study completed	GoR	US \$ 2,189,189	0	US \$ 2,189,189	Dec-19
Rwabusoro - Mamba (Hakan peat to power plant) –Butare 220kv Transmission line	42 km	Under Feasibility study	GoR	Rwf 9,120,000,000	0	Rwf. 9,120,000,000	Dec-17
Jabana – Mont Kigali – Gahanga 110kv transmission line	27 Km	Under Feasibility Study	EU	Euros € 9Million	Euros € 9Million	None	December - 2017

Gasogi-Kigali Special Economic Zone (KSEZ) 110 kV transmission line	5 km	Under feasibility Study	JICA	Rwf. 2,500,000,000	Pledged – financing agreement not yet signed	Rwf. 2,500,000,000	Dec-18
Kibuye-Karongi-Kilinda -Kigoma-Rwabusoro - Rilima) 220kV Transmission line	100 Km	Under Feasibility study	GoR	Rwf. 6,080,000,000	0	Rwf. 6,080,000,000	Dec-17
Uganda-Rwanda 400KV transmission line	105 Km	Under Feasibility study	GoR	Rwf. 27,930,000,000	0	Rwf. 27,930,000,000	Dec-20
Mont Kigali-Nyamata -Nemba 110kV transmission line.	60	Under pre-feasibility study	GoR	Rwf. 17,440,000,000	0	Rwf. 17,440,000,000	Dec-17
Symbion lake Kivu power plant - Rutsiro 220Kv transmission line.	5	Under pre-feasibility study	GoR	Rwf. 3,040,000,000	0	Rwf. 3,040,000,000	Dec-17