REPUBLIC OF RWANDA

MINISTRY OF INFRASTRUCTURE

FORWARD LOOKING JSR FOR FY 2015/16 REPORT

ENERGY SECTOR

Kigali, June 2015

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List of abbreviations

Abbreviations	
BTC	Belgium Technical Cooperation
ACP	African Caribbean and Pacific Group of States
AfDB	African Development Bank
EARP	Electricity Access Rollout Program
EDCL	Energy Development Corporation Limited
EDPRS	Economic Development and Poverty Reduction Strategy
EIA	Environment Impact Assessment
EWSA Ltd	Energy Water and Sanitation Authority Limited
FY	Fiscal Year
GOR	Government of Rwanda
HEP	Hydroelectric Project
HP	Hydro power
HPP	Hydro Power Plant
ICS	Improved Cook Stoves
JICA	Japan International Cooperation Agency
JSR	Joint Sector Review
LCPDP	Least Cost Power Development Plan
LV	Low Votage
MHPP	Micro Hydropower Plant
MININFRA	Ministry of Infrastructure
PMHPP	Pico and Micro Hydropower Plants Project
PPA	Purchase Power Agreements
PV	Photovoltaic
RDB	Rwanda Development Board
REG	Rwanda Electricity Group
RURA	Rwanda Utilities Regulatory Agency
SCBI	Strategic Capacity Building Initiative
SREP	Scaling-up Renewable Energy Programme
SP	Societe Petroliere
SWH	Solar Water Heater
USAID	United States Agency for International Development
WB	World Bank

FORWARD LOOKING ENERGY SECTOR REPORT 2015/16

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 bearing systemic impact to the entire economy and the decisions taken now will influence the direction of growth for the rest of other key growth sectors.

1.1 Energy Sector objectives

The overall goal of Energy Sector is to ensure that all residents and industries can access energy products and services that are sufficient, reliable, affordable, and sustainable. The core objectives are as follows:

- Ensuring the availability of sufficient, reliable and affordable energy supplies for all Rwandans;
- Creating an enabling environment for increased private sector participation in energy supply and service provision;
- Encouraging and incentivizing more rational, efficient use of energy in public institutions, and amongst industrial and household end-users;
- Ensuring the sustainability of energy exploration, extraction, supply, and consumption so as to prevent damage to the environment and habitats;
- Promoting safe, efficient, and competitive production, procurement, transportation, and distribution of energy;
- Developing the requisite institutional, organizational, and human capacity to increase accountability, transparency, national ownership and decentralized implementation capacity for sustainable energy service delivery.

EDPRSII Sector objectives

- Increasing electricity generation capacity to 563 MW by 2017/18
- Increasing access to electricity to 48% on grid and 22% off-grid by 2017/18
- Maintaining an economic and competitive tariff
- Sustainable and efficient use of biomass energy solutions
- Maintaining security of supply and stability of petroleum products' prices
- Strengthening institutional, legal and regulatory framework and capacity building

II. ENERGY SECTOR PRIORITIES FOR FY 2015/16

2.1 Linkage between EDPRSII thematic areas and 2015/16 priorities.

In order to meet energy sector policy objectives and EDPRSII targets, the identification priorities for 2015/16 based on key criteria i.e. (i) alignment to ESSP and EDPRS II, (ii) ongoing projects to be completed in 2015/16, (iii) ongoing projects to be completed beyond 2015/16 and (iv) provision of infrastructures for IPPs projects.

The priorities areas were identified as top priorities for 2015/16 budget:

- The HFO peaking plant and IPP projects that are at a highly advanced stage
- Continue and fast-track on-going projects
- On-grid access and connections
- Off-grid solutions: this is a new area of development and so represents an important gap to be closed in order to reach the access target.
- Grid loss reduction and energy efficiency.

The specific projects are prioritized within 4 outcomes areas (generation, access, biomass, petroleum and energy saving) that are linked to 2 main thematic areas of EDPRSII i.e. Economic Transformation and Rural Development. The table below summarizes energy sector priorities in line with EDPRSII and the projects to be implemented during FY2015/16. Sector policy actions and targets for FY 2015/16 are summarized in annex 2.

EDPRS II thematic area/ Sector outcome indicators	Sector priority outputs
Economic transformation	
1. Increase electricity generation capacity (including imports) from the current 160 MW to 235 MW and diversification of energy sources.	The outcome includes electricity generation projects in Hydro, peat, methane gas and solar to be implemented by EDCL, and imports from neighboring countries; the planned projects are detailed below: *Projects to be completed by 2015/16 FY (74MW)*: ▪ Gishoma Peat to Power (15MW): fully commissioning and supply of Gishoma Peat to the national grid by June 2016 after completion of Ntendezi-Bugarama transmission line ▪ Uganda – Rwanda 220kV transmission line to facilitate Importation of 30MW from Kenya through Uganda. ▪ Kivu Watt methane gas project (25MW) ▪ Complete the construction of GiciyeII MHPP (5MW) ▪ Complete rehabilitation of Mukungwa I HPP to maintain the capacity of 12MW *Projects to be completed after 2015/16:* ▪ IPP- Goldsol Solar project (10 MW)- PPA negotiations concluded,

EDPRS II thematic area/ Sector outcome indicators	Sector priority outputs
	financial close reached and start construction works ▪ Symbion Methane Project (50MW) - financial close achieved and start construction works ▪ Conclude PPA negotiation and start construction of Nyabarongo II MHPP (128 MW) but 37.5MW for phase I. ▪ Rukarara IV Mushishito (5 MW)- financial close reached and start construction works ▪ Complete feasibility study for new 50MW HFO Power Plant located at Kigali Special Economic Zone (KSEZ) ▪ Hakan Peat (Phase 1: 80 MW, Phase 2: additional 40 MW)-complete the construction of access road (Save-Mombasa) and the supply of water to the site. ▪ Rusumo HPP (80 MW) - EPC contract signed and start construction works. One-third of the plant capacity assigned to Rwanda. ▪ Rusizi III (147 MW) - Conclude negotiations and reach financial close. ▪ Start construction of IPPs MHPPs projects i.e. Rwaza-Muko (2.6MW), Nyundo III (3.9MW), Kavumu (380kW), Kigasa (195kW), Gaseke (500kW), Base I (2.9 MW), Base II (2.9 MW), Ngororero (2.7MW), Rwondo (2.31 MW), Ntaruka A (2.07 MW).
Rural Development	
2. Increase access to electricity from 500,000 to 560,000 connections (access increased by 2.5%) and high voltage (HV) transmission (including trans-boundary interconnectors) lines increased by 330.6km	This outcome includes the projects of extending the grid and constructions of interconnection transmission lines: *Projects to be completed by 2015/16 FY* ▪ Construction of new 520 km MV lines and 600km of LV lines and connect new 60,000 households ▪ High Voltage (HV) transmission (interconnectors & Domestic lines) lines i.e.: i. 500MW, 220kV HV TL Mirama - Shango (93 km) and 220/110/30kV 75/93.8MVA Shango substation, ii. 250 MW, 220kV HV TL Shango – Karongi – Rubavu – Goma (180 km) and 220/110/30kV 75/93.8MVA Bwishyura, 220/30kV 25/31.5 MVA Rubavu Substations, iii. 110kV HV TL Bugarama – Gishoma (13km), iv. 110kV HV TL Ntendezi-Bugarama (23km) and substations, v. 110kV HV TL Rukarara-Kilinda (27km) and substation *Projects to be completed after 2015/16 FY* vi. 85 MW, 220kV HV TL Kigoma (Rwanda) – Gitega (Burundi) (62 km),

EDPRS II thematic area/ Sector outcome indicators	Sector priority outputs
	vii. 250MW, 220 kV HV TL Rusumo-Rilima-Shango (116km), viii. 220kV HV TL Mamba - Butare (15km) and ix. 113 km 220kV countrywide transmission line and substation including Rulindo-Gabiro-Musha 220kV transmission line and Gabiro Substation
3. Improve energy efficiency and	The priority area covers off-grid solar solutions, the dissemination of biogas, ICSs and SWHs programs. ▪ Dissemination of Solar-water Heaters and installation of new 1500 SWHs for households and 47 SWHs for hospitals and 183 health centers. ▪ Reduce loss reduction from 23% to 22% by 2015/16
4. Promote alternative energy solutions	▪ Installation of 11,000 solar home systems through MOBISOL-REG cooperation project. ▪ Installation of solar home systems through IGNITE-REG cooperation project. ▪ Facilitate Biogas dissemination of additional 3,500 at household and 15 institutional levels ▪ Facilitate dissemination of additional 175,540 improved cook-stoves
5. increase fuel storage facilities	This includes mainly the rehabilitation of Rwabuye fuel storage facility and Oilcom (additional 19million liters from existing 30 million liters corresponding to about 45 days of national fuel reserve).

2.2 Budget allocated to energy sector for FY 2015/16

Energy sector has one development budget program "Fuel and Energy "and 3 subprograms as detailed in the table[1]. Electricity Transmission and Distribution Subprogram takes 83% of the total budget while Generation and Energy Efficiency Subprograms represent respectively 15% and 2% of the total budget.

PROGRAM/SUBPROGRAM	DOMESTIC	EXTERNAL	TOTAL
FUEL AND ENERGY	**63,914,211,542**	**51,875,780,793**	**115,789,992,335**
ELECTRICITY GENERATION	17,063,062,925	4,723,575,164	17,892,916,462
ELECTRICITY TRANSMISSION AND DISTRIBUTION	44,483,148,617	47,152,205,629	95,529,075,873
ENERGY EFFICIENCY	2,368,000,000		2,368,000,000

[1] The budget may change as it is not yet approved by the Parliament

2.3 Planned analytical studies for 2015/16 FY

During 2015/16 FY, there are a number of studies to be conducted aiming at providing baseline situation, guidance for future investments in the sector, etc. The studies to be conducted with source of funds are detailed in annex 4.

- Scaling-up Renewable Energy Programme (SREP) Investment Plan: - with the support of the World Bank Group (WBG) and the African Development Bank and including the International Finance Corporation (IFC). The SREP investment plan will be a basis for Rwanda to be eligible to receive up to US$50 million of SREP funding. The aim of SREP funding will be to set up the Renewable Energy Development Fund (REDF), as per the ESSP and will be open to further contributions from other sources of funds.
  An inception report is already submitted, the draft report will be discussed in June and the final report is expected by end August 2015.

- Off grid baseline survey: the study will address the current issue of lacking situation of off-grid solutions while we are targeting to have 22% off-grid access by 2018.

- Functional/Institutional review of energy sector/MININFRA: the study is to be funded by BTC and will provide guidance on the support required for institutional strengthening and capacity building in energy sector in the Ministry.

- Investment prospectus for the implementation of SE4ALL Action Agenda lead by the African Development Bank.

- Survey on biomass to be funded by European Union.

2.4 Additional studies

Further studies are required to ensure progress towards the delivery of EDPRS II and the ESSP objectives. An overview is available in Annex 7. These studies do not have funding, following the 2015/16 budgeting process

III. PERFORMANCE PROGRESS ON 2014/15 PRIORITIES

This section highlights the current achievements on 2014/15 energy priorities and Annex 6 summarized the progress against 2014/15 key sector policy actions and targets.

3.1 Electricity generation capacity

Electricity generation capacity increased from 119.5 MW by June 2014 to 160 MW by April 2015; additional 36.5 MW from GIGAWATT-solar (8.5MW), Nyabarongol HEPP (28MW) and additional 4MW rental from SES Company (compared to Aggreko) were injected to the national grid. The actual available capacity by May 2015 was 93.5MW.

Other ongoing projects are expected to be completed before December 2015 i.e. KivuWatt (25MW) and Gishoma (15MW) Peat to Power respectively expected to be completed by end July 2015 and September 2015 and will supply CIMERWA factory.

Power trade and regional interconnections - There is progress on various activities to facilitate regional power interchanges. Construction works on Rwanda-Uganda interconnection line (220kV) is at 60% completion for Mirama-Shango line (93km) with respect to the commissioning date of October 2015, construction of substations i.e. Shango, Mirama are ongoing and 9.4km Shango-Birembo (110kV) is at an estimated 65% completion rate.
The 30MW 2015 PPA was signed on 9th December 2014 between Kenya (KPLC) and Rwanda (REG), for importation of power from Kenya. Ccommencement of Commercial Operations Date (COD) is due June 2015 with subject to completion of interconnector.

3.2 Access to electricity

The total number of connections to the national grid has increased from 447,280 electricity connections at end of June 2014 to 497,346 by April 2015. Over the same period, the national electricity grid had been extended with the construction of 412.23 kms of MV lines and 891.74 kms of LV lines.
About 6400 Households were electrified by solar PV (400 Solar kits by Government of China, 5000 by Mobisol and 1000 by Ignite). The project "Increase Rural Energy Access in Rwanda through Public Private Partnership" funded by the GoR in partnership with EU completed the supply and installation of PV Solar equipment in 300 rural schools which are beyond 5 km far from national grid. All of the 300 schools have been provisionally accepted and are fully operational.

3.3 Sustainable and efficient use of biomass energy solutions.

The ongoing programs to promote the sustainable use of biomass fuels, whilst supporting transition to best alternatives to mitigate social and health impacts of traditional use of biomass resources include the National Biogas program (domestic and institutional) and Improved Cook Stoves (ICSs).

The achievements since July 2014, include the decentralization of biogas and ICSs programs to decentralized entities that was concluded with the signing of handover documents on 19 February 2015 between MININFRA and MINALOC and the transfer of the subsidies to the Districts followed by the guidelines for usage of funds.
Since 1st July 2014 up to May 2015, 887 domestic biogas digesters equivalent to 453,001,500 liters/year. of usable domestic gas were constructed against 2014/15 annual target of 3,500, equivalent to 2,235,625,000 liters/year, 5 institutional biogas were completed (against annual

target of 15) and 129 masons were trained countrywide on Biogas construction during the same period. Within the same period, a total of 129,196 ICSs were disseminated country-wide by different ICS players.

3.4 Petroleum, oil and gas

3.4.1 Increase security of supply: Government objective is to have a strategic reserve of 3 months' supply (corresponding to a total of 90 million liters) by the construction of fuel storage facilities. One with 19 million liters capacity at, Jabana by OILCOM is already completed and is to be operational soon while the second of 21 million liters capacity under construction by "Societe Petroliere" (SP) at Rusororo is expected by end June 2015. The ongoing rehabilitation of Rwabuye fuel storage (3.8 million liters) by EXERT ENGINEERING GROUP is 33% completion.

3.4.2 Oil pipeline Eldoret-Kampala-Kigali: Feasibility studies and evaluation of bids for Contractor to develop 12-14 inch diameter Eldoret-Kampala-Kigali pipeline on EPC arrangement was completed, the Request For Proposal (RFP) is ready for advertisement.

3.5 Strengthening institutional, legal and regulatory framework and capacity building

3.5.1 Rwanda Energy Policy and Energy Sector Strategic Plan – MININFRA initiated a process to update the National Energy Policy in 2014, to better align with new priorities and to meet sector challenges. The final policy document together with updated ESSP was approved by Cabinet on 20 March 2015.

3.5.2 Renewable energy law– A Consultant recruited through EU financial support is on board to support the development of renewable energy law. Draft law was submitted in May 2015 and is under review with MININFRA.

3.5.3 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.

3.5.4 EWSA reform – After the coming into force of the Law No97/2013 of 31st January 2014, the reform of EWSA was enacted and the agency was transformed into two government owned companies, Rwanda Energy Group and Water and Sanitation Company as of 12th August 2014. Consultancy Services were recruited for the smooth implementation of the reform i.e. organization restructuring, MIS scoping, Legal consultant, Asset separation, Least Cost Power Development Plan (LCPDP) and business plan for Water and Sanitation.

The current implementation progress of the reform includes the following:

- The recruitment of Directors and Heads of Units was concluded by 30th March 2015.

- Two firms have been retained to undertake the remainder of the recruitment Written exams and Shortlisting has been finalized for REG and this activity will be closed by 30, June 2015.
- With BTC funds, the procurement process is already initiated for the consultant to elaborate REG'S Five (5) year Strategic Plan.
- The LCPDP was developed with the support of JICA and the final report was submitted in March 2015.
- Asset Separation: PWC submitted a final draft report, MININFRA appointed a joint review committee that includes MINECOFIN and final comments were submitted to PWC. The final report is expected to be submitted by PWC by end May 2015.

3.6 Economic and competitive tariff-

Rwanda Utilities Regulatory Authority (RURA) carried out a review of the electricity end user tariffs that was aimed at addressing cost reflective issue and encouraging private investments while protecting consumer interests in respect to affordability, availability, accessibility and quality of services.

The study considered 3 customer categories as part of Phase 2 of tariff improvements i.e. (i) High Voltage (220 and 110kV): all customers with a HV connection voltage, (ii) Medium Voltage (< 100 kV, > .4 kV): all Customers with a MV Connection Voltage and (iii) Low Voltage (0.4 and 0.23 kV): includes all Customers with a LV Connection Voltage who are a Residential Customer and Non-Residential Customers.
The draft proposal of tariff structures based on customer categories was presented by RURA to high level stakeholders in MININFRA, MINECOFIN and MINICOM on 7 May 2015. RURA in collaboration with EUCL and MINECOFIN is reviewing scenarios to be submitted for Cabinet approval.

3.7 Cross-cutting issues.

3.7.1 Capacity building

Technical assistance- Experts in different fields are supporting the successful development of Rwanda's energy sector. The active technical assistances in energy sector include: (i) 3 experts through the project Institutional Strengthening and Capacity Development of Electricity Utility (SCDEU) with the support of BTC, (ii) 1 expert for EWSA reform with World Bank support, (iii) 3 experts recruited through NCBS to support in energy investment, peat and transmission line engineering under the Strategic Capacity Building Initiative, (iv) 1 expert in project management through JICA support. With Netherlands support, about 3 experts are supporting the sector in Lake Kivu monitoring.

BTC and EU committed to provide financial support for Energy and Planning Experts, the ToRs are being finalized for the recruitment process.

Capacity Building- Intensive capacity building program has been initiated and still ongoing. Under the SCBI program, local counterparts receive on-job training from the international experts.

In order to identify capacity needs in the ministry including energy sector, MININFRA intend to commission a deep functional review to assess the ministry's institutional, organizational and capacity for effective service delivery and achievement of sector targets. The recruitment process of the consultant is ongoing.

3.7.2 Environment and Gender.

Environment and gender are also cross-cutting issues that are predominantly addressed in the Energy Sector.

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 ICSs across the country are also strategies implemented to reduce the pressure on biomass and reduce indoor pollution which mostly affect women who are always in kitchen. .

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 always considered during the implementation phase of energy projects. All projects under implementation are encouraged to consider women in the recruitment of workers. A considerable number of women have then access to jobs and incomes contributing to the welfare of the entire family.

It is important to notice that there is a need of survey to identify the impact of energy projects to gender.

3.8 Policy related analytical studies

3.8.1 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.

3.8.2 Least Cost Power Development Plan- LCPDP based on demand forecast, resources available, and commitments and future least cost plan was developed with the support of JICA

experts. The draft report was presented to generation TWG on 9 February 2015 and the final report was submitted in March 2015.

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

3.8.4 Symbion methane gas IPP project (50MW)-: draft feasibility study was submitted on 16 May 2015, reviewed by a joint team composed of MININFRA, REG, RURA, RNRA, REMA, RBS and consolidated comments were submitted for the final document expected to be completed by 16th May 2015.

3.8.5 Rural Electrification strategy- 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 final report is expected by end of June 2015.

3.8.6 Energy Planning Institutional Gap Assessment and Capacity Development strategy-the study was conducted through UNECA support; a draft final report was submitted by the Consultant in December 2014.

3.8.7 Strategic Environmental Assessment (SEA) - the SEA of the Rwanda Energy Policy and Sector Strategic Plan was carried out, and the findings presented in December 2014.

3.9 Energy sector challenges and strategies

Several challenges continue to impact the implementation of the priority actions and sector performance. The following paragraphs highlight some of the key challenges and proposed actions to address the same.

(i) **Supply shortfalls and high supply costs:** Due to insufficient generation capacity, the use of rental thermal generation has led to high electricity costs. Rwanda has the highest tariff in the EAC at about $0.21/kWh.

To address those challenges, a Least Cost Power Development Plan (LCPDP) has been developed to ensure the sustainable development of the electricity sector in Rwanda in a 20 year planning period. The study focused on proposing the 'right mix' of new power plants required to meet the projected demand and load profile over the short, medium and long-term.

(ii) **Increased electricity access**. Despite impressive gains, access rates remain low at about 22% nationwide and an annual per-capita electricity consumption of 380kWh. Significant investment is required in transmission and distribution in order to maintain the high connection rates. About $1.2 billion is required to increase the national access rate to about 48% by 2018. Other cheaper energy sources options will need to be explored to supply part of the population which will not be covered by grid connection in the short-medium term. In this regard, Rural electrification Strategy that will include off-grid electrification strategy is under development to supplement the EARP program.

(iii) **Institutional Set-up and Increased Private Sector Investments.** The energy sector, like most other sectors in Rwanda, lacks adequate experienced personnel to manage it. To facilitate efficient and effective performance of the energy sector, the energy business is being restructured in a manner that, in the medium term, would provide confidence about its creditworthiness attract increased private sector investments.

IV. RELEVANCE OF A MID-TERM REVIEW OF THE SECTOR STRATEGIC PLAN

The Rwanda Energy Policy (REP) together with the Energy Sector Strategic Plan (ESSP) was approved by the Cabinet on 20 March 2015. It is planned that ESSP will be reviewed every year based on new developments in the sector, progress towards achieving EDPRS targets, etc. The review of the ESSSP will consider for example the Least Cost Power Development Plan, the demand projection and generation plan, etc. Therefore as the ESSP was recently updated, there is no need for a full mid-term review of the plan.

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ANNEXES

Annex 1: Linking Sector Outcomes Budget Program and Sub-Programs

PROGRAM: FUEL AND ENERGY	63,914,211,542	51,875,780,793	115,789,992,335
SUB-PROGRAM	DOMESTIC	EXTERNAL	TOTAL
SECTOR OUTCOME 1: Increased electricity generation capacity			
SP 1.1 ELECTRICITY GENERATION	17,063,062,925	4,723,575,164	17,892,916,462
Sector Outcome 2: Increased access to electricity for households and enterprises			
SP1.2 ELECTRICITY TRANSMISSION AND DISTRIBUTION	44,483,148,617	47,152,205,629	95,529,075,873
Sector Outcome 3:.Increased fuel storage and energy efficiency			
SP 1.3 ENERGY EFFICIENCY	2,368,000,000		2,368,000,000

Annex 2: 2015/16 Targets and Policy Actions for the Sector Indicators Matrix (For the selected 10 sector indicators

EDPRS 2/Sector outcome	**Sector outcome indicator**	**Baseline 2012**	**2015/16 Targets**	**2015/16 Policy Actions/ priority outputs** (maximum of 2 per each indicator)
Economic Transformation				
Increased electricity generation capacity (including imports)	Electricity generated (MW)	110.8MW	235 MW (new 75 MW in 2015/16)	1. Complete construction and commissioning of ongoing generation projects i.e. KIVUWATT (25 MW), Gishoma Peat (15 MW), import 30MW from Kenya Through Uganda and micro hydros (e.g. Giciye II – 4MW). 2. Feasibility Study of 50MW HFO Power Plant located at KSEZ.
Increased access to electricity for households and enterprises	Households with access to grid electricity	308, 326 connections by end June 2012	560,000 connections (new 60,000 connections in 2015/16).	Complete construction of new 331km HV lines, 505 km MV lines and 600km of LV lines and connect new 60,000 households.
Fuel storage rehabilitated and expanded capacity to 49.6 million litres	Fuel storage capacity (million litres)	30.6 million litres	49.6 million litres (additional 19 million litres in 2015/16)	Complete rehabilitation of Rwabuye fuel storage, Oilcom storage operational and Construction of SP fuel facility at 60% completion rate by June 2015
Rural electrification				
Increased use of domestic biogas digesters	Domestic biogas digesters constructed	2841 domestic biogas digesters	11,441 domestic biogas digesters (New 3,500 domestic biogas in 2015/16), producing 5,843,055,424 liters.	Subsidizing construction of domestic biogas plants and offering requisite technical support

Increased Number of institutional biogas digesters	Institutional biogas digesters constructed	68 institutional biogas digesters	96 institutional biogas digesters (new 15 institutional biogas digesters)	Offering technical support for the construction of institutional biogas plants
Increased use of efficient cooking methods	Number of Improved Cooking Stoves (ICS) disseminated	32,500 ICS disseminated	1,854,412 ICS disseminated and 45 production units (new 175,540 ICS and construction of 15 production units in 2015/16).	Dissemination of Improved Cook Stoves through the construction of ICSs production units and training of potters.
Increased use of Solar Water Heaters (SWHs)	Number of SWHs installed	98 SWHs	3,304 SWHs installed (new 1500 household SWHs plus 47 hospitals and 183 health centres installed in 2015/16)	Dissemination and installation of SWHs

Annex 3: Targets and Policy Actions for the EDPRS 2 Core Indicators Matrix

No	EDPRS OUTCOME	INDICATORS	UNIT	BASELINE (2012)	2015/16 Targets	2015/16 Policy Action	Responsibility for Reporting
ECONOMIC TRANSFORMATION							
1	Increased electricity generation capacity (including import)	1. Electricity generation capacity	Mega Watts	110.8MW	235 MW (new 75 MW in 2015/16)	1. Complete construction and commissioning of ongoing generation projects i.e. KIVUWATT (25 MW), Gishoma Peat (15 MW), import 30MW from Kenya Through Uganda and micro hydros (e.g. Giciye II – 4MW).	Energy Sector/REG-MININFRA
						2. Feasibility Study of 50MW HFO Power Plant located at KSEZ	Energy Sector, MININFRA/REG
RURAL DEVELOPMENT							
2.	Increased access to basic infrastructure for households and enterprises	2.1. Households with access to electricity	Percent	18% (17% On-grid, 1% Off-grid)	27.5% (increase by 2.5% in 2015/16)	Complete construction of new 331km HV lines, 505 km MV lines and 600km of LV lines and connect new 60,000 households.	Energy Sector, MININFRA/REG
					8% off-grid	Installation of 11,000 solar home systems through MOBISOL-REG cooperation project.	Energy Sector, MININFRA/REG

Annex.4: Sector Priority Analytical Studies for 2015/16

EDPRS2/sector outcome	Planned Analytical Work & Duration	2015/16 Budget (RWF)	Funding Source
RURAL DEVELOPMENT	Scaling-up Renewable Energy Programme (SREP) Investment Plan, from May to August 2015.	300,000 USD	AfDB, WBG and, including the (IFC).
	Feasibility of the Small and Medium Enterprises Renewable Energy Fund, from May to August 2015.	-	WB
	Off-grid baseline survey		?
ECONOMIC TRANSFORMATION	Feasibility Study of 50MW HFO Power Plant located at KSEZ	79,200,000	GoR
	Investment prospectus for the implementation of SE4ALL Action Agenda	-	-
	Kigali Distribution Network Strengthening. 1 Year Feasibility Study Duration (Part of Loss Reduction Programme)	600,000,000 RWF	GoR
	Feasibility Studies of Peat to Power Plants including Country-Wide Peat Assessment. Expected completion July 2015.	500,000,000 USD	GoR
	Nyabarongoll feasibility study to be finalized	830,000,000 RWF	GoR
CROSS-CUTTING ISSUES	Functional review of MININFRA	150,000 USD	BTC

Annex.5: Progress against 2014/15 Sector Analytical Studies

EDPRS2/sector outcome	2014/15 Planned Analytical Work	Brief progress, challenges and actions to be taken if any
ECONOMIC TRANSFORMATION	**Geothermal master plan**	The study started end 2013 and the final report was submitted in March 2015.
	Least Cost Power Development Plan	The draft report was presented to generation TWG on 9 February 2015 and the final report including comments was submitted in March 2015
	Regional project for Geothermal exploration Rwanda-Burundi-DRC	The study is ongoing and is to be completed 2015-16
	NyabarongoII feasibility study	An interim report was submitted on 18th January 2015 by Feedback Infra/consultant, the final report is expected in 15th July 2015.
	Symbion methane gas IPP project (50MW) feasibility study	Draft feasibility study was submitted on 16 May 2015, consolidated comments were submitted for the final document expected to be completed by June 2015.
RURAL DEVELOPMENT	**Rural Electrification strategy** and action plan Scaling-up Renewable Energy Programme (SREP) Investment Plan, from May to August 2015.	An inception report was presented and the final report is expected by end of June 2015 Inception report submitted in May, final report to be completed in August 2015

Annex.6) Progress against 2014/15 Policy actions (for the selected 10 sector indicators)

EDPRS2/sector outcome	Sector outcome indicators (not exceeding 10 including EDPRS2 Core 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 I (28MW); - KIVUWATT (25 MW), -GIGAWATT (8.5 MW), -Gishoma Peat (15 MW)	•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) - Overall construction progress is at 99%, new COD is on 22nd July 2015. • Gishoma Peat (15 MW)-: overall power plant completion is estimated at 95%. The remaining works and Water supply are expected to be completed by End October 2015, Ntendezi-Bugarama Transmission line Mid June 2016 and Commercial Operation Date (COD) End June 2016 (after connecting the Power plant to the National grid).
RURAL DEVELOPMENT				
Increased Household access to Electricity	% households with access to on-gird electricity	17%	Electricity connections increased by 50, 000	Policy action achieved at 83%, electricity connections increased by 41,279 from June 2014 to March 2015
	% households with access to off-gird	1%	1000 solar kits installed by Ignite and	Distribution of solar kits pilot project by ignite already completed, Mobisol is

	electricity		8000 systems will be installed by Mobisol by June 2015	ongoing.
Increased household use of cleaner energy cooking technologies	% of households using cleaner cooking energy technologies	• 2,841 domestic biogas & 68 institutional biogas plants constructed • 27,500 Canarumwe and 5,000 Canamake disseminated	Construction of 3,500 domestic biogas digesters and 15 New Institutional biogas, 91,242 ICSs to be disseminated	•129,196 ICSs disseminated •740 new domestic biogas digesters and 5 new institutional biogas constructed
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.7: Additional studies with no financial commitment for FY 2015/16

EDPRS2/sector outcome	2015/16 Proposed Work	Content overview
ECONOMIC TRANSFORMATION	Impact of electricity tariff on demand.	Assessment of the elasticity of electricity demand (both energy and peak) to the price, for multiple categories of customers.
	Guidelines on regional power system integration	Prepare guidelines for the development of state-of-the-art cross border PPA's to support the negotiation of the PPA with Ethiopia
	Guidelines for PV solar energy	Comprehensive guidelines for the development of the on-grid solar sector
	EE and DSM action plan	Define a comprehensive EE/DSM sector action plan and strategy based on the draft EE Strategy by Econoler (2014).
	Energy efficiency and conservation law	Define a legal framework and prepare the text of a law to develop the energy efficiency sector
RURAL DEVELOPMENT	Review and update of the Biomass to Energy Strategy	Updating Rwanda's biomass strategy to reflect new technologies and strategic direction in the sector to meet targets.
	Review of appropriate ICS technologies	Updating technology and studies & review of ICS national technology standard
CROSS CUTTING	Energy Innovation Programme	Develop a challenge fund to promote R&D in the energy sector by universities, NGOs and businesses.