REPUBLIC OF RWANDA

MINISTRY OF INFRASTRUCTURE

ENERGY SECTOR

BACKWARD LOOKING JOINT SECTOR REVIEW REPORT FOR FY 2018/19

October 2019

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List of abbreviations

Abbreviations	
AFDB	African Development Bank
BTC	Belgian Development Cooperation
EARP	Electricity Access Rollout Program
EDCL	Energy Development Corporation Limited
EDPRS	Economic Development and Poverty Reduction Strategy
EIA	Environment Impact Assessment
EU	European Union
FY	Fiscal Year
GOR	Government of Rwanda
HPP	Hydro Power Plant
IAEA	International Atomic Energy Agency
ICS	Improved Cook Stoves
IP	Investment Prospectus
JSR	Joint Sector Review
LCPDP	Least Cost Power Development Plan
LPG	Liquefied Petroleum Gas
LV	Low Voltage
MHPP	Micro Hydropower Plant
MINILAF	Ministry of land and Forestry
MINALOC	Ministry of Administration and Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MINEDUC	Ministry of Education
MOE	Ministry of Environment
MININFRA	Ministry of Infrastructure
MV	Medium Voltage
MW	Megawatt
NDF	Nordic Development Fund
REG	Rwanda Energy Group
SCBI	Strategic Capacity Building Initiative
SMM	Senior Management Meeting of MININFRA
SWH	Solar Water Heater
TL	Transmission Line

1. INTRODUCTION

The Backward Energy Joint Sector Review forum brings together all Sector Working Group (SWG) stakeholders to engage in policy dialogue and to ensure ownership, accountability and transparency of the NST-1 implementation and monitoring process.

Access to reliable and cost effective energy is essential to achieving the desired targets as outlined in the national strategy for transformation NST 1, energy is a critical factor of production and plays an important role in catalysing broader economic growth and contributes significantly to the achievement of the country's social economic transformation aspirations.

In order to realize the desired development objectives, the energy sector aspires to scale up electricity generation, increase access of quality, affordable and reliable electricity as well as enhancing use of efficient cooking energies and technologies. To achieve this, the sector plans are informed by medium and long-term projections and analysis of electricity supply and demand.

1.1. Objectives of the Backward Looking Joint Sector Review.

The backward looking 2018/19Joint Sector Review has the key following main objectives:

i. To assess progress in achieving sector objectives with focus on 2018/19 targets for: NST1 indicators (selected sector performance indicators and their corresponding policy actions. This will also include discussion on catch up plans for areas lagging behind.

ii. To present and discuss budget execution performance for 2018/19.

iii. To highlight priority areas for the 2020/21 fiscal year that will inform the planning and budgeting process for institutions in the sector.

iv. To review progress against implementation of recommendations from the last JSR meetings.

1.2. Methodology.

A consultative approach was used during the preparation of the backward looking JSR report with involvement of all key stakeholders through technical and sector working group meetings. The inputs from the SWG are incorporated into the JSR report.

2. PERFORMANCE REPORT 2018/19 ENERGY SECTOR TARGETS AND POLICY ACTIONS

During the forward looking 2018/19, a number of actions and targets were outlined to be implemented and achieved. This section thus highlights the current progress towards implementation of the 2018/19 sector priorities and key sector policy actions and targets.

Key Energy Indicator Matrix

Sector	Indicator	July 2018	Status as of June18/19	NST1 Target
Energy Sector	Electricity generation Installed in MW	218	224.5 MW	**556**
	% of households with access to electricity (on grid)	35.1	38[1]	**52**
	% of household with access to electricity off grid	11.6	13	**48**
	% of total household connections on grid and off grid	**46.7**	51	**100**
	% of households using traditional cooking technologies	**79.9**	**79.9**	**42**

2.1. Electricity generation capacity

In the fiscal year 2018/19, electricity generation installed capacity increased by 7MW from 218 MW to 225 MW. This increase is a result of new generation capacity of 5MW and 2 MW from newly upgraded Micro hydro power plants. These included the following;

- Rukarara V phase I (2MW) commissioned;
- Rwaza Muko (2.6MW) commissioned;
- Rubagabaga (0.45MW) commissioned;
- Gisenyi plant upgraded from 1.2 to 1.7 MW;
- Mukungwa II upgraded from 2.5 to 3.6 MW;
- Rugezi plant upgraded from 2.2 to 2.6MW;
- Gashashi plant upgraded from 0.2 to 0.28 MW.

Other key ongoing generation projects include:

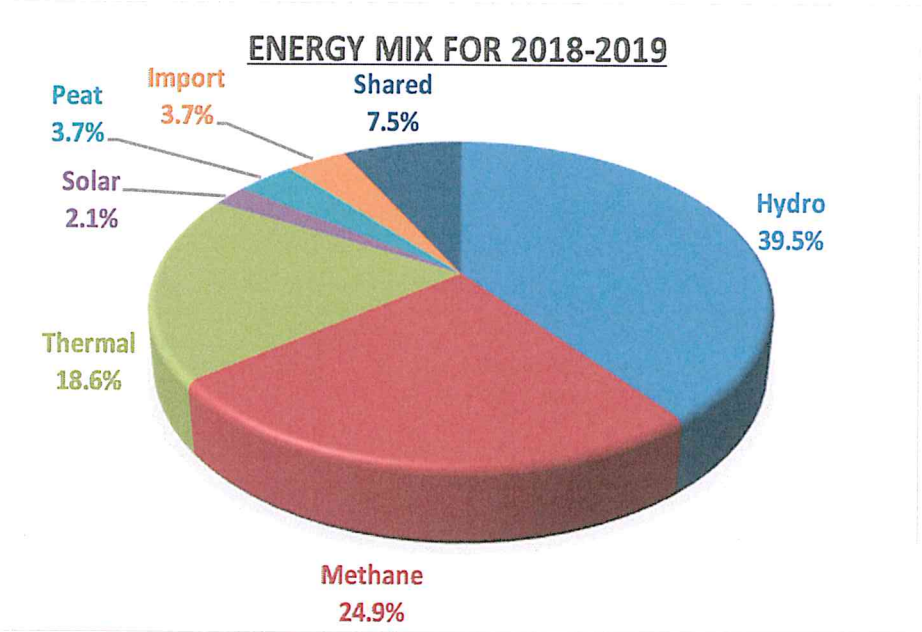
- 80MW Rusumo Regional Hydro Power Plant (Rwanda share 27MW): Construction progress at 53% progress expected to be commissioned in May 2021
- 80 MW Hakan Peat to Power Plant: Construction progress at 90% expected to be commissioned in June 2020
- 56 MW Shema Power Lake Kivu Methane Gas Power Plant: Construction expected to begin before December 2019 completion expected 48 months from effective date.
- 145 MW Rusizi III (Rwanda share 48.3MW): Tripartite agreements signed between Burundi, Rwanda and DRC. Commissioning date to be determined after signature of EPC contract.
- 43.5 MW Nyabarongo II Hydro Power Plant: Financial mobilisation ongoing, CoD 56 months from effective date.
- 50.3 MW Micro Hydro Power Plants ongoing at different stages.

During the 2018/9 Fiscal Year (FY) the total electricity generated increased from 781.4 GWh[2] recorded in June 2018 to 854.4 GWh (both domestic and import refer to Annex3) representing an increase of 9.4 %. During the same period, 4.99 GWh of electricity we exported.

[1] RURA annual report 2018/19

[2] Source: RURA Statistics in Electricity Sub-Sector as of June of the Year 2017 and 2018

Figure 1: Energy Mix



As indicated in the figure above, the share of renewable energy contributes more than 53% of the total electricity generated in the mix with the largest contributor being hydro both locally generated, and shared resources include hydropower plants shared especially between Rwanda and DRC, imports as well as solar power. The government has committed to produce enough electricity to meet the required demand but as well maintain a large share of renewable energy sources in its mix.

The Government through the Rwanda Energy group has continued to implement a least coast power development planning. During the FY 2018/19 REG, updated the LCPDP as per the schedule of updating the generation plan every six months.

2.2 Access to electricity

During the period 2018/19 household access to electricity surpassed 50% households connected both to the grid and off grid for the first time in country's history. This was a result of additional to the grid a total of **146,337**[3] new connections and **83,393** connected through solar home systems in partnership with private sector, which contributed to a total increase in households connected to the grid to **998,166** equivalent to 38% and total households connected to off grid increased to 308,783 equivalent to 14% in June 2018. The total number of households connected to electricity increased by **230,272** households from **1,133,685 (46.7%)** to **1,363,957** equivalent to **51%.**

Compared to the fiscal year 2017/18 household connections in 2018/19 decreased by almost 20,000 connections indicating a 10% decline. This was mainly due to decline in performance by off grid sector and poor performing contracts under rural electrification.

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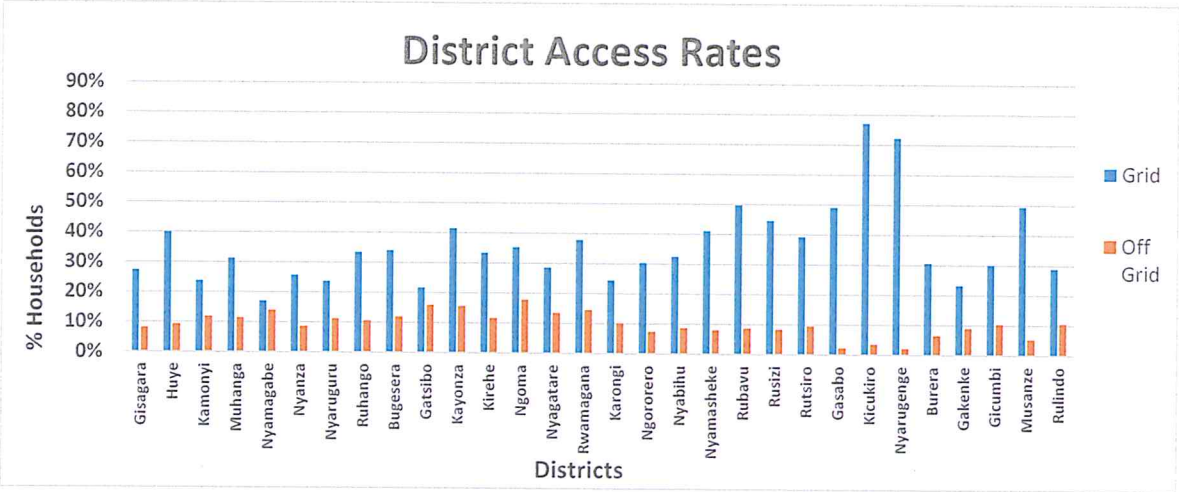
[2] Source: RURA Statistics in Electricity Sub-Sector as of June 2019
[3] REG Annual report 2018/19

Figure 2: District Access Rate



As per the graph above, it is evident that urban areas are performing well in grid connection due to densification which allows easy grid fill in connections. Off grid connections are concentrated in rural areas as per the rural electrification policy and the national electrification plan.

In a bid to accelerate economic growth, 471[4] productive users were connected to the grid in the FY 2018/19.These include water pumping stations, markets; milk collection centres irrigation sites, telecom towers, Tea factories, Schools, Health centres, commercial centres, and model villages among others.

In order to stream line, the implementation of off-grid solutions, the Ministry of infrastructure developed and published in June 2019, guidelines on minimum requirements for solar home system standards as well as guidelines on mini grid development. To implement these guidelines, the Ministry has partnered with the World Bank and Lighting Global to develop a tool that will be used for testing on compliance of solar home systems. Currently the system is in the testing phase and initial training has been conducted.

2.3. Electricity Transmission and Distribution

Improving electricity power supply and reducing transmission and distribution losses requires construction of new transmission lines, upgrading of old existing transmission lines and expanding the distribution network.

2.3.1 Transmission.

By end June 2019, the transmission network increased from 1,139.62 km[5] recorded last financial year to 1,278.82 Km representing an additional 139.2 Km of high voltage transmission lines completed during this period. This increment is attributed to the completion of the following

[4] Source: REG Annual report 2018/19, including details on productive users
[5] Source: REG Annual Report 2018/19

transmission lines; 27 Km of 110kV TL Jabana –Mt Kigali- Gahanga, 110km Rulindo- Musha – Gabiro TL.

Other ongoing transmissions projects include the following;

- 220kV TL: Mamba - Rwabusoro - Rilima: To evacuate power from the country's peat-to power plant in Gisagara District. The project whose construction started in August 2017 is at 90% progress and expected to be completed in June 2020.
- 220kV Single circuit TL: Rusumo – Bugesera- Shango and substations -To evacuate power from Rusumo regional HPP in the Eastern Part of Rwanda. The project contract has been signed in October 2018 and expected to be completed in June 2020.
- 110kv/30kv TL: Mukungwa – Nyabihu and substations -To boost power supply in the North, targeting the planned industrial part in Musanze. In contract signing process. Project expected to be completed in 18 months from the signature date.
- 110kv TL: Rwanada - Burundi TL-To connect Rwanda with Burundi, for future regional power trade. Contract signed in August 2018, project expected to be completed in 2020.

2.3.2 Distribution Projects

The distribution network has continued to grow with growth in demand for electricity. During the period July 2018- June 2019, several distribution projects covering 3,939km (1,106km/MV and 2,833 km/LV) were completed and commissioned across the country. This led to national grid extension to 7,549 km of medium voltage and 16,775 km of low voltage.

2.4. Sustainable use of Biomass and Other Cooking Energy solutions.

During the fiscal year 2018/19, the energy sector target was to promote at least 75,000 households across the tier ladder from using traditional cooking technology to improved cooking technology, In this case over 14, 700 improved cook stoves were dismmeniated and a number of households especially in urban areas have continued to switch to the use of LPG as evidenced in the details below.

2.4.1. Promotion campaigns for clean cooking technologies.

Between July 2018 and June 2019, REG continued with extensive awareness campaigns to promote clean cooking technologies across the country where all 30 districts were covered. During this exercise REG targeted districts, stove producers, retailers of cooking gas, producers and promoters of alternative fuels.

2.4.2. Development of Biomass to energy strategy.

During the FY 2018/19 the biomass energy strategy was reviewed and validated during the June 2019 sector working group meeting. The strategy provides for both short term (2018-2014) interventions and long-term action plan up to 2030 with indicative required budget from both private and public sectors.

2.4.3. Use of Liquefied Petroleum Gas.

In partnership with the private sector, increased investment has been registered establishment and developing storage facilities for LPG across the country whiles others are at the planning stage. In this case, during the FY 2018/19, 5 small scale storage and distribution facilities each with 11-ton capacity have been set up in Rwamagana, Rusiizi, Rubavu Muhanga and more are expected to be completed in the next fiscal year.

2.4.4. Other Biomass Initiatives:

In addition, a feasibility study has been commissioned by the Ministry of Infrastructure in collaboration with European Union on clean cooking technologies in schools to determine the feasible technologies and requirements to implement a pilot project on shifting from the use of wood to cleaner cooking solution. The study is expected to be completed in the first quarter of 2019/20 and more than 400 schools are expected to benefit from the program.

2.5. Energy efficiency and increase security of supply.

2.5.1. Petroleum storage Reserves:

Rwanda imports all its petroleum products since there is no local production. The consumption of petroleum in Rwanda stands at 23 million liters per month. This constitutes about 20% of total national imports and has been steadily increasing in the past five years, with an average annual increase of 12%.

In a bid to enhance security of supply and increase of petroleum strategic reserves to cover three months' supply as envisaged in ESSP, there are projects that are under implementation. The contract negotiations to lease Rwabuye fuel storage facility is ongoing with the contractor ERP; the construction of 60 million-liter national strategic reserves is ongoing and expected to be completed by 2020; so far, so far 32-million-liter capacity has been completed with the remaining 28 million liters expected to be completed by 2020. Currently, the national petroleum storage reserves stands at 84 Million-liter capacity.

2.5.2. Electricity Loss Reduction:

Number of losses both technical and commercial has been reduced to 19.4[6] % from 19.82% with technical losses estimated at 11% and non-technical losses at 8.4% in June 2018. This is a result of a number of projects to improve and strengthen grid network that were initiated with support from development partners, European Union, the World Bank, African Development Bank and JICA. During this FY 2018/19 a number of loss reduction projects have been completed and others are still ongoing. These include: Strengthening of Kigali network that include construction and completion of; Mt. Kigali, Gahanga, Nzove and Ndera substations as well as upgrading Jabana and Birembo substations, Construction of 110kV transmission lines from Jabana-Mt. Kigali-Gahanga, Installation of capacity banks at Birembo, Jabana and Mt.Kigali, Supply and installation of smart meters as well as ongoing construction of different cabins around Kigali city. Other contributing projects completed include, construction of Rulindo, Gifurwe and Gabiro substations

[6] REG Annual report 2018/19

2.6 Cross-cutting Areas

2.6.1 Capacity building

There are a number of on-going initiatives to improve the capacity of the sector through technical assistance and trainings with the support of different partners such as the European Union, African Development Bank, KfW and the World Bank.

In the effort to build a critical mass of skilled Rwandans in energy sector as a contribution to the National Skills development programs, EDCL offered professional internships to 60 interns in different domains (33 professional internships & 27 academic internships). These were equipped with adequate skills to make them competitive on the Rwandan labor market but also most importantly to create more opportunities for employment to the rest of Rwandans in need.

There is also on-going collaboration with the IAEA in capacity building where different stakeholder institutional personnel have benefited from different trainings on energy planning in demand and supply i.e. Model for Analyzing Energy Demand (MAED) and Model for Energy Supply Strategy Alternatives and their General Environmental impact (MESSAGE)

2.6.2 Environment and Gender

Awareness continue countrywide in partnership with the private sector and other stakeholders for the use of more efficient cooking technologies coupled with the dissemination of improved carbonization techniques across the country as some of programs being implemented to reduce the pressure on forests. The awareness campaign for LPG use mainly in Kigali city and secondary cities is also a priority.

The Environment Impact Assessment (EIA) as a precondition to all power projects and the protection of rivers near Micro Hydro projects is one of measures taken for the protection of environment.

Gender is another cross-cutting issue which is always considered during the implementation of government and donor funded 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.

However, challenges due to minimal number of qualified personnel in have been encountered at higher technical levels

The sector in partnership with USAID Power Africa and Women in Rwandan Energy (WIRE) are conducting an energy sector gender audit and the results are expected to inform policy decision towards further improvement of gender mainstreaming in the energy sector.

3. KEY SECTOR CHALLENGES IN IMPLEMENTING NST AND WAY FORWARD

Limited Access to off grid electricity. There has been a slump in off grid connections due to reduction in incentives and lack of clear coordination plan. However, with the development of NEP and the entry of different financing facilities in the sector such as the Renewable Energy Fund

supported by the World Bank. The numbers are expected to surge compared to last year. In addition, improvement in grouped settlement would lead to increased connections.

Matching increase in population with network expansion and reliability: Meeting high level of quality of supply to improve operations of customers and anticipated growth of industrial parks remain a challenge; REG has developed a transmission and distribution master plan[7] to elaborate the investment required to improve the network. In addition, over last three years, 70% of the government expenditure has been invested in improving transmission and distribution network through construction of transmission lines and related substation as well as upgrading network in different parts of the country that are affected with perpetual power interruptions due to increased demand from the growing population and productive uses.

Insufficient strategic fuel and gas storage reserves and distribution points. This continues to be a challenge especially for areas outside Kigali and poses a threat to the national energy security targets exposing the country to price vitality risks and as well affects the ease of access to LPG respectively. The Ministry of Infrastructure has partnered with Global LPG Partnership to develop an LPG penetration master plan. The activity is expected to commence in the next financial year.

Over 7[8]9% on the national population still rely on the use of traditional and inefficient ways for cooking. This causes health problems, environmental degradation and as well as financial and economic challenges to the community. This has been due to lack of adequate investment in the sub-sector. The development of the BEST and Long Term Action Plan would provide a clear framework in which the subsector can improve. In addition, the Ministry of Infrastructure with support from European Union is conducting evaluation for the National Biogas programme that ended in 2016 to inform policy direction on the revival of the programme and the best biogas technologies that can be used.

Capacity challenges: Need to increase capacity development to cater for new emerging complex technologies and realities required in the management of the sector.

4. BUDGET EXECUTION FOR THE FISCAL YEAR 2018/19

Programme/Sub-Programme	Allocation (bn Frw)	Execution (bn Frw)	% Execution
Programme: Administrative and support	**13.7**	**13.3**	**97%**
Sub Programme: Administrative and support	13.7	**13.3**	**97%**
Programme: Fuel and Energy (Domestic Finance)	**85.08**	**84.33**	**99%**
Sub Programme: Electricity Generation	7.15	7.1	99%
Sub Programme: Electricity transmission and distribution	64.3	63.6	99%
Sub Programme: Alternative energy sources	1.2	1.2	100%
Sub Programme: Energy efficiency & supply security	9.3	9.3	100%
Sub Programme :Energy Program Under Districts	3.13	3.13	100%
Programme: Fuel and Energy (External Finance)	63.04	54.24	86%
Sub Programme: Electricity transmission and	56.9	49.2	86%

[7] REG Transmission and Distribution Master plan 2019

[8] National Institute of Statistics for Rwanda –Integrated Household Survey (EICV) V

distribution			
Sub Programme: Energy efficiency & supply security	6.14	5.04	82%
Total Energy Sector	162.82	151.87	94%

Energy sector has one development budget program "Fuel and Energy "and 4 subprograms as well as the Energy program under districts (Government allocation under MINALOC/LODA). Electricity transmission and distribution subprogram takes 85% of the total budget while generation, energy efficiency and security supply subprograms represent respectively 4 % and 7.1 % of the total budget respectively.

As indicated in, budget execution for domestically funded projects was positive, however the challenges were encountered in execution on external funded projects and this was mainly caused by poor performance of some contractors especially in distribution and transmission as well as procedural delays on some development partner funding.

5. PRIORITY AREAS FOR THE 2020/21 FISCAL YEAR

The key priority areas to be considered during planning and budgeting for the 2020/21 Fiscal Year will be:

1. **Implementation of on-going generation projects:** Committed generation projects in micro hydropower plants, methane, peat and regional Hydro power plants will be monitored for timely implementation.
2. **Electricity access rollout**: Focus will continue to be on connection of households to both grid and off grid connections: Government funding will mainly focus on social and productive use areas and the private sector support is envisaged for reaching off-grid electrification targets through implementation of facilities such as result based financing (RBF).
3. **National grid network strengthening and expansion:** The government will also focus on network upgrade initiatives, transmission system expansion and protection.
4. **Street Lighting:** Provide existing major national and urban roads with street lighting in partnership with RTDA and Districts.
5. **Promotion of biomass alternatives:** Biomass alternatives such as use of LPG in urban areas and large institutions, whereas use of Pellets, Briquettes, and Biogas systems will be will be encouraged in rural areas.

6. UPDATE ON THE PREVIOUS JSR RECOMMENDATIONS

During the 2018/19 FY, the Forward Looking Joint Sector Review report was discussed and approved during the 18th June 2019 Sector Working Group Meeting. The Ministry also organized an extra ordinary sector working group meeting on 29th August 2019 to validate the report on minimum energy performance standards for household and street lighting. Most of the recommendations on the discussion items were implemented and key ones have been captured in this report.

a) **REG to engage companies that supply clean cooking stoves and report regularly:** REG is in a testing process for the available types of stoves to see whether they meet required

specifications. This will be followed with signing a MoU with producers on regular reporting.

b) **Incorporating comments on LCPDP:** Comments incorporated and revised LCPDP updated. Published on MININFRA and REG website

c) **Incorporation of budget to the Biomass Strategy:** TWG meeting held after the sector working group meeting and discussed the budget issue. The budget for the strategy has been elaborated and incorporated in the validated strategy.

d) **REG to finalise testing of available clean cook stoves, and thereafter sign MoU's with relevant producers on regular reporting:** 33 types of stoves were tested, and their performance parameters were identified. Moreover, 10 types of alternatives fuels were tested; these are either briquettes or pellets

e) **MININFRA to engage the Ministry of Environment to make a presentation on guidelines for green charcoal development in the next SWG:** The Ministry of environment finalized the guidelines and shared with the Biomass technical working group meeting.

f) **MININFRA to organize a workshop with private sector on implementation of the guidelines on Mini Grid Development, and conduct awareness campaigns;** Plans are ongoing with the different stakeholders (REG, RDB and RURA) to organize the workshop with private sector and development partners.

NOTE: By the time of reporting the Office of the Auditor General was still conducting audit for REG 2017/18 fiscal year, the report is expected to be available in November 2019.Thus Implementation status of 2017/18 OAG report recommendations will be reported in the subsequent joint sector review reports.

7. INSTITUTIONAL, LEGAL AND REGULATORY FRAMEWORK AND ANALYTICAL STUDIES

During the FY 2018/19 various sector documents i.e. laws, policies, strategies and studies were elaborated and approved while others are still under development:

- The Electricity law was amended to streamline governance of the electricity sector with reference to the new challenges. The amended law was adopted and published in the official gazette on 13th August 2018.
- The development of the Biomass energy strategy and action plan was concluded
- In order to optimize generation planning, the periodic update of the Least Cost power development plan was finalized
- New National electrification plan was developed to enhance least cost electrification planning
- Guidelines on minimum requirements for solar home systems standards have been developed and published to streamline service level delivery especially in rural electrification.

- Guidelines and licensing frameworks for the development of mini grids were developed and validated by stakeholders to guide and ease private sector involvement in the development of the mini grids.

Signed, on 9.9.19/October/2019

Patricie UWASE
Permanent Secretary and,
Chair of the Energy SWG
Ministry of Infrastructure

Norah KIPWOLA
Representative of the Lead Donor and,
Co- Chair of the Energy SWG
World Bank Group

Annex.1.1: NST 1 MONITORING AND EVALUATION MATRIX

No	NST 1 Outcome	Indicators	Units	Baselines 2016/17	Target 2018/19	Current status 2018/91	Targets		Responsibility for reporting	Data Sources	TL
							2020/2021	2023/2024			
Economic Transformation Pillar											
15	Reduced biomass usage for cooking	Percentage of households using firewood for cooking	Percent	79.9 (EICV5)	83	79.9 (EICV 5)	66.6	42	MININFRA, Energy Sector	MININFRA Reports, EICV	
Social Transformation Pillar											
28	Increased access to basic infrastructure (water, sanitation, electricity, ICT, shelter) achieved	D. Percentage of households with access to electricity	Percent	34.4 (EICV5)	51.5	51	71.5	100	MININFRA, Energy Sector	MININFRA reports and EICV Survey	

Annex. 1.2 Sector Indicators Matrix (For the selected 10 sector indicators)

NB: The 10 Sector selected indicators (including theNST indicators) should be consistent with those reported in the 2018/19 Backward Looking JSRs

No.	NST /SECTOR OUTCOME	INDICATOR	UNIT	BASELINE (2017/18) VALUE	2018/19Targets	Actual Performance	Indicator Score	Policy Actions	Brief Narrative Progress against Policy Actions	Catch up Plans for areas lagging behind
Economic Transformation Pillar										
1	Increased Electricity generation to meet demand and reserve mergin of 15%	Electricty generated in MW	MW	218	227	224.5		Completion of Kavumu 0.4 MW, Kigasa 0.2MW Rukarara V & Mushishito 5MW, Muhembe 0.3MW, Rwaza I-Muko 2.6MW , Completion and commissioning Gisenyi 0.6 MW Hydro power plant and Mukungwa II 1.0MW	**New MHPP commissioned :** •Rukarara V phase I (2MW) •Rwaza Muko (2.6MW) • Rubagabaga (0.45MW) **MHPP upgraded:** • Gisenyi plant upgraded from 1.2 to 1.7 MW; • Mukungwa II upgraded from 2.5 to 3.6 MW; Rugezi plant upgraded from 2.2 to 2.6MW; • Gashashi plant upgraded from 0.2 to 0.28 MW.	
2	Existing and New major national and urban roads Provided with street lighting	Number of Km of street lights installed	km	805km	48 km of street lights installeds	17.5km instalation completed		Monitor installation of streetlights on all new major national and Urban roads. Monitor installation of streetlights on existing major national roads and urban roads	Construction and installation for 97 km commissioned in areas of Nyaruguru, Nyamasheke and Nyamagabe . By end June 2019, 13.5km installation completed in Ntendezi-Gisakura. 4km out of 32 completed in Pindura -Bweyeye and 80% of 28km completed on Kitabi- Pindura	REG is continuing with the construction of more 28 km expected to be energised in October 2019 Procurement is ongoing for 631km to beimplemented in 2 years
3	Petroleum strategic reserves increased to cover three months' supply	Additional Capacity of strategic oil reserves in Million Litres	Additional litre	74 million Litres	Additoional 60 million litres to be completed by 2020	32		Monitor rehabilitation of Rwabuye fuel reserves. Monitor the construction of the additional. Expropriation along the buffer Zone for the 60 million litres Strategic fuel storage facility monitored.	By end June 2019, construction of 32 million liter facility has been ccompleted. Construction is ongoing for the remaining 28 m liters	

4	Halve the number of HHs using traditional cooking technologies to achieve a sustainable balance between supply and demand of biomass	% reduction in biomass usage	percent	8330.00%	83	79`9 (EICV 5) data.		At least 75,000 HHs will be promoted across the tier ladder in the cooking sector. Continue Awareness to gradually eradicate use of charcoal and promotion of clean cooking technologies in restaurant and hotels (LPG, ICS and Biogas) Create District Associations and ensure quarterly meetings reporting of distributed improved cooking technologies Technical inspection of existing domestic and institutional biogas systems; Develop action plan for implementation of biomass energy strategy. Implementation of regulatory frameworks to reduce biomass usage.	Actual results of households using clean cooking to be provided by survey results 2019/20. dissemination of Improved Cook stoves is purely a private sector-led entreprise with government role kept at quality assurance and user education. In line with this, along the year ending, EDCL trained 34 private operators(poducers of stoves and alternative fuels as well as promoters) Promotion of LPG use has been developed in partnership with private sector. Extensive awareness campaigns to promote clean cooking technologies awere conducted in all 30 district districts 727 biogas systems were inspected in cooperation with districts and biogas constructions companies. 113 were rehabilitated. Biomass strategy action plan and indicative budget developed indicating short term and longterm measures and required contributions from GoR and private sector.	MININFRA has commissioned a biomass survey which will provide the actual status of the sector. Results are expected end june 2020. MININFRA in collaboration with European Unionto implement a project on clean cooking technologies in 400 schools to n shifting from the use of wood to cleaner cooking solution. Continue awareness campaigns and encourage more private sector participation in cooking energy supply chain
5	Improve energy efficiency and reduce losses	% of loss reduction		22	20	19.45		Implementation of loss reduction projects: Kigali Distribution Network Strengthening by upgrading distribution lines and transformers	**Loss reduction projects completed:** **1. Substations** Mt. Kigali, Gahanga, Nzove and Ndera substations as well as upgrading Jabana and Birembo, Rulindo, Gifurwe and Gabiro **2. Transmission Lines conmpleted** 110kV transmission lines from Jabana-Mt. Kigali-Gahanga. **3.** Installation of capacity banks at Birembo, Jabana and Mt.Kigali, Supply and installation of smart meters as well as ongoing construction of different cabins around Kigali city.	
Social Transformation Pillar										
6	Increased access to electricity for households and enterprises	Households with access to grid electricity	Number of Households connected to the grid	793,966 connections (32.7%)	35.1%	38%		Complete construction HV transmisssion lines and Substations. Construction of MV and LV lines including installation of transformers to increase access to electricity by 134,788 households and 223 productive areas.	• Completion of 139.2 km of HV transmission lines (110 kv) • Completion of 3,939 km of MV & LV lines (1,106 Km of MV & 2,833 KM of LV) • A total of 146,337 households were connected to the grid against the planned 134,788 household connections. • 471 productive use areas were connected to electricity	
7		Households with access to off-grid electricity	Number of Solar Home systems installedHouseholds connected to the grid	172,486 connections (10.8%)	12%	13%		Implementation of Rural Electrfication Startegy. Continue awareness campaign and minitor prvate compagnies involved in dissemination of solar home systems.	83,935 Households were connected using off grid solutions.	

Annex.2.1: Execution Performance against Domestically and Externally Financed Budget

Programme/Sub-Programme	Allocation (bn Frw)	Execution (bn Frw)	% Execution
Programme: Administrative and support	**13,7**	**13.3**	**97%**
Sub Programme: Administrative and support	13,7	**13.3**	**97%**
Programme: Fuel and Energy (Domestic Finance)	**85,2**	**84.5**	**99%**
Sub Programme: Electricity Generation	7.15	7.1	99%
Sub Programme: Electricity transmission and distribution	64.3	63.6	99%
Sub Programme: Alternative energy sources	1.2	1.2	100%
Sub Programme: Energy efficiency & supply security	9.3	9.3	100%
Sub Programme :Energy Program Under Districts	3.13	3.13	100%
Programme: Fuel and Energy (External Finance)	63,14	54.2	86%
Sub Programme: Electricity transmission and distribution	56.9	49.2	86%
Sub Programme: Energy efficiency & supply security	6.14	5.04	82%
Total Energy Sector	**162**	**152.2**	**94%**

Annex 3 (Generation data July 2018 to June 2019 GWh)

Plant name	Type	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Total GWh
Cyimbili	Hydro	0.14	0.29	0.24	0.27	0.94
Gaseke MHPP	Hydro	0.21	0.22	0.16	0.31	0.90
Gashashi	Hydro	0.16	0.18	0.17	0.19	0.69
Giciye I	Hydro	3.06	3.47	2.92	4.23	13.67
Giciye II	Hydro	2.00	3.63	3.03	4.51	13.16
GigaWatt Global	Solar	3.62	3.20	3.39	3.19	13.41
Gihira	Hydro	2.31	2.33	2.24	2.76	9.65
Gisenyi	Hydro	2.16	2.51	2.63	2.48	9.78
Gishoma Peat	Peat	23.99	7.23	0.00	0.12	31.34
Jabana I	Thermal	1.95	5.42	6.57	6.49	20.42
Jabana II	Thermal	26.85	21.35	30.43	25.55	104.19
Jali Solar	Solar	0.04	0.03	0.03	0.02	0.12
Keya	Hydro	1.59	0.95	2.33	2.80	7.66
Kivuwatt	Methane	55.47	54.14	53.87	49.65	213.12
Mazimeru	Hydro	0.55	0.55	0.54	0.38	2.03
Mukungwa I	Hydro	12.94	18.74	10.17	8.80	50.65
Mukungwa II	Hydro	0.00	0.83	2.87	3.26	6.96
Murunda	Hydro	0.10	0.16	0.16	0.16	0.58
Musarara	Hydro	0.70	0.56	0.61	0.83	2.70
Mutobo	Hydro	0.38	0.31	0.33	0.34	1.36
Nasho Solar	Solar	1.28	1.07	1.09	1.09	4.53
Nkora	Hydro	0.53	0.57	0.58	0.63	2.31
Nshili I	Hydro	0.00	0.00	0.34	0.49	0.82
Ntaruka	Hydro	10.28	7.87	3.14	2.84	24.13
Nyabahanga	Hydro	0.25	0.11	0.01	0.20	0.58
Nyabarongo I	Hydro	24.24	27.68	29.10	36.14	117.15
Rugezi	Hydro	2.22	2.58	1.72	3.41	9.93
Rukarara I	Hydro	8.26	9.73	9.44	11.27	38.70
Rukarara II	Hydro	2.87	3.16	2.88	3.51	12.42
Rukarara V Mushishito	Hydro	0.00	0.00	0.00	0.96	0.96
Rwaza Muko Hpp	Hydro	0.00	3.77	2.73	3.03	9.53
So Energy Birembo	Thermal	0.01	0.19	0.14	0.93	1.27
So Energy Masoro	Thermal	0.80	1.00	2.56	4.61	8.97
So Energy Mukungwa I	Thermal	0.79	4.04	8.57	10.42	23.82
Total Domestic		**189.75**	**187.85**	**184.97**	**195.87**	**758.43**
Total Imports	**Import**	**23.55**	**25.67**	**24.81**	**21.96**	**95.99**
Total Generation		**213.29**	**213.51**	**209.78**	**217.83**	**854.42**